MEETING MINUTES

Nov 13, 2020

1:00 PM-3:00 PM

Ad Hoc Group- CAST CONCERNS

**Attendees:**

* Loretta Collins, UMD CBPO
* Bill Angstadt, Angstadt Consulting
* Emily Dekar, NY Upper Susquehanna Coalition
* Brady Seely, PA DEP
* Mark Dubin, UMD
* Olivia Devereux, Devereux Consulting
* Tim Sexton, VA DEQ
* Jessica Rigelman, CBPO
* Jeremy Hanson, VT
* Clint Gill, DE
* Cassandra Davis, NYS
* Kate Bresaw, PA DEP
* Ted Tessler, PA DEP
* Jason Keppler, MDA
* Whitney Ashead, CRC

**CAST-21 Workplan Progress Updates (15 min)**

* There has yet to be a consensus on approving the CAST-21 Workplan from the WQGIT
* “Rules of the Road” document for submitting data is in progress
* **Task 3:** NASS has been consulted on this error and NASS agrees that the correct method was taken by the Bay Program to calculate the fallow acres in the 2017 census. The land use team also did not see any clear issues. There has not been a resolution yet and additional data from WV would be needed to prove that the numbers might be incorrect.
* **Task 4:** Peter Claggett and Jacob Czwalykto will revisit the AgWG in February for a decision on agricultural mapping and forecasting methods.
* **Task 5:** NASS has been consulted and there is no new information.
* **Task 6:** Considering supplemental NM for soybeans
  + **Bill Angstadt:** Some of the confusion is that in the NM expert panel they assumed that N would not be applied to soybeans and so there was no need for supplemental N nutrient management on soybeans and indeed as we started Phase 6 we follow that and had full-season soybean and soybeans and small grain land uses as not eligible for manure.
  + **Loretta Collins**: We will revisit that [today].

**Additional CAST Concerns: Review of Next Steps & Lead Assignments (40 min)**

Loretta Collins facilitated a discussion of CAST concerns relayed by the states, picking up from October’s call. The AgWG requested that the ad hoc group provide recommendations on how to prioritize these items. Concerns were captured in a summary shared with the AgWG on Oct 15th with a request for feedback over e-mail. Very little feedback was received. Further AgWG discussion of how to move forward will occur on the Nov 19th monthly call.

Some issues not discussed in October:

1. Dairy Precision Feeding (MUN as metric for implementation)
2. Heavy Use Area Protection & Loafing Lot Management
3. Review of “manure-eligible” (Fertilizer Only) Land Uses and Crop Types

**Open Discussion/ Wrap Up**

* **Bill Angstadt:** In Phase 6, we started with full-season soybeans and small grain soybeans non-manure eligible. The nutrient application assumptions in CAST do allow N application on full season and double cropped soybeans so somewhere along the line this has gone positive so I’m satisfied that what we have now in this crop nutrient application timing which allows us to do N and P on soybeans both from manure and from fertilizer is the correct way to go.
* **Jess Rigelman:** There are 3 agricultural land uses in CAST that can have NO manure no matter what. That is grain and silage without manure, and ag open space. All other land uses can get manure and then that application timing table basically has by county, by crop, by land use, by nutrient whether or not the days after planting are fertilizer only or not fertilizer only meaning it can get manure. Each state has the ability to update that data as they want to say yes or no. If you want no manure application on soybeans you just make all of those fertilizer only. One thing to keep in mind with that as we are talking that fertilizer only equals no, meaning it can get manure, remember that crop need that is satisfied with manure and/or biosolids is going to use the N crop need. If you have an application that has a N application which allows manure and a P application that does not allow manure it does not really workout because you are applying manure with the N and P. Remember that if you apply N in April and you do not have an associated P application that is fine but if you have another P application in June that is fertilizer only the P that went down from the manure in April does not get counted to the June application. Each application is separate so keep that in mind when looking at these items so days after planting will have to be used in the spreadsheet with plant harvest month and day for that crop. It is all under your control.
* **Bill Angstadt:** I did see several situations where manure could be applied for N but P can be fertilizer only which is not feasible but Olivia and I have talked about that before. When I’ve looked at this chart before I’ve looked at the timing issues. If we are going to have a study group look at this issue going forward then again looking at some of these timings because it is typically on P and in PA there is very little P going down before planting and some of these have 80-85% P going down 15 days before planting and those really aren’t realistic anymore.
* **Olivia Devereux:** I think people get a little off-track because we are so used to looking at loads that come out of the model that are annual loads and we forget that nutrients are applied as specific dates related to planting. It sounds like, Bill you got what Jess was saying.
* **Tim Sexton:** In regard to the N application, the N in soybeans would be carried forward to the next crop. As far as P is concerns that is allocated if it exceeds the needs of the existing crop it is carried forward over the course of 3-years so it does not really matter when it is applied and the model looks at that over the course of a yearly basis so its no big deal. You could apply N in the fall in your manure and only 50% of it might mineralize for the crop that year, you would have to account for that as you go forward for the next crop and decrease the amount of N that gets applied to your corn crop that follows that. The model is going to carry forward your organic applications anyway and you are going to have to take a look at that. There is no enhanced NM on soybeans because you are carrying it forward.
* **Olivia Devereux:** Thanks Tim, that is all taken into consideration in the model and the soil phosphorus that is used and the loading rates for each of the land sources.
* **Tim Sexton:** Now in P at planting if banding is done of the P instead of broadcast then you can get an enhanced credit for that because that is placement so we could get a nutrient reduction for that.
* **Loretta Collins:** Most things are manure eligible except within those two crop categories from my understanding.
* **Bill Angstadt:** Loretta, to your question on process **-** the crop nutrient application timing chart that is embedded in CAST allows us to use N from manure or ammonia-sulfate for soybeans, supplemental nutrient management from soybeans, pasture N and management for manure and fertilizer so I am happy.
* **Loretta Collins:** Right now, we are good with the manure eligibility. Bill is happy so we can cross that off. Is there still an issue with the nutrient spread curves related to this Bill or are we alleviating that issues as well?
* **Bill Angastadt:** To change the approach at this point isn’t really going to make any difference, is that right Tim?
* **Tim Sexton:** That is correct.You can apply manure to it and report any practice that you do, the advantage to that is that if you report that into NEIEN the model will continue to track that and give credit to the crop and hay acres instead of assuming you had used up everything and not credit your crop and hay acres properly. It will note that you are tracking your pasture acres.
* **Loretta Collins:** Okay, NY are you both okay with where we are right now?Not hearing anything it sounds like we can take the pasture NM off the table at this point.
* **Bill Angstadt:** The progress so far on the Dairy Precision Feeding is that we got Virginia Ishler from PSU who has substantial research on MUN from dairy herds. She has a research paper that has been published showing that 70% of the dairy herds in her research project have a lower MUN. She was using a breakpoint of 12mg/lg that is in line with the NRCS standard.
* **Tim Sexton:** Katherine Milton at VT has done some work with precision feeding for the past 10 years.
* **Bill Angstadt:** Dr. Ishler and Katherine were on the 2019 Simpson-Weimer expert panel. So, we have got that work.
* **Loretta Collins:** I have you as the lead on this Bill, so what is the next step?
* **Bill Angstadt:** The next step is to talk about verification. We have Jennifer Reed Harry from Penn Ag industries in a discussion with Ron Ohrel who is on the AgWG about reaching out to the Dairy Processors Co-Ops because they are collecting MUN data from every milk delivery so that we would be able to now do a sub-population verification as indicated in the ag protocol for this BMP so Brady is writing up with Ted in VA a narrative of our path forward. Jennifer and Ron are reaching out to see what aggregated data is available from the dairy co-op to move towards verification. We are moving forward from instead of reporting individual cows to reporting the percentage of the dairy herd in PA that is reaching this BMP in the same methodology that is being used for swine and poultry phytase.
* **Loretta Collins:** For poultry and swine, from my understanding, phytase is just a general practice. Is dairy precision feed becoming more of a universal practice than an outlier?
* **Bill Angstadt:** Well the economics of dairy farming whether it is from the nutritionists or dairy farmers they are getting very stingy on managing protein in the diet. There is no sense in feeding and buying excess protein. The industry is pretty widely accepting. The benchmark we are using is that 70% are using good practices.
* **Jason Keppler:** Bill, what is the threshold for the bulk urea nitrogen test that you guys are using?
* **Bill Angstadt:** Dr. Isler is using 12% or 12% and below. She is finding herds in the 8-10% range and a minority in the 15% range.
* **Jason Keppler:** That will vary per herd. It sounds like what you are all trying to do is to take those figures and average them out across each of the co-ops and milk producers. I am trying to understand the link between the individual values at the farm level and how that is being scaled up to more of a production or industry level.
* **Bill Angstadt:** I think that phytase for swine and poultry is a 90% credit. We are not quite at that level we are talking about 70% level meeting that BMP which our research on individual herds substantiates but then we are going to go to the milk co-ops such as VA and MD co-ops working with Turkey Hill. The milk producers on each check has MUN on that so we are hoping that they can aggregate that data so we now have that as verification to determine if the 70% assumption on PSU research actually holds up in real world to do a credit for the total number of cows in the Pennsylvania watershed.
* **Tim Sexton:** I would be interested to look at the data and see what goes from there.
* **Jason Keppler:** Would the proposal be to modify this for all dairy within the watershed or just from PA. I am just trying to see if there is applicability of crossing state lines and being able to utilize this more broadly.
* **Bill Angstadt:** Yes, it would be broadly available across all of the dairy herds in the six states.
* **Mark Dubin:** I just wanted to mention I was involved in that original panel and wanted to note a correction there. We are no longer tracking phytase as a BMP and other monogastric livestock those have been replaced with the broilers, turkeys, and swine.
* **Bill Angstadt:** That clarification is good because we are thinking about doing the same thing with dairy so that rather it being a barnyard BMP that it would be an animal waste management BMP so that it changes the loads rather than reduces the loads the same way phytase is currently being handled.
* **Jason Keppler:** I would like to follow up more about this offline at some point.
* **Loretta Collins:** This is what I was getting at that at some point if dairy precision feeding is becoming the norm and everything else is becoming the exception we are just looking at it differently as far as the manure analysis.
* **Bill Angstadt:** The bottom line is that we have this process going on in PA with both Penn State and the dairy industry so we are making progress and we will keep you informed as we go forward.
* **Loretta Collins:** That being said, will we have this ready for action by September in CAST-21?
* **Bill Angstadt:** It is again as we talked last time, it is not an expert panel issue. It is a reporting and tracking issue so PA intends to certainly be ready to track and report this by Sept. 2021 and have the Chesapeake Bay Partnership recognize this statistical process.
* **Loretta Collins:** I guess we need to back up a little bit from September and understand that this needs to get through AgWG, WTWG, and the WQGIT before September potentially. I just want you all to keep that in mind. We can have it on there as a CAST-21 issue. The ball is in your court to follow through with this process and stay in touch with me to make sure we are giving groups enough time in order for people to make a decision
* **Bill Angstadt:** Instead of CAST-21 you would want it to be described as a CAST-21 Progress Run.
* **Loretta Collins:** Yeah so that would be like in December [2021], okay. Assuming you get sign-off from everyone. That is what we will do. We will caveat that with a timeline to report CAST-21 Progress. Whatever narrative is being constructed needs to be reviewed by the partnership, particularly if you want to do this watershed-wide.
* **Ted Tessler:** I want to reiterate that the BMP has already been developed. From my initial conversations with Dr. Ishler, we want to try and prevent her from recreating the expert panel but really try to focus on the MUN data and how we can use that as a proxy to demonstrate the adoption and utilization of the practice.
* **Tim Sexton:** I would like to see how that compares to a reduction in phosphorus and nitrogen in the manure analysis since that is really what is hitting the ground and since we got hundreds and hundreds of samples going back to 20 years we could look at all of our dairies and run a comparison. If I can get the breakdown on what we got in VA that is what we could take a look at and see what we come up with.
* **Ted Tessler:** Right, the manure residual analysis would be the holy grail of it and that is ultimately where it is going but having that MUN data as readily available now and the credit exists now. There is kind of a short path which is demonstrating the adoption of the practice and the longer path which is actually doing the manure residual levels.
* **Mark Dubin:** I just wanted to note that there is volatility within the year for the MUN numbers and as feed changes for the animals we will just need to see how we can represent that in a way that looks at the annual value that creates that BMP crediting for an annual practice.
* **Ted Tessler:** Thanks, Mark.
* **Loretta Collins:** Anything else on this topic? The other one that we can talk about is Heavy Use Area Protection (HUAP). This is something that PA has brought up on this issue from my perspective on this I think the issue is allowing NRCS-561 to be considered with loafing lot management.
* **Ted Tessler:** Loretta, I am thinking that some states may do this differently, but the poultry pad issue is a separate category. We do not have poultry pads going into HUAP. We are thinking that definition does meet loafing lot management it is basically part in parcel. We are not getting credit in the barnyard that again is an issue where the sediment and nutrient losses in these trampled areas are not getting credited through that practice when they should be. I’ve heard from Olivia that there is animal waste management systems and barnyard runoff control but they are not entirely inclusive in the way we are reporting them. We thought other states might be interested in changing them as well.
* **Loretta Collins:** I know that different states have different BMP names and they go through a system in NEIEN and pop out as something that pertains to the Bay Program. I’m not sure how we would parse out if tracking and reporting in PA is done differently than in other states. The NRCS cross walk on CAST right now is watershed wide. Is there interest in the other states to deal with this?
* **Clint Gill:** I was just looking in terms of the poultry and Jason and Jeremy had pointed me to the animal waste expert panel and its got a recover-ability factor of 99% so I don’t think there is really a point in doing this for poultry I don’t think.
* **Mark Dubin:** I agree.
* **Loretta Collins:** If that is off the table, and having PA issue as having NRCS 561 as reportable as loafing lot management – does that conflict with anything in how the other states do it as far as you all know? I imagine there was probably a rationale at one point for not doing it but I’m not sure.
* **Mark Dubin:** I was wondering, is part of your issue related to the crosswalk with the NRCS BMPs and the Bay BMPs on this?
* **Ted Tessler:** Yes, that would be a fundamental issue.
* **Mark Dubin:** I think right now the crosswalk focuses on roof water management as a primary NRCS practice, correct?
* **Ted Tessler:** Yes, roof run-off structures are the main mappers there.
* **Mark Dubin:** Yes, and HUAP involves roof run-off management
* **Ted Tessler:** Yes, but not necessarily inclusive of both, they can be reported separately.
* **Mark Dubin:** So maybe first we need to focus on the crosswalk?
* **Loretta Collins:** Yes
* **Mark Dubin:** Yes, so that is probably a discussion that we can have with NRCS, Olivia, and USGS about.
* **Loretta Collins:** Okay.
* **Mark Dubin:** Ted, we are moving ahead with that pilot project there for PA with NRCS data and I imagined that we would probably have to do look at the crosswalk as part of that. So I’m wondering if this is something we can include as part of that effort.
* **Ted Tessler:** I think it is a potentially included assessment, but I could probably give you a much faster answer in how our field offices are reporting these practices as they are implemented and separately.
* **Loretta Collins:** That is why I was kind of thinking we could do that in the watershed technical workgroup. PA seems to have a grip on how they report it but my question is are these split out in all the same ways across the states.
* **Ted Tessler:** They (the BMPs) may not be.
* **Loretta Collins:** Ted, would you like to take lead on this issue?
* **Ted Tessler:** Well really what we need is a survey of the states.
* **Loretta Collins:** Would you be willing to go to the WTWG and do a survey of the states?
* **Ted Tessler:** I could but really it is an agriculture issue, and I would prefer to go to the agriculture experts, but it could be in the WTWG.
* **Loretta Collins:** Yes, we can go to the agriculture experts. Maybe on the November call we can craft off-line what you are looking for so we can put out a request to the states to provide how they track these things and that way we can see where all the states are and the workability on them . I will put Ted as lead, and I will help you out.

**ACTION:** Loretta Collins and Ted Tessler will work collaboratively to put a request forward to the AgWG on how they track HUAP.

* **Loretta Collins:** The winter crop issues is an expert panel issue and how long expert panels take and when the next model is happening are things to consider. If time allows I can reach out to Charlie White and look at bringing his research to the AgWG to have the initial conversation sometime in the Spring or Summer after we knock out the things we already have on the workplan. I don’t’ know if we really have a lead on that but I will start on that process of giving some airtime to this issue during the AgWG. Any other thoughts?
* **Loretta Collins:** Manure treatment and transport is a bigger issue that perhaps might be a Phase 7 watershed model issue. As I mentioned earlier, we are starting to get into what the next watershed model for the CBPO means in general and I think those are conversations that will need to start after we get over the climate change hump at the partnership. I think as we look at how we are dealing with agriculture issues in general I am working with the CBPO to identify timelines with that, so I think that is kind of a hold. This one is a long game thing. Are there any other thoughts?
* **Loretta Collins:** The only thing we have left is the ag data inputs. These are all kind of Task 1 Workplan issues. These are things we are always on the move on. As far as dairy, I am starting to dip my toe in the water of how we can use the dairy NASS survey. If we can figure out a way to use NASS annual data for survey maybe, we can do something similar to what MD brought up with equine and beef. These are very divergent operations so it can be challenging to get uniform data on them.
* **Mark Dubin:** I wanted to note that the annual NASS surveys only apply to major production groups so smaller population of livestock are not going to show up in any report. I also wanted to note that NASS does not track equine.
* **Loretta Collins:** Good to know, I don’t know that there is any other data, but we will see and I will start with dairy to see if there is any workable. The industry data is a lot more complicated and Mark has been working through some of those things. Mark, I do have you on the line up to eventually come and talk to the AgWG about some of the work you are doing.
* **Loretta Collins:** I know that we talked a little bit about FSA crop reporting, I was hoping to get an update from Jason to see if he has gotten anywhere in the last month. Fertilizer sales data, Bill talked about potentially working with MDA to go the state chemists route to clean up the data at the state chemists level knowing that probably needs to be done across all states in order for it to have an impact because of the way we retrieve and parse about data [from AAPFCO]. Have there been updates on that Bill?
* **Bill Angstadt:** Lindsay, Janelle, and Jason have had a dialogue and have included some other MDA staff and they are still working on the methodology of what they are going to do.
* **Loretta Collins:** These are all Task 1 on the CAST-21 Workplan. The states are working outside of the Bay Program Office on this, so we do not have too much control over it. The only part that is awkward for me is the ask to prioritize these issues for CAST-21 and we have gone through the dairy precision feeding and HUAP that we might get some resolution on. That is pretty much it. Manure treatment and transport, we need to do the evolution on the modeling side before we make any steps on that. The data stuff we will do what we can over time. I’m not sure how to prioritize these other than that data is high [priority], it is always high. I’m still thinking about how to approach this with the AgWG.
* **Cassandra Davis:** Loretta, can you add NY to the fertilizer sales data? With the pasture nutrient management, a lot of the issues we were seeing were from increased inorganic nutrients on pasture. Hopefully updating our fertilizer sales data will help that out. With the crop application goal where we didn’t spread a lot of manure it was filling it in with inorganic manure in the model to reach that crop application goal. So I think with updating that fertilizer and our manure and dairy numbers that should hopefully correct that pasture nutrient management. It was an inorganic increase of nitrogen and phosphorus that we were concerned about.
* **Loretta Collins:** Even with the low threshold for N application on pasture?
* **Cassandra Davis:** Yeah I think it is low which is why I don’t think it is worth it to mess with it in the model. It turned out to be a lot of inorganic just because we didn’t have a lot of excess manure.
* **Loretta Collins:** Bill you talked about working on this [fertilizer data]. Is the thought process to do this with MD and potentially expand out based on what is learned in MD and potentially P?.
* **Bill Angstadt:** In DE Chris Brosch has done some good work in cleaning up the reporting from registrants. We are talking about MDA and once we establish that protocol we can move onto other states. Mark Dubin has been doing some work and thinking in VA.
* **Loretta Collins:** So, kind of create a template in MD and move it through to other states of how to go about cleaning up.
* **Bill Angstadt:** The suspicion is there is redundancy in reporting from registrants but unless we have a way to approach what this means, at this point we don’t have a way to decide that what is coming through the port of Baltimore is redundant with what other retailers are reporting until you actually look at the data and see what is there.
* **Loretta Collins:** This is important stuff and is a high and ongoing priority. We really need to see this roll through all of the states before we see results. The issue with NY is really interesting and I will think about that a little bit more. Additional thoughts at this point?
* **Bill Angstadt:** Yeah so we started this exercise on are there priorities from the AgWG that they would like included in the CAST-21 workplan. As I look at this tracker before us most of these are state issues, data reporting, or longer-term like CAST-23 or Phase 7 of the model. I think that is really the expected outcome here to go to the AgWG that this has become a tracker for mutual communications between the jurisdictions rather than something the modeling team has to be assigned a whole bunch of work to try and do within the next several months.
* **Loretta Collins:** Yeah and that is kind of how I saw it from the beginning. There may be some miscommunication between folks.
* **Bill Angstadt:** Maybe if we looked at it more as these tasks and activities that are parallel to what the CAST modeling team is doing on CAST-21 and these are activities the jurisdictions want to do for CAST-21/CAST-23 or Phase 7.
* **Loretta Collins:** That kind of makes me feel a little bit better. Feel free to chime in on the AgWG next week. I just wanted to make sure we were all in the same headspace with that.

**Review of Action Items (if any)**

**ACTION:** Loretta Collins and Ted Tessler will work collaboratively to put a request forward to the AgWG on how they track HUAP.