

Agricultural Modeling Team (AMT) Meeting

July 11th

09:00 AM – 11:00 AM

[Meeting Materials](#)

Summary of Actions and Decisions

Main Meeting

Action: Given the Phase 7 [timeline extension](#) for broiler updates, layer updates, and inorganic fertilizer, the AMT will continue to meet monthly through February. Tom will extend the meeting invitation to reflect this change.

Decision: The AMT approved the [June minutes](#).

Tentative Decision: We should utilize state specific farm only fertilizer stocks that are smoothed across time. ***Pending final votes from Delaware and Maryland**

Action: Tom Butler will follow-up offline with Clint Gill and Alisha Mulkey to get final votes for Delaware and Maryland, respectively, on the decision to use state specific farm only fertilizer stocks that are smoothed across time.

Action: If there are changes to the methods for determining acreage for managed hay and pasture in your jurisdiction and the method for allocating nutrient management (see slide 3 on the [LULR presentation](#)), please provide that feedback within the next two weeks.

Decision: The AMT was asked to provide their votes on the question to what extent do you agree with the following: We should adopt the following Land Use Loading Rate Ratios:

- i. Managed Pasture (High Application) =1.52
- ii. Managed Hay (High Application) =1.56

During the meeting, USDA-ARS, USDA-NRCS, and New York voted 2-hold, and Pennsylvania voted 1-stop, citing a request for additional time to discuss with others, Maryland has not voted on this item.

Action: Tom will follow-up with Maryland, New York, Pennsylvania, USDA-ARS, and USDA-NRCS to get final votes on the land use loading rate ratio decision.

Post Meeting Note: Following the meeting, Pennsylvania remained a 1-stop, and we are awaiting final votes from ARS, NRCS, Maryland, and New York.

Action: Since the group was unable to discuss BMP excess during the July main meeting, Jess Rigelman and Tom Butler will follow-up with AMT members with the presentation and questions to consider, prior to the August meeting.

Action: Tom and Dave will meet offline to determine next steps and see if an interim meeting should be scheduled to discuss BMP excess prior to the August AMT meeting.

Post Meeting Note: An interim meeting for members to discuss BMP excess was scheduled for July 24th, 2025.

Animal BMP Excess Meeting

Action: Please provide comments and feedback on the animal bmp excess questions (slide 13 of the [animal BMP excess slides](#)) via email to Tom Butler (Butler.Thomas01@epa.gov) within the next week.

Action: The AMT will continue to discuss animal BMP excess at the August meeting.

Meeting Minutes

Statement of purpose:

To evaluate potential improvements to inorganic fertilizer scale, Land Use Loading Rate Ratios, and reductions to BMP excess for Phase 7.

Decision items:

1. Approve the [June Minutes](#)

Announcements:

- [Timeline Extension](#) request in progress (Feb 2026 on broilers, layers, and fertilizer)

Discussion:

Tom Butler: We have a lot of issues in the AMT that are pretty high profile. As a part of that, we are talking about broiler updates, layer updates, and inorganic fertilizer. So, given our current time frame of September, we are under the gun, and we have heard from members that we might not make that. So, we have asked for an extension for those three specific things. The overall timeline for the partnership is still in discussion, but what it looks like for us now is that we're going to have time through February 2026. So, instead of September this year, it would be February of next year to knock those out. Again, it's those three. So, we want to knock out excess and the land use loading rate ratios before that, so we can really get in on the fertilizer, because that's really tied to the layers and the broilers. We will likely have more time here for those three items but, outside of that, we can't really put more stuff on.

Zach Easton: Tom, just to be clear, we'll continue monthly meetings through February?

Tom Butler: Yes, we're on the hook for those now. So, we will now be meeting monthly through February of next year. I will have to extend those.

Action: Given the Phase 7 timeline extension for broiler updates, layer updates, and inorganic fertilizer, the AMT will continue to meet monthly through February. Tom will extend the meeting invitation to reflect this change.

Introduction/Recap: 09:00-09:15 [15 min (Zach Easton, Virginia Tech)]

Zach went over the agenda asked for approval of the minutes.

Decision: The AMT approved the [June minutes](#).

Inorganic Fertilizer Scale 09:15-10:00 [45 min (20 min presentation 25 min discussion) (Tom Butler, EPA, Joseph Delesantro, ORISE)]

Several possible ways to implement inorganic fertilizer data at the state level rather than its current watershed wide scale were shown. This prompted a decisional request from the group

on whether we should move to state scale stocks and if so, what is the best methodology to do so. **DECISIONAL.**

Discussion:

James Martin: On new state expenditures- this takes state provided fertilizer sales data, aggregates it to a Baywide pot, and then splits it back out to the state scale using the sum of county ag census and soil amendment expenditures from the ag census? So, it's the ag census that determines the size of the state bucket, rather than the state fertilizer sales that determines the size of the state buckets?

Tom Butler: Yes.

James Martin: The ag expenditure data, is that a five year census data element, or an annual mass number?

Tom Butler: That's five.

James Martin: So, that's part of why it is smooth, because you are using the same expenditure number for five consecutive years until you get a new one?

Tom Butler: Yes. There is smoothing that goes into that, and it does tend to stay more stable.

Jess Rigelman: They are interpreted between the 5 years.

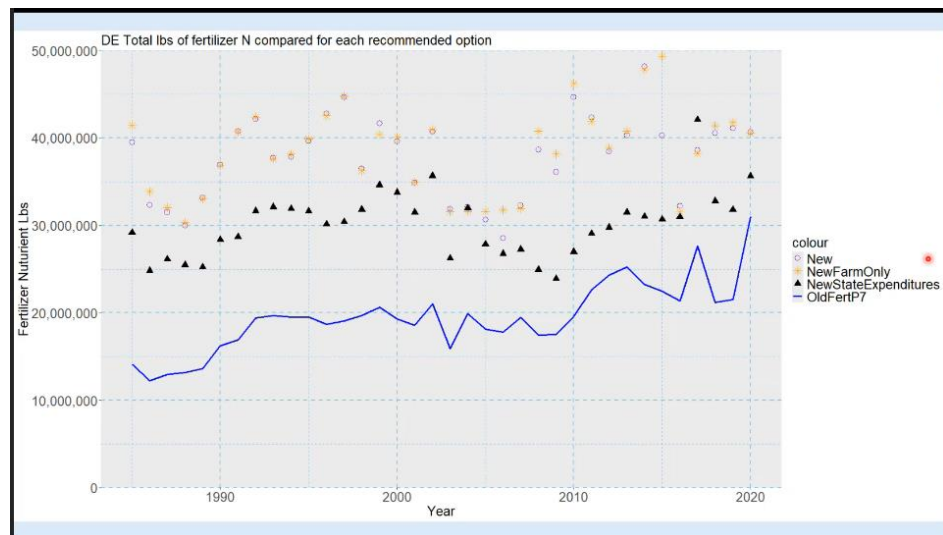
Alisha Mulkey: One more time, on the lines, this is the state bucket prior to being spread, or this is also inclusive of nutrient management in a state where some of Maryland's bucket would go elsewhere?

Tom Butler: I will weigh on Jess a little bit for if nutrient management is factored into this as a load input reduction. I believe, at this point, it is accounted for in this. So, when you have things like a land use change BMP or the load input reduction, it would have an impact. But, Jess, can you weigh in a little bit on that?

Jess Rigelman: That's really only going to be factored into the blue line, which is the current fertilizer method. The other one is literally just state fertilizer sales data and ag census expenditure data. So, I guess maybe it is factored into the sales data, but it is not our data that we are factoring into it.

Olivia Devereux: I have a question, and this relates to work that Helen Golimowski Smith has been doing for

USGS. Maryland has a lot of nutrient management that they report. Theoretically, I think this is how nutrient management works, and I am hoping Alisha or Elizabeth will correct me where I'm wrong. If Maryland has a ton of nutrient management and farmers are using less nutrients as a result, then they are using less fertilizer. This is the sales, so nutrient management is already taken into account. It's sales by state, so Maryland's would be lower than if they did not have

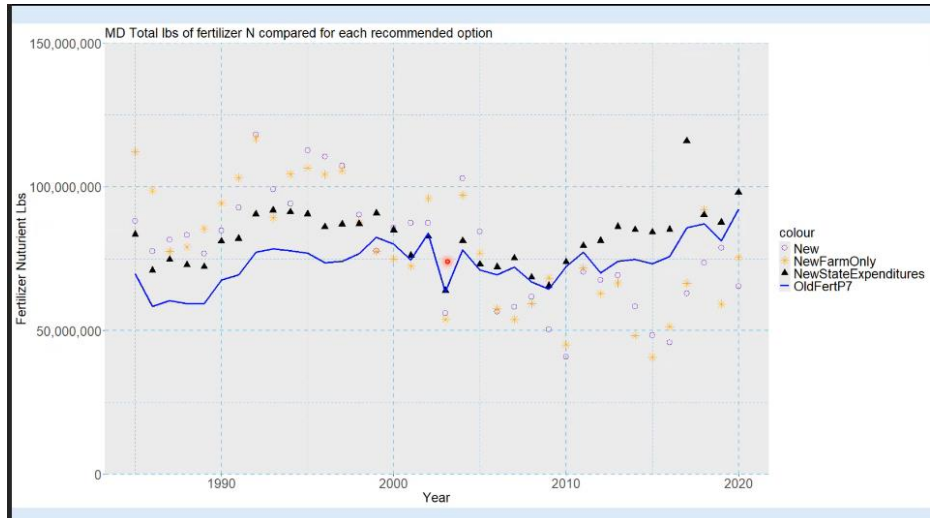


nutrient management. So, I guess I'm not sure at what point the BMP is taken into account, because it seems like it would be reflected in the sales data by state.

Bill Keeling (in chat): NM plan may not reduce the amount of fert but direct the timing and placement such that losses are minimized.

Joseph Delesantro: Tom, should we just skip to the Maryland slide real quick to help with this?

Tom Butler: Yes. So, you'll see for Maryland the current method is this blue line here. When we use the expenditures base state level, it kind of tracks with that. You will see for the fertilizer that's just at the state scale that doesn't ever get aggregated up, it's a little bit higher at the beginning and then lower towards the end than the current method.



Olivia Devereux: That makes sense with their nutrient management implementation. I think that makes sense based on the nutrient management that got implemented. That regulation came out around the turn of 2000. I don't know the exact date, but that does seem to reflect nutrient management.

Tom Butler: I will leave that to you guys to discuss here, because there certainly could be implications for that either way. I will try and step back a little bit and say that in the process of doing this, you're going to see for each of the states somewhat different results. I just wanted to highlight that and focus on the different ways that we could approach the state scale, because that was something that was requested, and I really wanted to be able to tackle that question here.

Olivia Devereux: I said this earlier during the office hours, Tom, and I just want to repeat it for the whole group. It is really important to look at this at a state scale because if states have different regulations or policies or funding incentives, and they do reduce fertilizer usage, that wouldn't be reflected in other states, and they certainly need it reflected in their state as a benefit of reg policies, funding incentives. So, state scale is really important, and if that's what we are seeing reflected, that's awesome. That's how we want to use the model.

Scott Heidel (in chat): Then does that make NM BMP double counted?

Tom Butler: Thank you, Olivia, it's always good to think about things with that broader perspective as well for what's happening and then apply that for every state. So, I appreciate you saying that. So, I am showing New York here. You can kind of see New York State scale fertilizer generally a little bit lower than when we use the watershed as we currently do. For Pennsylvania, it kind of tracks here, but generally a little bit lower than the current method. In Virginia, a little bit higher. West Virginia is typically lower. But you'll notice within all of these that there is pretty high variability, and we need to check and say is this all real? A lot of these jumps, many people might argue, are not necessarily real and, as a point of clarity here, we're focusing on these long-term trends. So, that's something that I'm going to pass off to Joseph,

but I do want to check the chat. Bill said nutrient management plans may not reduce the amount of fertilizer, but direct timing and placement. Thank you, that's a good clarification. Scott is asking does that make nutrient management double counted? That is a discussion that many people could probably weigh in on, and I don't necessarily want to throw out an answer to that without everyone else talking. So, if anyone has any input on what they feel for these data and the impacts of nutrient management, I'm all ears. I know Alisha had started that conversation, so I'll throw up the Maryland slide to see if that was something we wanted to talk about.

Jess Rigelman: Currently core nutrient management reduces application rates. It doesn't reduce the amount of fertilizer per se, except for in future years where we don't have the bucket. So, I don't think it actually double counts in this case.

James Martin (in chat): Ag land conversion likely impacts farm fertilizer sales more than NM

James Martin: I was thinking the same way, Jess, except the first part in reverse. It's really non nutrient management that increases loads, rather than nutrient management that decreases them. We kind of do that backwards, I think.

Ken Staver: Where does the fertilizer go if the N rates go down because of nutrient management, but you have sales data? The fertilizer has to go somewhere. If you have state boundaries, where does it go?

Tom Butler: Based on our current curves, I think it gets kicked off to managed pasture. I would need to pull it up, but I think that's where it ends up, Ken.

Ken Staver: So, it stays within the state, but goes on some other land use?

Scott Heidel (in chat): not only where does it go but does it max out at the upper limit of sales data?

James Martin: It goes on all of the other land uses proportionally, based on those spread curves we talked about previously. So, the fertilizer application on each land use would go up and, depending on where it is in our application curves, would decide how much more of the fertilizer that land use gets.

Tom Butler: Yes, that's a great clarification, James.

Ken Staver: When the nutrient management is applied, is it applied on a specific crop like corn versus soybeans, or is it just distributed across all? It's not specified which particular crop it's on, is it? Maybe it is.

Tom Butler: I think that that's to the state reporting it, and I would lean on them to describe how they report it at what scale.

Ken Staver: In Maryland, you have to have a nutrient management plan whether you are growing soybeans or corn. You have to have nutrient management.

Olivia Devereux: For credit for progress, most states just use whatever the default is for crop and pasture, not anything more specific. So, that's how they tend to report it for progress, and they could report it for very specific land uses, but it's not crop or by aggregates of the land uses.

Alisha Mulkey (in chat): Maryland we report Core as acres Cropland and Core for Pasture

Ken Staver: Right. That's what I assumed. The state total then will stay the same. It doesn't matter whether you have nutrient management or not, your state total is determined by whatever method of sales/whatever one of these things we would pick. That sets your state total. If you do nutrient management, it doesn't kick it to another state, it just moves it around within your state, right?

Tom Butler: Yeah, and that is a difference, though. Currently, if you have it, it could theoretically kick it around. I think that is the impetus for people wanting to look at this with some of the newer land uses we've gotten and some of those implications.

Ken Staver: Right. The Virginia case of putting more of their N on grassland, then that will take it away from something else, from row crops.

Tom Butler: Yeah.

Bill Keeling (in chat): VA reports NM on crop, hay, pasture, and specialty.

Dave Montali: It's a different way of reporting for every state. West Virginia reports it's nutrient management by the broader land use classes like crop, hay, pasture, annually.

Robert Sabo (in chat): TFI NuGIS and National Nutrient Inventory cropland mass balance analysis indicated MD farmers achieved phenomenal NUE and low surplus post-2000. However, the surplus values and NUE values were not sustainable with ever increasing crop yields. Fertilizer sales had to go up for MD if farmers were to maintain yields... question if its too much of an increase.

James Martin: My question is about these graphs and those new land uses. I assume these graphs are based on existing Phase 6 land uses and everything else Phase 6. This doesn't include any assumption for managed hay or pasture currently, right?

Tom Butler: I believe it does. So, the old Phase 7 is with those decisions. I think it's mostly the defaults we have for the test. But, Jess, did we have those defaults in here for these tests for Phase 7?

Jess Rigelman: For the new stuff, obviously this is before any sort of spread. The old stuff is post spread, and that takes into account the new land uses, the new grain split, new manure curve, new yields, and anything that we have done thus far. What we don't have is the acres of managed hay and managed pasture for all the states. So, I use the default, which I used on the initial test, which I think was like 25% of the acres. I'd have to look it up. I guess what I am saying is, all the Phase 7 decisions are in there, but we had to use a default to get the split between managed hay and managed pasture.

James Martin: Ok, that's what I was curious about. I appreciate it.

Tom Butler: To clarify, there is not an actual default in the model. We discussed that, and it is not something that we agreed on. It's literally talking about the testing. We have asked, and will continue to bring up later, how people want to specify those splits. So, there's not an actual default in there right now for managed hays and pastures and unmanaged hays and pastures. Just a point of clarification there in case people were concerned.

Fertilizer Sales Temporal Redistribution to Estimate Applications

Tim Larson (in chat): Why is variable data a problem year over year if it's accurate?

Joseph Delesantro: I think the issue here is not that we don't think that the fertilizer sales data is accurate, it's that what we are actually trying to estimate is the application of fertilizer. So, there's always the potential that the fertilizer that is being purchased shows up on our expenditures or in our sales data in year T, but then that fertilizer is being stockpiled and is being applied at future years. So, that's what we're doing with this process. That's why we're concerned about the variability. We're using the sales data to estimate applications. I'll also say that here I'm using what is essentially a four-year window, and that can be increased. That can be shortened. You all are the experts on how long people might hold onto fertilizer.

James Martin (in chat): Is the fertilizer sales data wholesale or retail sales?

Tom Butler: I need to re-check my notes on that. I'm inclined to say wholesale, but I'd be more speculative. I need to verify that for you. I will look offline and make sure that I have the answers that I got from state chemists the last time we looked at this. I know that they do have concerns about some things like mixing.

Elizabeth Hoffman (in chat): This is a concern. In MD it's both, either can report as an agent. There is an assumption that they don't duplicate but worth digging into this. To clarify, not a large concern. But worth confirming/asking for confidence.

Tom Butler: Thank you, Elizabeth. It does vary state by state. There are mixing facilities that could potentially have some of those issues involved.

Dave Montali: When we looked at this back in CAST 19 to 23 stuff, I was informed that, in West Virginia, it's the first point of sale in the state, so it's more along the lines of the wholesaler, and that there is not double counting. There may have been some in the early days, but people soon found out if they're paying taxes and somebody else is paying taxes on that, they don't have to, and those things have been resolved. So, in recent years, at least in our state, there was no perception of two entities paying the same tax for the same material.

James Martin: Yeah, thanks. I think both that and Elizabeth's comment in the chat is helpful. When I think about the profitability of a farm stockpiling fertilizer, I don't think that's happening, certainly not for many years. But it is easier for me to imagine a retailer carrying over product from year to year. So, that helps a lot, Dave.

Dave Montali: I'm not sure I really understand the method, but it sure worked when I looked at West Virginia and the raw data. It was crazy variability. I don't know why, but this sure looks like it smooths it nicely.

Tom Butler: Thanks, Dave. Any other comments or questions for Joseph?

Joseph Delesantro: I think maybe I jumped into the method in a slightly more technical framework than is necessary. So, the simplest way to think about it is that there's just a window of, in this case four years. That can be changed. But there's a window in which we do a temporal redistribution of fertilizer from sales based on crop need. So, just like we spatially distribute fertilizer based on crop need, we are essentially doing that in time within a set window. That's all this does.

Ken Staver: On crop need- here's West Virginia. All the states kind of look that way, I guess. So, are they losing ag land? Like Pennsylvania, we know yields have gone up an awful lot. Are they losing ag land?

Dave Montali: West Virginia is not a big crop state in the first place. Yes, development in the Eastern Panhandle probably has taken it's toll on ag land.

Ken Staver: Then you had PA up there too, and it was the same sort of thing. Almost no change in crop need over 35 years.

Joseph Delesantro: Basically, it's a reduction in cropland over time. So, yields are essentially replacing the difference that cropland is still largely staying in the agronomic sector, but it's moving to pastureland. So, that's what's in the census data at least.

Ken Staver: For an ag person thinking about it, the thing that jumps out at you is that N use per unit of production, and that's how nutrient management plans are done. You want to see where this ends up affecting that at the per acre level, right?

Joseph Delesantro: Yield per unit N?

Ken Staver: It's hard to make an assessment at the production level about how reasonable this is. That's where it's recognizable to people who work in agriculture. 270 million pounds, what

does that mean in terms of pounds per acre on corn land? Is there manure in these states to make up that difference between crop need and fertilizer? The manure nutrients are already calculated at the state level, right? There was never a watershed wide manure bucket. So, every state had its organic nutrient load. So, does it fill these gaps? Those are the kinds of things that you triangulate on a little bit. Does it make sense? My other question is, does this change the total N, or is this just moving around to different states from what we have in our current method?

Tom Butler: All the fertilizer is plant available. We are talking about the fertilizer, so it would be moving it from the states, versus now it's based on what crops are grown, the acres, the yields, etc.

Ken Staver: We are moving it around in different states. Is the total size of N fertilizer in the watershed staying the same, we are just redistributing it in states differently? Or do these methods actually change the total N fertilizer number?

Jess Rigelman: It does change, and the reason it changes is because the smoothing depends on the method. It's the same if we go with the new fert state expenditures because that's the old method. Then we're just splitting that watershed wide bucket to the states versus new, it takes it at the state scale, then it does that three-year rolling farm fraction, but that's only based within the state. Then the other one just takes the farm only data, so we get rid of the non-farm only and don't do that farm fraction. When I say it changes, it changes minimally, like we're talking 18,000,000 pounds or something, and it's still 18,000,000 pounds. It's just a matter of a percentage point or so, but it has to do with the processing methods, but in general, they are pretty close.

Ken Staver: So overall, we are still talking about the same overall amount of N fertilizer in the watershed, right?

Jess Rigelman: Yes.

Bill Keeling (in chat): I thought manure was calculated at the county scale.

Jess Rigelman (in chat): It is.

Tom Butler: Bill, manure is county specific. The only things that impact that are like treatment or transport. Good catch.

James Martin (in chat): I think it would be useful to look at farm fertilizer N sales, ag census soil amendment expenditures, and N crop need as estimated by the model at county, state and baywide scales.

Tom Butler: Ok, that's good feedback that could possibly be done there. We might need to follow up if that's where we want to go.

Joseph Delesantro: I have lots of questions about the county scale, but maybe let's finish up with this and then follow up with next steps.

Tom Butler: What we've seen here is people asked does the state scale work and can it work? Variability could be a concern, but can be dealt with. So, basically we need to decide what we want to do as a group. For the group now, the goal was obviously to try and make a decision and state scale has been mentioned for several months by several jurisdictions, and I want to try and get us on that track here. So, what I've proposed here is that we should utilize state scale, so state specific, farm only fertilizer stocks that are smooth in some form across time. There are several methods that I put out here. We could go any way as a group. The indications I got from members when setting this up was that it would be more intuitive to use just the farm data and not necessarily have a fraction that split out farm from non-farm. But, if we just

use the farm, it would be the way to go. So, based on all that feedback, the decision I have here is as it's described. We can change the wording. We can change the method if we want to use a different method. But, at least as a starting point, I want to put this decision out, and the first thing I'll say is does anyone have heartburn? If no one has heartburn with what I've shown and what's described here, we can just accept that and move on as a state scale, and then we'll obviously have further things to talk about. We can have things we look at, but this is the opening part of this, so would anyone object to moving into a state specific, farm data only, fertilizer stock that is smooth across time? This is now decisional.

Alisha Mulkey: I am going to have to say Maryland wants more time. I'm not disagreeing, but I am going to put a hold, so that we have some time to digest some of what we've seen today, and I suspect have a conversation. We can be timely about that with you next week, depending on your availability, to kind of make sure we're interpreting some of these graphs and ideas correctly.

Tom Butler: Ok. That being the case, I am going to pull up a voting table.

Olivia Devereux: Tom, while you are pulling that up, you are asking the group to approve going to the state scale or not, and you are showing that there are different ways of doing a rolling average of sorts? I know I characterized that wrong, Joseph, after your articulately went through it, but you're not saying we're nailed down to one particular method for the trend work? We're just saying that you're voting yes or no on the state versus watershed wide scale question. Is that fair?

Tom Butler: So, this would lock down the method, not the smoothing, but it would lock us down. Like we've got new versus new farm, new state, we'd be doing the new farm only. So, it would be removing that non-farm data from our calculations so that it was just ag based, and it would only be aggregating to the state scale. So, we wouldn't be going to the watershed scale for anything and coming back down. We would just be summing with only agricultural fertilizer to the state scale.

Olivia Devereux: Ok. Thank you, that's helpful. Just for reference, the model has always used data that was only ag farm or farm only, not non farm. The change is going from watershed wide down to state.

Tom Butler: Correct, thank you for that clarification. It's the scale, and then also instead of using that ratio of farm to non farm, it's excluding that from any calculation, and just using farm. Great point.

Clint Gill (in chat): Delaware is also a hold, I have to run this up the flagpole a little ways

Ken Staver: So, the items with red asterisks, you are saying do you want to use the red asterisks for our data? Is that what you are saying?

Tom Butler: Yes.

Dave Montali: Smoothed by some method?

Tom Butler: Yes, the smoothing method is not locked in. We could just use Joseph's method. I think that is valid. So, I am going to run through the vote tracker now. I've got a 2 for Delaware and a 2 for Maryland. Do we have Cassie on?

Emily Dekar: Cassie is on vacation through the end of July.

Tom Butler: Thank you, Emily. I am going to weigh on you, then. Do you have any input? Do you want to hear more?

Emily Dekar: I am going to say I am a 4, but only because I'd like to talk with Cassie more. But, we would either be a 4 or a 5, I would say.

Dave Montali (in chat): 5

Bo Williams (in chat): 3 for EPA

Tamie Veith (in chat): 5

Tim Larson (in chat): 4

Zach Easton (in chat): 5

Scott Heidel (in chat): 4

Lisa Duriancik (in chat): NRCS (Lisa in for Candiss) 5

Ken Staver: I am a 4, I guess. I like the idea of a state thing. I am kind of with my Maryland folks about trying to feel a little more comfortable with it and see it a little more distilled. But, definitely like the idea of a state scale versus a watershed wide bucket redistribution scheme.

Tom Butler: Ok. I don't think I see Alex, so I have to follow up with him. Alright, we'll be following up with Clint and Alisha offline and we will try and get that wrapped up. I will also follow up with Alex. So, hopefully in the next week we can get that done.

Olivia Devereux (in chat): Alex is on leave next week. You may try to ping him today or go to Jimmy Webber.

James Martin: I was just curious what more time means. Are we pushing to the next meeting to revisit the decision, or are we going to try and resolve Delaware and Maryland's holds between the meetings?

Tom Butler: In my mind, it would be great if we could meet with them and resolve holds offline between meetings. I will go to Alisha and Clint, what do you guys feel comfortable with? I don't want to put you on the spot, but is a week ok?

Alisha Mulkey: MD would commit to getting this resolved between now and the next meeting. So, we'll circle internally next week and then be in touch with Tom for any additional information and work on that schedule.

Tom Butler: Ok. Clint, is this something you are amenable to as well?

Clint Gill (in chat): I'm going to try and follow up with Chris next week and figure this out

Tom Butler: Ok. Thank you. We'll figure that one out. We'll try and follow up offline with everyone there, and then we will follow up with the group. Thank you all.

Tentative Decision: We should utilize state specific farm only fertilizer stocks that are smoothed across time. ***Pending final votes from Delaware and Maryland**

Action: Tom Butler will follow-up offline with Clint Gill and Alisha Mulkey to get final votes for Delaware and Maryland, respectively, on the decision to use state specific farm only fertilizer stocks that are smoothed across time.

Land Use Loading Rate Ratios 10:00-10:30 [30 min (10 min presentation 20 min discussion) (Tom Butler, EPA; Hunter Landis, VA DEQ)]

A subgroup was tasked with determining how the new classes of managed Pasture and Hay load N relative to their unmanaged classes. The results of this groups work were shared, and feedback was requested on the groups direction. **DECISIONAL**

Discussion:

Dave Montali: It may be semantics, but I think I heard you say 1.5 times what our non-managed hay and pasture is your recommendation. But these loading ratios are referenced to grain without manure. You're not saying managed hay is 1.5 times lower than grain without manure, are you?

Hunter Landis: I'm going to comment, and then I'm open to anybody correcting me. But my understanding is that the way this was kind of recalibrated, or anchored is the term I found, that within that pasture land class, everything is compared to pasture, which has the loading rate ratio of one. Although that pasture ratio was initially correlated to corn.

Dave Montali: You are right. I'm wrong. The reference land use is pasture for these managed hay and pasture. My fault. Nevermind.

Hunter Landis: That's ok. It is still initially rooted to those croplands or specifically grain without manure. Is that somewhat accurate, Tom?

Tom Butler: Yeah, you are right.

Ken Staver: It's just rooted to the 11.8 pounds. That's what it is rooted to, right?

Tom Butler: Yes. The initial report rooted everything to grain without manure, but then the modeling team went in and said we've got two land classes here. They are acting differently, so we need a reference for pasture. So, for everything pasture related, it's tied to that pasture, which is the 11.8. So, what we're talking about when they're being discussed here, managed hay and managed pasture, it's 1.52 and 1.56, relative to pasture, which is 11.8 and Ken just said, not 39.1.

Ken Staver: So, there is no crossover in terms of the calculations between the perennials, the hay and pasture, and the row crops?

Tom Butler: If you technically wanted to break it out, you could follow the initial report's ratios, but at this point they are pretty separate.

Ken Staver: Yeah, you can calculate the pounds in the right-hand column and then just convert that into a loading rate ratio like you guys had done earlier in one of your tables. You actually did that, right?

Hunter Landis: Well, hang on, we didn't do that. That was done by the previous group and actually I think that was the initial calculation and the recalculation came from there.

Ken Staver: So, there's nothing to keep you from doing it this way, but grassland people do grassland studies, and the grazing people, and then the row crop people do row crop studies. So, that's kind of how those two groups of people were formed, if my memory is not failing too badly. So, you could in theory convert what you are doing, so it's all relative to one table, but I think staying with the way you're doing it is the way to go. So, I hope I didn't confuse you there on that.

Tamie Veith: I am just wondering, how does this factor in any manure application, daily haul, that kind of thing? I'm just sort of forgetting. I'm sure you covered it also. So, what happens with manure?

Hunter Landis: So, I think that's further back in the process, and my understanding/interpretation of this right here is, basically, what we're looking at is a leanness of a land use in comparison to the anchor land use. That's just reciting a talking point, I don't know if it's officially answering your question or not.

Tom Butler: If I can try and elaborate a little bit, the applications are set by the state for each of their specific areas, and they will have their own county specific amounts of manure that goes

towards that as a part of it. But the crop need is also based off the yield. So, you have your yields for each county in the state. They're going to then take from the organic and then the inorganic amount. So, all of those applications are different across all the states, and this ratio is effectively going to say, once you have things on these land uses, how's that going to load from the land to water, if that's helpful?

Hunter Landis: I don't know if this muddies that or not, Tom, but with the pasture, we're not looking at yields. We're looking at an application rate per acre, correct?

Tom Butler: For pasture.

Hunter Landis: Or hay, too, potentially? I meant pastureland class, all of them.

Tom Butler: I think some of them might have actual applications, but I would need to look at them.

Hunter Landis: Ok, sorry.

Tom Butler: No, you are at least part right on that.

Tamie Veith: I totally defer to the individual state people here, but I guess what I'm just kind of thinking about is you showed the example for Virginia Tech Extension information and using like 80%. I think up north, they pretty much apply all they can apply a lot of times, so they're going to apply based on the nutrient management to meet the crop yield and everything. So, I'm just wondering if that's going to be a good estimate or not? I guess I am just wondering what other people think there.

Emily Dekar: As far as New York is concerned, we run out of manure before we can spread on all of our grounds. So, it's not really a huge concern for us, I guess.

Hunter Landis: Does running out mean that it goes to the cropland first before any of it goes to a pastureland?

Emily Dekar: Absolutely, and usually we run out before we can cover all of our cropland.

Hunter Landis: I was attempting to yield to others but, yeah, it seems like I hear from others that manure has more value within the crop systems and kind of ends up there, and it can get onto pastureland or hay land, but kind of fought after for some cropland.

Tom Butler: Elizabeth, you're a little further north. Do you have any insights from your perspective?

Elizabeth Hoffman: I am going to be real honest. I had to step away, so I missed some of this.

Tom Butler: Ok, that's fine.

Olivia Devereux: Tom, I just wanted to respond to something Tamie said. The first half of this meeting, Tamie, was about fertilizer, and then it was a hard shift to talking about these loading rates for the two new land uses, and really the loading rate ratio, not necessarily the loading rate. The loading rate ratio is for any nutrient source, that separation between whether it comes from inorganic biosolids or from inorganic fertilizer is a kind of separate decision discussion method, but this is just looking at, overall, how much nitrogen or phosphorous goes down compared to other loading sources, not the source of nitrogen, phosphorous. I know you were asking the northern states, the more northern states and Maryland what they did for nutrients on pasture classes.

Bill Keeling (in chat): Biosolids contractors utilize a lot of grasslands of all types.

Hunter Landis: Can I comment or question maybe what I thought I heard Olivia say? I thought I heard her say, and maybe she was kind of referencing some of the earlier applications, but the numbers we're looking at here, comparing the managed pasture at 1.52 to the pasture at one,

it's not that 52% more is going down, it's that potentially that 52% is lost. Maybe I'm commenting on something I didn't hear, Olivia.

Elizabeth Hoffman (in chat): I actually need to leave for another meeting. If you're looking for a vote today, MD may need to do that offline.

Tom Butler (in chat): Ok. I will reach out offline.

Ken Staver: I think it just means that the base rate, all other things being equal, that the edge of field load from managed hay will be 1.56 times 11.8. So, we talk about pounds, we convert into pounds per acre of load.

Tamie Veith: So, you're assuming that this much more is going to leave the field, not get onto it?

Ken Staver: That's the base load but then what the model does, and Jess can jump in here, if you would happen to be in a county where there was a whole lot of nutrients put on that land because of nutrient excesses in the county, then that load would go higher because of the amount of N that's applied. But all other things being considered, the point of this table is to say, for these land uses, relatively speaking, how do they supply nutrients off the field to the waterways, right? That number is not locked. That's the base load and then that gets modified based on what that local nutrient application scenario is. I think that's my best attempt to talk about the old "blue arrow" slide.

Tamie Veith: Thanks, I think that really helps. It's kind of like which land spaces are more likely to lose more, assuming they all kind of get their ideal situation or something?

Hunter Landis: Back to the beginning of our proposal, the question was that should the loads of the managed hay and managed pasture still be below that of those cropland crops? You can see if you look at specialty crop low of 12.1 or other agronomic crops of 17.6, these two are closer or slightly above those. I'll just acknowledge kind of what we're still looking at here with managed hay and managed pasture is it's a perennial grass system being fertilized at a land grant recommendation rate at best. So, closing that out, the next slide would be questions or comments.

Tom Butler: No questions or comments and, seeing nothing in the chat, I'm going to move us a slide further and we're going to try and look at if we can vote on this one. The decision is if we should adopt the following land use loading rate ratios: Managed pasture (high application): 1.52 and Managed Hay (high application): 1.56.

Hunter Landis: I was just going to add a comment when I saw this earlier. That high application, it's higher than what's currently there. It's not high to me when you consider the land grant recommendation being the ceiling that we're most likely looking at.

Tom Butler: Good clarification, thank you. With that, I will do what I normally do. This is now a decisional item in front of us. We've lost a few people, so we won't get everyone, but I'll be able to follow up with people offline if we can come to something amongst the people here. So, from everybody who is here, does anyone object to these loading ratios for managed pasture and managed hay?

Ken Staver: Tom, I have to ask an implications question. Overall, it seems like given the data that's available, you did what you can do with the data that's available. But, when you talk about implications, the model loads for a certain watershed area are sort of constrained by monitoring data. So, if we had a lower load before, but now we're putting more N on this land use if it's significant in a watershed area, those acres are going to have higher loads. But the way the calibration works with the model, it has to come down somewhere else. There has to be adjustment, and this is more of a question for Jess. What are the implications of this?

Scott Heidel (in chat): PA is 2 I need to take this up the chain of command.

Joseph Delesantro: Conceptually, you are right there, Ken. In terms of working out exactly what those implications are going to be, I don't think that's something we can do until we have this model all figured out. So, that is going to be something that will be part of the year of review.

Olivia Devereux (in chat): Ken Staver I think the point of the two new land uses was to allow BMPs to be applied, which wasn't really an option before. So, while they would load higher, they now have an opportunity to reduce the load with the BMPs that are being implemented.

Clint Gill (in chat): Delaware is a stand aside, managed hay and pasture is very small in our watershed, we'll defer to partners with a higher stake.

Scott Heidel (in chat): I don't understand why this has not looked at uptake or why it is being forced into a bracket. If manure is being "disposed of" on pastures, it would run off at a high rate and likely worse than with crops

Tamie Vieth (in chat): Scott, that is what I am thinking. PA pastures will all have nutrient management plans so that it is addressed before application. It shouldn't be rewarded as a BMP.

Ken Staver: One of the things that happens with these decisions- you're like, well, make a decision, and then later we say, "holy cow", I didn't think that was going to happen. So, that's what I am trying to sort of avoid. But, overall, it seems reasonable, and I guess in places of the watershed where there's a lot of hay and grassland, it's going to change the N dynamics, because you've already seen Virginia is putting quite a bit of N now. They made that decision to go with this significant acreage of managed hay and pastures. So, that's going to move N for the state, in combination with the state bucket, that's going to move N off your row crops onto some of your grassland. So, there's a lot of moving parts here on these decisions. Overall, it seems reasonable the analysis that was done, to me.

Jess Rigelman: We're just going to have to kind of wait and see, cause we're nowhere near getting loads. I do understand everybody's concerns, which kind of puts us in an analysis paralysis in that we're not able to make decisions because everything affects one another. We do have that year of review, and if this is completely laughable at the end of it, we do have the ability to revisit. But I also have concern with people's concerns about the fact that, in order to undo a decision, we need consensus in the other direction as well. So, I don't really know what to say about that, but we can't really answer that until we actually have all the decisions made and can even get inputs in order to put into a new calibration to see how this shapes out. So, the fact that you think it's reasonable I think is a good start. Then we're just kind of fingers crossed and hope for the best and reanalyze once we actually have all the data.

Bill Keeling: As someone that's gone through multiple calibrations with Gary and all, when you have monitored data, you have no idea where those pounds are coming from. Typically, you look at the total and then separate out your wastewater, which is probably a higher degree of confidence in how it's characterized because of the monitoring. Then the rest is nonpoint source, which then gets apportioned between. So, it doesn't necessarily mean the loads will change from cropland to grassland. There is a myriad of other potential sources that could be adjusted, and there are huge amounts of forest, a small adjustment in forest could make the difference up. So, I don't believe you can just say one other ag land use will be what ends up changing.

Ken Staver: I don't disagree with you. The bottom line, the point I was making, was the total is going to stay the same. So, you can change it, but you've got to change it somewhere else. If this load goes up, something else has to change.

Bill Keeling: Yes, you are squeezing the balloon. If you squeeze it here, it's going to fall somewhere else.

Olivia Devereux: It's all going to stay in agriculture, because of the way the calibration and the calibration targets work. It's going to stay in ag no matter what.

Lisa Duriancik (in chat): So, this means that data used to set the ratios did not include the effects of any BMPs, right? Is that the case with the data used?

Dave Montali: Basically, all we're saying is this is loading 1.5 times higher than unmanaged land uses, and we need to have some relative loading rate that is higher than those unmanaged and seems like a reasonable approach to get here. It doesn't seem extreme, and this is the long-term average relationship. That will be Gary's blue arrow.

Bill Keeling: Also, during the calibration process, they do account for BMPs. So, yes, it may go up, but then there will be nutrient management applied to it that would ameliorate some of that increase.

Tamie Veith: So, the data going into it initially doesn't account for the nutrient management? How would you get that? You are going to assume that hopefully they did the nutrient management to start with before they even put the data on.

Tom Butler: The intent with the literature that we found was that they were trying to not have the BMPs put in and the whole report from earlier was to not have the effects of BMPs, so we didn't double count them.

Tamie Veith: Right, so the data going in is kind of all the fertilizer that is intended and then all the manure that you think will be there, it's kind of everything going in before you account for people applying it correctly.

Ken Staver: Quick follow up on that, Tom. So, in that table you showed of the different thing's states were going to do for their managed grassland. Without nutrient management, is that going to be like 20% higher?

Tom Butler: I think that's what we had it at was it would be 1.2, without nutrient management. Well, that's why it is different. So, no, the current pasture is set up so that it actually is 15 pounds per acre is it's application rate. So, it's already to account for that, because they couldn't figure out a way to do what we're trying to do now. If you get to decide what you report, you can decide if it stays with no managed, in which case you are at 15. If you have managed, in which case, it would be whatever application rate you would set that's justified with documentation. Then you could apply the nutrient management to it, and then you could get a reduction on those acres that were reported as being managed. You could take from those to allocate your nutrient management.

Dave Montali: And how states determine how much of their hay and pasture to put in this managed class is likely going to be informed by how much nutrient management they have on hay and pasture. I.e. the base condition for this is probably the same as the acreage for which nutrient management plans are in place. That's how I would do it if I had to do it. I think I heard that's what Virginia said how they would do it.

Tamie Veith (in chat): Scott, why does PA have no managed acres?

Ken Staver: So, they aren't going to have managed hay that doesn't have a nutrient management plan. Is that what you're saying?

Dave Montali: I'll defer to Virginia. They've thought this through more than I have.

Hunter Landis: That is most likely the case.

Ken Staver: So, just to be clear on your ratio, is that with 120 pounds or 144 pounds? I know it just keeps getting messy.

Dave Montali: I'm thinking it's at the top of the arrow, and then as you move down the arrow, you get the BMP applied to it.

Olivia Devereux: Ken, I think it's exactly like what happens with the harvested forest land use acres, which is that the states that report the harvested forest acres also report the forest harvesting BMP. Those two numbers for the BMP and the acres are identical for the states that report those, and the same thing is true with construction. The states report annually how many acres were in construction, and then they also report erosion and sediment control in some form on exactly the same number of acres. I think that's just the exact same thing we are talking about here, but obviously different sector, different land use.

Scott Heidel (in chat): Seems like a creative way to reduce nutrients in the model for certain states rather than a depiction of reality. Managed pasture to me is something like rotational grazing rather than adding manure which in my opinion is the opposite of managed pasture because the livestock are then forced to walk in highly contaminated pastures

Tom Butler: Yeah, I think there's a point to this that when we talk about managed, what does that mean?

Jess Rigelman: Actually, that's what I was going to bring up, and I feel like managed and unmanaged are kind of misnomers here in a way. It really means whether or not we are putting high applications or low application on hay and pasture, for the most part. I realize that means that they are managed, but I guess it doesn't necessarily mean that they have nutrient management or not. I'm not saying that is the case, like Virginia may say that every time they put high applications on pasture, that it is managed and does have nutrient management, but they don't have to equate. So, you can apply nutrients to pasture, manage those acres, and have a high application rate that doesn't necessarily have to be under nutrient management. So, I feel like this is pretty similar to specialty high and specialty low. Yes, those are different crops, but they were basically just split based on the crops that have high applications versus crops that have low applications. So, that's kind of the way I think about it in general. So, it's ok to have all of your managed be under nutrient management, but it doesn't necessarily have to be that way.

Bill Keeling: I just wanted to clarify, when we report forest harvesting, it's one acre is harvested and it's a slightly smaller set that we report for BMPs, because we don't believe 100% of the disturbed areas is actually going to be treated. Same for E&S, and I believe we're probably looking at putting that base condition at least at the level we have nutrient management, if not slightly higher when we do our annual reporting. So, it may be some amount of acres that are not treated by nutrient management that would load a little higher. I'll just say high/low, managed/unmanaged, that's semantics as long as we have a place that we can put our BMP.

Hunter Landis: I thought I heard a question, maybe from Ken or someone, that maybe I'm unclear on now what the potential answer is. So, if we say 120 pounds is the application rate for managed hay, that doesn't technically have a nutrient management BMP. Does that get the 1.2 multiplier and then does the nutrient management reduction just put it right back here?

Jess Rigelman: Yes, 120 is the land grant university nutrient management rate. The 1.2 multiplier is if you do not have nutrient management. So, in order to get that 120 pounds, you

have to report nutrient management for those acres. It's my understanding that the land grant university recommendations are nutrient management rates, so that's why we use that, and then we increase it for non-nutrient management. But I'm no expert. But that's the way it works on every other crop and every other land use.

Hunter Landis: Will that apply to unmanaged hay and pasture?

Jess Rigelman: Yes, but there's no eligibility for nutrient management on them, so the multiplier is 1.

Tom Butler: Hunter, if you wanted to think on that a little, I'm going in the chat here. So, I just want to get this all kind of tagged out here for people and where they stand. We don't have anyone from Maryland. Emily, do you have any perspective from New York?

Emily Dekar: I'm going to say probably a 2 at this point, without talking to Cassie. If you want to put in the notes there that it's me voting, that would be good. I don't feel comfortable really voting without talking to her and letting her take a look at this point.

Tom Butler: Ok. I'm looking through the chat here. Scott's got a comment. Scott, did you want to elaborate on that?

Scott Heidel: I think that says it all. I mean, if you're adding and then just arbitrarily picking what the runoff rate is going to be, rather than actually studying it, I just find that hard to get behind.

Tom Butler: Ok. Should I put you at a one on this one?

Scott Heidel: You can put me at a 1. I need to talk this through with some people, and Kate couldn't be on today. She's much more focused on the agricultural side of things than I am.

Tom Butler: Ok, so we've got a hard stop there. I see Dave, you voted on this one. Tammie, did you want to talk through your comment?

Tamie Veith: No. I think I'm just a 2. I need to talk at least to NRCS people first. I get what you are thinking. It makes sense, but I also agree with Scott a little bit. Everybody's seeing it the same way, but I'm not sure we are all coming from the same picture with it. It's probably just me. I just need to think it through.

Tom Butler: That's fine.

Tamie Veith: Do we have time on this? Do I need to prioritize it in for this week?

Tom Butler: If we could try and get this in the next two weeks, that would be great. Is that doable?

Tamie Veith: I'll see what I can do. I know we need to keep moving on everything.

Hunter Landis: Scott, the terminology of "disposed of" manure on pastures, what's "disposed of" specifically referring to?

Scott Heidel: I think what I am getting at is why would you add manure to a pasture that's already getting direct deposition, other than to dispose of it?

Hunter Landis: I think the land grant recommendations kind of cite or reference that.

Lisa Duriancik (in chat): NRCS, 2- need more time for consultation

Tom Butler: So, this could be fertilizer as well. It doesn't have to be manure. So, you could fertilize, theoretically, a hay or pasture field. I don't know if that plays into this. But I see, Dave, you posed a 4. Tim, did you have a vote on this for Virginia?

Tim Larson: Yeah, we endorse it, obviously. It's our proposal, so 5.

Tom Butler: Bo is not here. Ken?

Ken Staver: There's so many people with strong views on this. I'll just do a three. I'll just stay out of the way. Virginia has done a lot of work on this, and they have a lot of grassland, and they're doing nutrient management on grassland. So, it seems like that ought to be accounted for some

way. My main concern is Virginia is going to end up punishing themselves trying to do good. So, I think the numbers are high enough for perennials. Pasture is a little different story. When you put a lot of livestock on it, it's hard to know whether it's overstocked or what the deal is. But, with hayland, well managed grassland/hay, fertilized at the right time, is quite amazing at using applied N. I'm a little worried about it, but I'm just going to stay out of the way.

Robert Sabo (in chat): a large mass of nutrients is removed via cow-calf operations... when farmers send their calves to the stock yard.

Zach Easton (in chat): 4

Olivia Devereux: When I started at the Bay Program, back in 2007/8/9, I don't know when it was, people said "nobody ever put nutrients on pasture. It's all just direct deposition, direct excretion. There's no inorganic fertilizer or other manure spread on pasture, that's ridiculous". Then you talk to people in Virginia, and people are long gone, and they were like "we absolutely apply nutrients to pasture. We need to make sure that there's good forage there". Then other people were saying "that could not be true, they never do that". Hunter or Tim, can you all confirm that you do spread inorganic as well as manure on pasture, and it's not just direct excretion, because I think they're just different cultural practices depending on which state you sit on or what your weather patterns are like.

Hunter Landis: I'll unmute first and say yes to manure, yes to organic nitrogen, meaning litter or potentially biosolids makes its way onto hay and pasture. I know some others in Virginia can comment.

Bill Keeling: I can personally testify that I was involved with the spreading of biosolids on thousands of acres of pasture in Virginia.

Hunter Landis: A pasture doesn't have an animal unit on it every day of the year. So, while the idea of pasture is that, yes, there is an animal applying nutrients directly onto that, that animal may not stay there in that pasture year-round.

Seth Mullins (in chat): Direct deposition is just recycled nutrients, The nutrients in the system have to come from somewhere.

Clint Gill (in chat): some hay is cut for use over the winter and never sees an animal ever

Tom Butler: So, we've got some opinions on that one. We are not getting a decision on this. Scott, do you have any other rationale other than you need to run it by others? Is there anything else you want to put in this, because that's a hard no, so we want to make sure we register your concerns.

Scott Heidel: No. I just need to consult with some others on this.

Tom Butler: Ok, that's fair. So, we're almost at time here. Unfortunately, we haven't been able to pass anything, and we had a third presentation to get to that we just can't do. So, I'm going to have to put excess off. We are going to address that probably next month and the rest of these, we'll have to do some offline following up. I appreciate everyone's efforts on these today. Sorry we couldn't get there.

Jess Rigelman: As far as the excess presentation, I know we aren't going to get to that. Next month, we were going to ask for a decision, so I would suggest that we take the presentation and maybe send it out to people as well as very pointed questions and data about some of the questions we're asking, so that people can come prepared at that meeting, and maybe we can start to move towards a decision. So, I understand that we had to put it off, which is understandable, but I'd like to make sure people have the information and maybe you and I can meet offline as far as drafting something up for the partnership.

Dave Montali: Is it totally out of the question to try to set up a shorter meeting from this group in two weeks to maybe go over that to get prepared for next time? Time is kind of running out. Next month is August, and we need to have this stuff resolved by September.

Tom Butler: We have to get this, and we have to get land use loading rate ratios done in two months. So, if people were open to that, I think that's fine. Let's meet offline, Dave, I'll include you, and we'll see if we can get out a poll if it's advantageous to meet before then.

Ken Staver: This looks to really be a long way from being resolved. I was just wondering, what about not having them separated out but handling the load effects of differential N application rates? So, we take off that arbitrary 15 pounds or whatever it was that it's getting in the old system, and we just say we can apply more N, not having new land uses that need new loading rate ratios. You could look at if you put on 120 pounds of N, what happens to the loads? Maybe we don't need new land uses, we just handle it all by how much N is applied. But, if I recall, Gary's comment to that was then we're going to have to have negative loading rates on some of this land. That was my vague recollection of what he said if we tried to do that.

Jess Rigelman: I don't remember Gary's exact response, but it was about that. I had explored that as well as far as just kind of splitting them into two land uses but not having land use loading rates. It was not going to be treated necessarily as separate land uses, and you were going to have negatives and, yeah, you're right. I need to go back and look at that, but part of the reason is if we just had one land use, how do you know which ones what application rate, and what does the other one not have? It's specifically written that pasture and other hay do not get nutrient management, and part of this was so that we could have land uses that did have nutrient management.

Ken Staver: So, a couple of past decisions would kind of have to be modified to do that, I guess. It was just a thought to not have to deal with a new number that we have to vote on, because that seems like a problem.

Bill Keeling: If I am not mistaken, CAST currently has situations where loads can go negative and, in reality, grasslands can be a nutrient sink, which would, in effect, be a negative load. So, I don't see where that necessarily creates a problem, considering we already allow things to produce negative loads.

Ken Staver: They are N sinks, so they have a negative N balance, but they aren't below 0 in terms of their edge of field N. But Jess would have to have the final word on that. But I see them as negative. If you do an N balance, they're in the negative. But the water that comes off has some nitrogen in it, and there is some load to the waterway.

Joseph Delesantro: I'd say we could get into this more, but this is definitely not an 11:03 discussion. This would take more time.

Olivia Devereux (in chat): **Why are some of the loads negative?**

The stream restoration BMP has no domain for the feet or loads. As such, the edge-of-stream (EOS) and edge-of-tide (EOT) loads can go negative for that load source.

Edge-of-tide (EOT) loads for shoreline and feeding space load sources can be lower than edge-of-stream (EOS) loads, or even negative. BMPs can drive nitrogen, phosphorus and sediment loads less than zero. The BMPs that may drive EOT TN loads less than zero include Manure Treatment Technologies and any of the ammonia reduction BMPs, all of which are applied at the EOT scale. These BMPs are reducing the volatilized ammonia. Without the ammonia reduction BMPs in place, the ammonia moves into the atmosphere and is reflected in the atmospheric deposition load. With the BMP, the land load is adjusted to show that the

ammonia stays on the land. For example, a feeding operation may have perfect controls for runoff, but no volatilization controls. With the addition of a lagoon cover, the ammonia will no longer volatilize and be deposited elsewhere. Instead, the ammonia stays on the feeding operation. The oyster restoration BMP also is credited at EOT, and can make the EOT shoreline load negative. These BMPs are applied at the EOT scale.

This situation can occur in segments outside of the Chesapeake Bay Watershed where the EOT load without BMPs is zero, since delivery is to the ocean or another watershed. Those zero EOT loads can become negative with the addition of the Manure Treatment Technology and the ammonia reduction BMPs. A comparable situation is where there is a smokestack outside the CBWS emitting nitrogen that is deposited within the CBWS. Controls on that smokestack increase the load at the location of the smokestack. An animal operation outside the CBWS works the same way. The load that was volatilizing before the BMP was depositing ammonia some distance away in the CBWS. With the BMP, the load stays on the feeding space land and is shown as a negative load, offsetting the atmospheric load formerly deposited in the CBWS.

Olivia Devereux (in chat):

<https://cast.chesapeakebay.net/Documentation/FAQS#UnderstandingResultsFaq>

Tom Butler: Yeah, let's punt that one. With this, I appreciate everyone's comments today. Really good feedback and discussions. We will work offline and try and get some of this ironed out. Thank you, Olivia, for that. We're good for today.

Olivia Devereux: We are good for today. I just cut and pasted that link in there for future reference, just to confirm what Bill said. I was not trying to start discussion, just a reference.

Ken Staver: That's not a land use, Olivia. That's an in-stream load reduction. That's not a land use.

Olivia Devereux: I was just putting the information in there about why some loads go negative. That was all. I just wanted people to have the link, and that's the end of what I wanted to do.

Tom Butler: Alright, thank you everyone. I appreciate it. Let's take a break here, and we'll come back and tackle some of these later. Thank you, I appreciate your participation, and we'll reconvene later.

Action: If there are changes to the methods for determining acreage for managed hay and pasture in your jurisdiction and the method for allocating nutrient management (see slide 3 on the [LULR presentation](#)), please provide that feedback within the next two weeks.

Decision: The AMT was asked to provide their votes on the question to what extent do you agree with the following: We should adopt the following Land Use Loading Rate Ratios:

iii. Managed Pasture (High Application) =1.52

iv. Managed Hay (High Application) =1.56

During the meeting, USDA-ARS, USDA-NRCS, and New York voted 2-hold, and Pennsylvania voted 1-stop, citing a request for additional time to discuss with others, Maryland has not voted on this item.

Action: Tom will follow-up with Maryland, New York, Pennsylvania, USDA-ARS, and USDA-NRCS to get final votes on the land use loading rate ratio decision.

Post Meeting Note: Following the meeting, Pennsylvania remained a 1-stop, and we are awaiting final votes from ARS, NRCS, Maryland, and New York.

Action: Since the group was unable to discuss BMP excess during the July main meeting, Jess Rigelman and Tom Butler will follow-up with AMT members with the presentation and questions to consider, prior to the August meeting.

Action: Tom and Dave will meet offline to determine next steps and see if an interim meeting should be scheduled to discuss BMP excess prior to the August AMT meeting.

Post Meeting Note: An interim meeting for members to discuss BMP excess was scheduled for July 24th, 2025.

BMP Excess 10:30-10:55 [25 min (10 min presentation 15 min discussion) (Tom Butler, EPA)]

The AMT discussed details regarding why we see more animal BMPs submitted than can be credited in CAST. This will set the stage for any decisions required of the relevant data processing as well as recommendations to send to relevant groups. **PRE-DECISIONAL** (information relevant to a decision that will take place in the near future).

Note: The group did not get to discuss BMP excess in the main meeting due to time constraints. AMT members were invited to a subsequent meeting on 7/24 to go over the presentation from the July meeting and to continue discussion. Discussion provided below is from the 7/24 meeting on Animal BMP Excess

Discussion:

Bill Keeling (in chat): VA submits AU's and number of systems. AU's from VACS and systems from USDA.

Elizabeth Hoffman (in chat): MD submits AUs for each system, it's rare we'd only report a system count. We track those through SCWQP data. AWMS can be installed through MACS or Federal funding, or even RI-01s which we often see for horses.

Dave Montali: Just a point of clarification. Some states report area, and that's the issue that we have in West Virginia. It's area, and then there's a default assumed width to back into the credit per 1,000 feet of fence.

Tom Butler: Thanks, Dave, and that's a good clarification here as well, because that plays into the second part of these widths. They are assumed to be 10-foot width for narrow buffers and 35 for full buffers. So, if those buffers are wider or narrower, then that's something we need to kind of discuss as well.

Bill Keeling: We get information from USDA that's pretty much just the system, and we might get the animal type, but we don't get the animal units or total number of animals. So, we're left reporting those systems. When I look through the CAST stuff for hogs, it's like 75 either count or animal units per system, and we're already considering considerable excess, and I've looked at all of the permitted operations and the number they have, and if I use an average and I don't include the really big ones, it's like 4,500 hogs per system. So, if we go from 75 to 4,500, in my mind, it's only going to make the excess issue worse. I don't know that that's true. Also related to our permit data, we have for a majority of the permitted facilities for poultry, the animals place and, for a good chunk of it, at least a third, they are placing at permit max. So, just because there is a permit max, doesn't in every instance mean that they're placing less than

that. There are, at least in Virginia, a considerable number of facilities that are in fact placing at their maximum allowed. So, I just wanted to throw that out there.

Dave Montali: If it's helpful, I can throw something out about systems and poultry, the problems that West Virginia was confronted with, and what we did. Back in Phase 5, I believe the default credit for poultry systems was 145 animal units per system, and Phase 5 worked on a flock basis. So, when we had these animal waste systems going in the 2000's and 2010's, there were people from the state who worked with the USDA local people to kind of get annual production, and then they were saying, well, we don't want annual production. We want flock size. So, they took what they had, and they backed it down by a factor of 6.5. So, back then, it was 145 animal units per system. Then when we went to Phase 6, we were dealing with total annual production. So, we had numbers for when these facilities went in and were reported and, for the few that we only had system information, we backed that back up to 940 animal units per system because of the change in how we were accounting. So, I don't know if any of that stuff is still right, but that's the way it was. But, for the most part, we had some recognition of how many animals were dealt with by the system when the systems were put in. With poultry, it was kind of related to, and maybe Bill was saying this the same way, to how many houses you have and how many birds you run through the houses, and the houses are usually full.

Elizabeth Hoffman (in chat): MD's concerns with AWMS are not with our poultry, but with our livestock numbers.

Bill Keeling (in chat): We also need to expand turkeys beyond a single set of numbers.

Tom Butler: Thanks, Bill and Dave for that. What I've kind of pulled up here on this slide is essentially what we have in CAST for the average number of animals dealt with per system. So, this is essentially what we're using right now, and maybe I'll call on Jess Rigelman to describe this a little bit more if people would be interested in that. Jess, did you have anything you wanted to say about any of this?

Jess Rigelman: I think the table for the most part speaks for itself. These are just numbers that were given to me. I have no idea about their accuracy or their origin. The biggest question I did have was that we use this average animal count per system for both animal waste management systems and mortality composting facilities, which are more often reported as systems. Certainly not by all states, but a lot of states. What I think I do recall from Phase 6, even though I wasn't greatly involved in the conversations, is that the animal compost system was, for the most part, based on conversations about animal waste management systems, and then we just used it for mortality disposal because, up until this last version of CAST 23, there really was no credit for mortality disposals, so no one really kind of cared whether or not there was excess or getting any sort of credit. There's credit now, but as Bill has pointed out before, it's minimal. I guess my question is, would an animal waste system, on average, treat or facilitate as many animals as a mortality composting/rendering facility? That was kind of my biggest concern is we're getting much more excess in mortality disposal, which I am not sure people care about a whole lot because of the minimal credit for it, but should we have a different conversion for mortality disposal? Should we have a different disposal rate for animal waste management systems? The second one is, I do realize many of these things are running at capacity, but maybe not all of them. So, maybe some level of excess is acceptable being that I do understand in a lot of cases, you're given systems from NRCS, and these numbers may be based on capacity. But I think I saw Dave's hand go up, or maybe it came down. He might know a little bit more

about these numbers from Phase 6, because I wasn't really involved in those conversations despite being around.

Dave Montali: I'm not an expert, but my recollection was 145 animal units per system. Jess, do you know if all these actual animal counts per system start with a certain number of animal units per system?

Jess Rigelman: I don't because, like I said, I was just given these numbers. But I am pretty sure it wasn't 145. I do realize that's what it was in Phase 5.

Dave Montali: Just looking at and doing some quick math in my head, if you look at broilers and you see 200,000 per system and if you assume 6-6.5 flocks per year and 35,000 in the house, then that number matched up, and it would be like around probably 940 animal units, I think. So, I think this is consistent with the approach that we took in converting stuff from Phase 5 to Phase 6, but I don't know. I'm not saying it's too high or anything like that. The big problem that I see is that we worked real hard when the systems went in, and we're talking 15-20 years for some of these things. So, what gets produced today at that place, although it may still be poultry, it still may be having a system, I have no clue as to the annual production for that operation, so I can only kind of look at it as a whole for all of our poultry.

Seth Mullins: For a poultry farm, what constitutes the waste management system? Are we talking about all of it? The housing, the litter and the litter shed, and the compost bins as far as mortality? Or are we just talking about the housing? Or is it just the litter shed? How does that get counted?

Dave Montali: For better or worse, in West Virginia, it was the actual installation of the litter sheds that enabled the management of the waste presumed under a nutrient management plan.

Seth Mullins: Is there anywhere that accounts for the size of the shed? Just looking at that list, 3,700 turkeys. All of our permitted farms are more than 3,700 turkeys, but, if they're located at the same site, more than likely it's just one big litter shed. You may have 50 or 100,000 turkeys feed into one shed. That's kind of my question on it is how do we account for size differences? We're putting number of animal units or animals per system. But, for Virginia, there are a lot of differences in size. In the valley, we've got broiler farms that may be two or three houses. In the Eastern Shore, there are 12/14/16 houses, and they all have one shed, if they're at the same site, for the most part.

Tom Butler: This is a good question, Seth. When we've been talking with people, we've been trying to figure that out. We've seen reports where the same farm will have four houses and each house will have it's own shed, and those are all reported as their own BMP.

Seth Mullins: We have that, especially when they are built over time and not all at once.

Tom Butler: I guess I wouldn't know too much about the size being accounted for with that. But, I think Bill could speak to that. I did want to give Tamie a chance if she had a question first.

Tamie Veith: I'm wondering with this, is the point of all of this is to say each section has a certain number of types of animals and then, for the animal waste, it's like how much excess waste would we assume is there? We probably don't even assume it's there, but we are going to manage it. So, it's kind of backwards. We are probably not applying all the bedding and everything if they don't have the BMP. Say we have that and then we are going to apply the BMP, so we have this animal waste management, there's a standard by NRCS and there's a tool that calculates the size based on all the inputs and the climate. It seems like we should be able to take the knowledge we have about the operations and then if they have appropriate systems

supplied, we should be able to know what contribution/benefit it adds. It should be pretty defined. I almost think that trying to figure out how many animals are going in or out of it is maybe getting too into the weeds, when it's already designed and then you have a certain number of animals in each operation. Say you have 50 animals in the operation. It may or may not be at capacity, but that's what you have. From each state, I don't know the data they get, and we are learning how they report it and all. But it just seems like that is almost too in the weeds of details to actually get a clean comparison. For the mortality, it seems like you have x many animals on the farm and they either are composted or exported somewhere else outside of the watershed unit or they're not. So, I don't know how that actually gets at it without looking at the data and trying to do it myself. I guess I don't have a clear suggestion. I just wonder if maybe stepping it up a step might help.

Jess Rigelman: I think you're right. It may be getting a little bit in the weeds or not. I know how the animal waste management system is used in the model. It basically said how much of the manure that is excreted in the confined areas is able to be scooped up and spread on crops. If you have an animal waste management system, the percentage of that manure that is available to be spread on crops is higher than if you don't. I feel like this is just, for the most part, getting to try to address in areas where there may not be daily haul. It's not as if, in any way, this gets rid of any sort of manure. It just puts it in two different buckets, whether or not it stays in the feeding space and counts towards that load or whether or not it goes towards being spread on crops. Then the mortality one, we don't have, for a lack of a better word, a dead animal load we are treating. So, basically all we're saying is, through a bunch of math, if you have so many animals that pass away based on our mortality fraction, and then you treat them through our various mortality disposal methods (rendering, or composting, or incineration) that those animals are no longer excreting. So, therefore, you get an efficiency or a decrease in your feed space load because you treated those animals in a way as opposed to kind of burying them on site. So, that is the weeds that we're using to define these BMPs.

Bill Keeling: I just wanted to fill in another little nuance in that not everybody in our reporting or permit has a waste management system. There are what we call transfer plans, where they're cleaning out, for example the house, and it does not stay on site. They transfer the litter elsewhere. That waste is being produced. But we're already having excess on the systems we're reporting, and we're not reporting on the entire universe of the operation. So, I don't know how we solve that, but there is a big discrepancy between our permitted animal numbers and what is in NASS for several counties, and it's generally to our detriment in terms of loading as in there's more animals according to our permits than what the Ag Census has. So, just throwing that out.

Dave Montali: West Virginia doesn't have a big problem with AWMS excess. We have a turkey issue in two counties where we've historically been cut off, based on what we reported as animal waste management systems for turkeys. But what that's really saying is that the animals that NASS says we have and that we use in the model, all have animal waste management systems on them. This is contrary to what I believe on the fencing issue that we're going to talk about, but, in this day and age, most of these larger scale operations have a means to collect the manure generated in the house and apply it without having export from the site. I'm trying to think back a long time, but there were systems in place that did what Bill talked about too. I.e. the litter shed wasn't on the farm, but there was a transfer of that litter to another place where it potentially had a littler shed there just for the acceptance of the waste, so that it could

be applied without being lost. West Virginia doesn't have a big problem with excess and, if the underlying thing is that we're saying most of our animals are covered by a system, that may not be all that bad from reality. West Virginia is like at 85% of our poultry is covered by a system. 80-85% I think is where we are at.

Jess Rigelman: I just, in general, had a question for the group. This is just for animal waste management system, though it applies to all. In a lot of areas, you're getting 100% credit and that there is excess, and the mechanism of that is that the majority of your manure is getting spread on crops and the very least amount is being left into feed space, because we 100% captured as much of that manure as we can to be put in a system to be later spread on crops. So, basically, what is the acceptable solution here? As Bill said, I don't think you want your animal numbers increased so that you can get full credit. You're getting 100%, which I understand doesn't work well with your stakeholders because you're getting excess, and you are saying we submitted 100, but we only got credit for 90. So, I guess I'm asking how are we going to fix this? The only way I see of fixing this is adjusting those numbers so that we're closer to 100% for all of you, which is certainly not going to work out the same in each state. So, I wanted to talk a little bit more about what's the potential solution here that you guys are looking for? We're basically taking all of your manure and spreading it on crops, and I understand the excess number doesn't sit well with your stakeholders, but what are we looking for here as far as a solution? Just broad picture. Not modeling, not math, but what are we looking for here as far as the solution to this?

Hunter Landis: With the excess, why can't it just be accepted as is? If a state reports the data, is there a reason that they're cut off, versus those numbers just going in even though somewhere or something thinks that's an overage?

Jess Rigelman: They do go in, and you get credit for it. It's just, through all the math, it's saying you submitted 100 animal units, but we only have 90 animal units in your county. So, you're getting 100% credit, it's just we can't give you credit for 10 because we don't have 10 more animal units worth of manure in this case. So, that's the answer. We are accepting it; we're taking care of 100% of the manure. It's just you're asking us, and I don't mean that to sound accusatory, to take care of 110% of the manure, but I don't think you want us to invent manure. So, that's what this is.

Bill Keeling (in chat): Excess is more like 30% and how much is too much?

Hunter Landis: I'm just asking because I don't know, not necessarily proposing, but if it's state or Bay or county, if we or the system said there's an excess in the county for some reason or another, could that go somewhere else within the jurisdiction's reporting area?

Jess Rigelman: Yeah, but where is it going to go? You are reporting it at certain scales. Virginia, I think for the most part unless it's NRCS data is reporting it at HUC 12 scale. If you wanted to report that at a higher scale, HUC 10 or HUC 8, you're going to get less excess. But, for the most part for this BMP, we're talking 100% across the board, and you're not looking to invent manure and invent animals.

Bill Keeling (in chat): One possible solution is for EPA to be more flexible in the reporting guidance and allow us to report at county scales.

Elizabeth Hoffman: Yeah, mine builds off of Hunter, and I'm trying to choose my words well. Our questions in Maryland are just very different, so I don't want to distract the conversation. But, for poultry numbers, we see excess, and it's above or beyond, but we're pretty much hovering around 95% of our animal population for poultry being addressed, and no one is concerned

about that. So, our concern in Maryland is more on the livestock side, and the challenge there is, if I understand this correctly, because those numbers where it says inventory are coming from census, so they're not updated as often. So, to Hunter's comment, the challenge there is we base our WIP goals, for better or worse, on percent of animal unit populations to be addressed by systems. So then as the model updates and that fluctuates, we're either not meeting our goal or wildly over our goal. So, I guess our question or thought is more philosophical or like we know that there are some of these animals out there and, to Jess' point, I don't know that we're advocating plugins in the model, but kind of keeping up with that swing is hard. So, I don't have a good ask, I'll say that. We're really just here to understand more. But I do think there's a question in there that's similar to poultry is we, in Maryland, have really robust verification. So, when we do start seeing consistently a county where they are at 150% of a goal of addressing 100% of a population, and we verified all those practices are there, and then we also have verified the animal units to the conservation plan files, then the model is just wrong. So, we're not getting credit for that, but then we're also not achieving goals for other categories of livestock. So, to the overflow question that Hunter had, trying to think through how that would work, I don't know an answer or a solution right off the top of my head. Anyways, those are all kind of the thoughts we're bouncing around in Maryland. Again, I don't think we have a good solution, or even a clear question, but helpful to hear everyone's thoughts today.

Jess Rigelman (in chat): EPA is supportive of reporting at a larger scale.

Bill Keeling: In the chat, I pointed out that the excess is more like 30%, not 10%. Currently, our grant guidance says we are to report at the finest scale. So, if we are given coordinates for HUC 12, that's what we're supposed to report. So, if we were allowed more flexibility expressly stated in the guidance, then we would consider altering how we report. But, yeah, the majority of what Virginia has is HUC 12. I don't see that I have the flexibility to report at a larger scale, unless that guidance has changed. So, I just wanted to point those things out. That might be one possible way we could address this.

Auston Smith (in chat): Jess is correct, the finest scale is often ideal, but the BMPVAHAT helped confirm with the partnership that some circumstances call for a larger-scale submission.

Auston Smith: Bill, for Virginia in particular, the HUC 12 has been what you report at, but you are saying that in some circumstances, if the grant guidance in particular specified that county was ok, you would prefer to report at a county level?

Bill Keeling: I think part of our issue is that the manures and animal numbers are all calculated at county scale and then distributed based on some formula that apparently does not match where the animals actually are when you look at it at a HUC 12 scale or a sub county scale. So, if we were allowed to summarize things in the county, it would be a bit of work for us. It wouldn't be an automated process; we would have to do some things with our warehouse in order to make it work. But I'm just saying that the way I read the instructions are if we have coordinates, we're to report coordinates. If we have HUC 12, we're to report that at whatever the finest scale of the data is. This also brings up that, for USDA data, all I get is county, and it can be the conglomeration of multiple different animals. So, I don't really know what animal or animal units, just the number of systems and/or at a statewide scale, which is relatively useless. The other point I wanted to bring up is we currently only have one set of numbers for turkeys, and we probably need a breeder and a finisher category, because they are at different weights and produce a different stream or amount of manure.

Auston Smith: Ok, loud and clear. I think the grant guidance is having revisions done for it for future years now and in several coming months. So, I think based on what this group decides on how they want to move forward, I don't think it's out of the realm of possibilities to have the grant guidance reflect some additional flexibility. I need to talk to Autumn and likely Jess and Olivia to make sure that doesn't break anything on our side. But, as far as what's allowed on paper, I think we can accommodate or at least discuss it.

Ken Staver: I'm not an insider on all this, so my question is, did you check at the county level, since we get animal numbers reported at primarily the county level, would these excesses still look the same or would that solve some of this? Has anybody looked at what it looks like if you did it at the county level? We have a mismatch of animal numbers and waste systems. Is that what I'm hearing?

Jess Rigelman: That is the case in Virginia, and I'm not sure about other states, but I know Maryland reports by county. Elizabeth can correct me if I'm wrong. So, it would be state by state and, no, we haven't looked at it because, in general, the proportioning of animals or anything from HUC to county and/or LRSEG in Phase 6 doesn't exactly work out necessarily the way that you would want it to. So, hopefully once we are at HUC for river segment in Phase 7, it will be a little bit cleaner. But, yeah, I'd be happy to look at it, but I think it would probably best be done on the Virginia side, in Bill's case, based on their internal knowledge, and then I'd be happy to run that.

Ken Staver: Because we only ever get animal numbers at county scale.

Jess Rigelman: Right, and then the annual data set, like the broiler annual data set, is at state scale. Then we just proportion back to county based on the last ag census.

Ken Staver: Right, so just from listening sort of as an outsider, it seems like that could be a good bit of the problem. But that's all I have.

Elizabeth Hoffman: I was just going to confirm what Jess said. We report at the county scale, and then our challenge is quirkier. If five years ago there was a larger dairy population, now that's decreased, and then we're reporting for a different type of livestock based on operation change, the model doesn't think those are there. So, they get no credit for that waste management system, but then they're suddenly not meeting in the dairy category, but those animals aren't there anymore. So, do we just finagle that on the state side? I don't know if you want us to do that. But it does call the question of, especially if we have verified a lot of these on the livestock side especially, could that ever be used to better inform animal populations in the model?

Tamie Veith (in chat): I agree. It seems like it would eliminate a lot of the back-and-forth calculation errors by reporting the AWMS and Mortality numbers (or a % of animals) on the same scale as the animal numbers are reported. or minimize it anyway.

Dave Montali: I think the problem is state specific. It could be one thing in one state and then one thing in another. West Virginia is ok, but we don't rely on systems. So, folks that report systems might have issues associated with how many animal units per system there are, and a solution might be to lower that. But then folks that report at finer scales may have that mismatch, like what I think I am hearing about Virginia, in that things get cut off because the animals aren't there, but they are untreated animals somewhere else. I know that for limited instances EPA will say don't report where you know it is, report at the whole basin scale so you don't get cutoff, this isn't right. So, I think everything is jurisdiction specific, but the solution of allowing it to be reported at a higher coarser resolution seems appropriate to me in that there

is uncertainty in the location and the number of animals that we put into the model as well as the credit that we give for things called systems.

Jess Rigelman: If there is insider knowledge that the states have as far as how things can be better proportioned to whatever area or animal it needs to be done, I think that can be used for your reporting, and whatever math you need to go through just kind of needs to be documented in the QAPP so that we are aware of it. As far as actually using those numbers to better inform the model, I don't know the answer to that. We would have to look into that. But, if you wanted to discuss that, Olivia, we should involve Joseph who I don't think is on this call today, since he's the one working on the animal numbers for this next version of the model. So, I wouldn't say that's out of the realm of possibility, but we would have to discuss what we would need and what would need to be done with that.

Tamie Veith: That sounds good to me as a non-state representative. I think that makes sense. You guys are on the right track.

Ken Staver: Jess explained about the systems moving nutrients from one category to another when you have these structures. I remember from back in the old days that there was this land use called animal feeding space or something. I don't know what it was, but they had loads of 1,000 pounds per acre. Super super high loads. So, these systems reduce that area. Is that one of the things these systems do is just reduce the area of the super high loading rate land uses?

Jess Rigelman: They don't reduce the area. They just reduce the amount of manure left. So, we assume that animals either excrete their manure in pasture, the access area/the confinement area, then that confinement area we assume so much of it is collectible. But, with an animal waste management system and proper storage, we assume that more of that manure is collectible. So, instead of, and I am making these numbers up, 95% of it being available to be spread on crops, now all of a sudden, it's 99% of it. So, that last four percent is moved to be spread on crops where it's going to produce a lower load, versus the last 4% being left on the feed space that's basically just a direct load to that feed space.

Elizabeth Hoffman (in chat): Part of our thinking in MD is looking ahead, using CAST for planning to address loads, the animal population changes not being reflected in the model cause us to under achieve a goal for one livestock type, overachieve for another, which really becomes a concern when we've verified those. Similar to Bill's comments, when is excess too much. Unsure of a solution at this time but that's our concern. and by overachieve, I mean -- see cutoff

Ken Staver: Pre-2000, Phase 3 maybe, Maryland had tremendous reductions in phosphorous losses, because of manure storage facilities, and it was about reducing the area. I guess this is so many models ago it's not even relevant now. But it's always curious because in poultry, it's not like animals were ever in a feed lot. So, it's always a curious thing for poultry, because it's not really like a feed lot. You were saying 100% of something is treated, in that particular area there is nothing to be gained. It's already 100% dealt with. So, it's not like you are losing anything in the overage, I guess. Is that what you said?

Elizabeth Hoffman: I think each jurisdiction has a different angle on this. So, I was just trying to share what Maryland's is a little bit more specifically.

Dave Montali (in chat): I have a hard stop at 10 but want to weigh in on the fencing issue. Perhaps we need another one of these mtgs?

Bill Keeling (in chat): On the fencing I would support an adjustment to the default values used.

Elizabeth Hoffman (in chat): Yes, to fencing meeting. MD supports adjustment to that default width as well.

Jess Rigelman (in chat): Bill, Elizabeth - do have recommendations for new widths?

Elizabeth Hoffman (in chat): One of my questions for fencing is when we see "cutoff" based on AU caps, but that associated buffer should still be a land conversion and filter, right?

Tamie Veith (in chat): Idea on Elizabeth's comment: Could the animal populations be updated or improved from NASS by states, based on knowledge. so that it can match with CAST? I am sure this is lots more work and maybe only something that can be suggested higher up.

Jess Rigelman (in chat): LU change is not affected by AU excess

Tom Butler: So, I think we've had some good conversation. It seems like there's at least a desire to look at potentially reporting at a different scale. In terms of what we have here for us right now, that's something that I think is a potential path. Then, we have a few things in terms of if we think changes need to happen and then what we might suggest now. We don't have total control over all of this, because things like the default width, that's a Watershed Technical issue. So, we would be able to make a recommendation for that. We can make more of the decisions on things like conversion factors for animal waste management, if that should be different for mortality disposal systems. Then there's the default that we have for the exclusion fencing. So, I'm seeing a lot of people in the chat commenting about potentially looking at those default values but also looking at maybe another meeting for those. We can probably put this on the August meeting and try to knock this out there, recognizing that that's kind of the end date for these decisions. We don't really have an extension to deal with those, so that might be our avenue there. Given that we have 3 minutes left, could we potentially get some of the recommendations that you would have for things like the widths? Any changes that we'd have? Maybe we can relay these by e-mail after this meeting, but I'll open it up here in the last two minutes if people had verbal comments on those.

Elizabeth Hoffman: The recommendation for the new width, I'd like to look at some of our data, but I would say by and large if what we're seeing is that they are meeting that 35-foot minimum, they often are much wider and then there's also a lot of stacking of habitat practices as well. So, some of them are extremely large. So, I don't have a good number offhand, and I'd want to back it by data but, yes, we can get that to you. Then, Jess, your comment about land use changes not affected by animal unit excess, maybe I can follow up with you via email. I guess my confusion is, when you look at the excess report and you look at fencing under the animal BMP, there's cutoff by that animal population being excluded. Then also the other components of the fencing practice, do they get cutoff as well? Maybe that's just me needing to understand that better.

Dave Montali (in chat): there is no problem with the crediting with the LU change or filtering components, only the direct deposition part

Jess Rigelman: You basically report it as one BMP, and I think most states other than Virginia just report either the length or the area, and we basically generate those animal units. So, at that point they get split off into two BMPs. So, the land use change part and the upland acres is one BMP and then the animal unit fence is a separate BMP. So, one changes the land use to either forest or ag open space, and the other one just basically says the manure that we're excreting in the stream are now excreting in the pasture. So, this is another example with the animal units cut off. It doesn't really eliminate anything. It just basically says that all your animals that were excreting in the access area are now excreting in the pasture. So, it's the same amount of

manure, it just goes to a different location. I understand that you want as much of that as moving. But, where it is cut off, you are getting 100% of that manure being moved up into pasture.

Bill Keeling (in chat): VA reports a length, width, and AU excluded.

Elizabeth Hoffman: Ok, gotcha, just want to make sure.

Tom Butler: We're at 10, so we're going to try and cut it here. If you could provide any comments on these by email in addition to what we've said today in the next week, we can try and get those lined up so we can get something together and have another part of this at the August meeting. Thanks everyone for your feedback today. I appreciate it, and we'll be in touch on this again.

Action: Please provide comments and feedback on the animal bmp excess questions (slide 13 of the [animal BMP excess slides](#)) via email to Tom Butler (Butler.Thomas01@epa.gov) within the next week.

Action: The AMT will continue to discuss animal BMP excess at the August meeting.

Recap/Closing 10:55-11:00 [5 min (Zach Easton, VT)]

Adjourn – 11:00

Up Next:

Office Hours: Friday, August 8th, 2024, from 8:00 - 9:00 am.

AMT Meeting: Friday, August 8th, 2024, from 09:00 - 11:00 am.

Participants (Main Meeting)

Zach Easton, VT

Tom Butler, EPA

Caroline Kleis, CRC

Caitlin Grady, GWU

Emily Dekar, USC

Olivia Devereux, Devereux Consulting

Helen Golimowski, Devereux Consulting

Joseph Delesantro, ORISE Fellow/CBPO

Jen Nelson, Ag Advisory Committee
Coordinator

Scott Heidel, PA DEP

Jessica Rigelman, J7 Consulting

Bo Williams, EPA

Curt Dell, USDA-ARS

Thomas Harty, US EPA

Dave Montali, TetraTech

Bill Keeling, VA DEQ

Hunter Landis, VA DCR

Elizabeth Hoffman, MDA

Alisha Mulkey, MDA

A.K. Leight, MDA

Samantha Cotton, DNREC

Lisa Duriancik, USDA-NRCS

Eric Hughes, EPA

Ashley Hullinger, PA DEP

Arianna Johns, VA DEQ

Tim Larson, VA DCR

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**Common Acronyms

AgWG- [Agriculture Workgroup](#)

AMT- [Agricultural Modeling Team](#) (Phase 7)

BMP- Best Management Practice

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](#)

EPA- [United States] Environmental Protection Agency

PSC – [Principals' Advisory Committee](#) (CBP)

STAC- [Scientific & Technical Advisory Committee](#)

TMDL- Total Maximum Daily Load

WQGIT- [Water Quality Goal Implementation Team](#)