

# Agriculture Workgroup (AgWG)

## Meeting Minutes

February 15<sup>th</sup>, 2024

10:00 AM – 12:00 PM

## Meeting Materials

### Summary of Actions and Decisions

**Decision:** The AgWG approved of [minutes](#) from the January AgWG call.

**Decision (via poll):** The AgWG confirmed a new vice chair (Caitlin Grady, GWU) and six at-large members (Jeff Hill, YCCD; Zach Evans, Mountaire Farms; Ken Staver, UMD; Jenna Schueler, CBF; Dave Graybill, Farm Bureau; Leon Tillman, NRCS).

**Action:** Please fill out the 2024 in-person meeting poll: <https://forms.gle/Eevq1zQfNXXSS7866>.

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## Meeting Minutes

### Introduction

10:00 **Welcome, introductions, roll-call, review meeting minutes – 5 minutes**

*Kathy Brasier, AgWG Chair*

- Welcome 2024-25 Vice Chair and [at-large members](#)
- Roll-call of the governance body
- Roll-call of the meeting participants - *Please enter name and affiliation under "Participants" or in "Chat" box*
- **Decision:** The AgWG approved of [minutes](#) from the January AgWG call.

### Accounting & Reporting/Innovation

10:05 **Use of OptIS to Track Adoption of Cover Crops and Conservation Tillage – 30-minute presentation**

*Dr. Dave Gustafson, Conservation Technology Information Center (CTIC)*

The Conservation Technology Information Center (CTIC) has been collaborating since 2010 with The Nature Conservancy and scientists at Regrow Ag on the development of the Operational Tillage Information System (OptIS), a novel approach for tracking the adoption of cover crops and conservation tillage, based on the use of publicly-available remote sensing data. The latest version of OptIS now makes these data freely available (via the CTIC website) for all lower 48 states of the Continental US (CONUS). In tandem with these efforts, CTIC is pursuing implementation of the Conservation Validation Network (CVN), which will collect anonymized ground-truthing data meant to improve the accuracy of OptIS and other similar methods now being developed to track the adoption of such practices.

#### **Discussion**

**Ruth Cassilly (in chat):** Hi Dave, thank you for your presentation, 2 questions. First, you are not currently able to determine/differentiate cover crop types, is that correct? Second, how do you account for cover crops that may be harvested as a commodity crop and may receive a nutrient application? Thanks.

**Dave Gustafson (CTIC) (in chat):** Ruth - Correct, Regrow does not currently attempt that. On the 2nd question, we don't currently attempt to track any of that, but it might be feasible.

**James Martin, VA DCR (in chat):** Dave - Is the HUC8/CRD scale the finest that you could make available? Or is it just the limit of what you have decided to make available publicly?

**Dave Gustafson (CTIC) (in chat):** James - The field-scale data are available directly from Regrow. I can put you in-touch.

**Nick Hepfl (in chat):** Dave - How intensive is your ground truthing protocol? Is it realistic to expect farmers to supply that data accurately?

**Dave Gustafson (CTIC) (in chat):** Nick, we currently imagine this as a citizen-based crowd-sourcing effort, kind of like the Christmas Bird Count — but I guess you could also go the direction of intensive-protocols — though I think the overall most cost-effective approach would be to continue to separately collect a small amount of ground-truthing data through the states — and rely on CVN for model development/verification.

#### 10:35 **Satellite remote sensing applications to support cropland conservation management – 30-minute presentation**

*Dr. Dean Hively, U.S. Geological Survey (USGS)*

Dean Hively, USGS, discussed the use of satellite remote sensing for informing conservation management of field crops. In this era of increasing satellite capability, it is possible to measure fractional cover of both living vegetation (e.g., winter cover crops) and senesced vegetation (e.g., crop residue and tillage intensity), as well as the performance (biomass and nitrogen content) of winter cover crops. Tools can also be developed to identify implementation acres and detect emergence and termination dates on cover crop fields. Satellite-based analyses conducted in cooperation with conservation programs can inform adaptive management of incentive and outreach, to emphasize practices with documented environmental benefit. Dean presented an overview of methods currently used nationally to map cover crops and residue cover, with a focus on tools developed through his research partnership with the Maryland Department of Agriculture.

#### **Discussion**

**James Martin, VA DCR (in chat):** Dean - Does the MD late termination incentive prohibit N application between March 1 and May 1?

**Jason Keppler - MDA (in chat):** Correct, no nutrients may be applied. Nutrients being N & P. Lime & potash may be applied however.

**James Martin, VA DCR (in chat):** Thanks Jason. It is interesting to think about if allowing a spring application of N on cover crops as a commodity pre-planting split application.

**Amanda Barber (in chat):** Dean - Given the challenge with snow and cloud cover in New York, once you have calibrated elsewhere, do you think we will be able to use April imagery to estimate our fall cover?

**Dean Hively:** What do you need to measure for fall cover? I think you can back track from the spring information. We can discuss it further. We were looking at a 4 year time sequence earlier and some of them worked, but the imagery was just patchy, so maybe we can revisit that as the temperatures seem to be getting warmer in NY.

**Mark Dubin:** Perhaps it would require more ground truthing from the local side to help with the calibration.

**Dean Hively:** Remote sensing becomes a lot stronger the more ground truthing data you have. With the new project in PA, they are looking to see if we can look at more specific factors like

distinguishing between species, for example. We can do that in the future, we just need a training dataset to be able to pull that out. There are certain limits to remote sensing and maybe we can't pull out everything, but we can certainly try - it just has to do with the calibration data. The more data you have the better you can calibrate.

**James Martin:** You already have a very high degree of agreement between the ground truthing and the results that the imagery and your process has shown. Right?

**Dean Hively:** Yes, we have r squared values of up to 0.9 for crop residue cover. If you're using Landsat though, it's down for 0.8. For the cover crop biomass, the values are around 0.7 and for fractional cover the values are around 0.7- 0.8.

**James Martin:** I just think we're holding our BMP reporting data to a higher level of accuracy than any other data input in our model. So I think I disagree with Mark. It's important to have our model calibrated and a reasonable level of ground truthing, but I think we already have a high level of accuracy with that.

**Mark Dubin:** My comment was directed towards New York and their limitation of cloudy weather. and perhaps ground truthing would help assist with that.

**Dave Gustafson:** Does CBP distinguish between cover crop species? Is that something you care about?

**Olivia Devereux:** Yes, we do care. They have different credits in our watershed model. We don't track in the model the preceding crop, but we do track the cover crop species and timing.

**Dave Gustafson:** All Dean mentioned, regrow does not currently attempt to distinguish crop species with public information, but there is work in that area. There is interest in trying to develop that information. I think it will be difficult to get this information historically, but moving forward I think it will become possible. Right now I don't think we can see differences in species, though.

**Dean Hively:** Dave, how would you deal with small fields that are too small for Landsat pixel?

**Dave Gustafson:** It's better now with sentinel. And that's part of the reason why regrow is not going back before 2015. When we first released Optis we did go all the way back to 2005 for the Midwest to try and dovetail with the end of the national survey. But this most recent release is only back to 2015 and I think the cutoff is 10-acre fields.

**Thomas Butler (in chat):** Dave can you please describe how far back in time historic data is?

**Tom Howard (in chat):** Data back to 2015 is available at <https://www.ctic.org/OptIS>

**Mark Dubin:** To add to Olivia's comment, the science panel felt there was value in looking at species, but that's not always possible with some verification methods like the transect survey, so we have a default value for crediting. It's a more conservative value but we could technically still report it.

#### 11:05 **Remote Sensing Verification of Conservation Tillage BMPs – 30-minute presentation**

*Tom Howard, Resolve Hydro; Scott Heidel & Ashley Hullinger, PA DEP*

Tom Howard is the Founder and CEO of Resolve Hydro LLC, a company focused on water resources applications of remote sensing. His presentation included a brief overview of remote sensing applications to water resources, including monitoring submerged aquatic vegetation extent and water quality changes through space and time. The second part of the presentation introduced a PA-DEP pilot project investigating the accuracy and utility of a remote sensing-based BMP verification methodology for conservation tillage practices.

**Discussion: See below.**

## 11:35 Q&A – 20 minutes

### Discussion

**Dave Gustafson:** Tom, which crop generated residue are you monitoring? Corn typically generates a far greater amount of residue. We change our criteria for a no-till system based on if it was corn vs another crop. You don't change your criteria for corn vs non-corn, etc?

**Tom Howard:** In Phase 6 of the watershed model there isn't a distinction between % residue and different types of crops. There are different spectral responses for different types of residue, soils, and crops. That's part of the value of using a machine learning approach. With the data we have, we can pair some of the conservation tillage measurements with our knowledge of what has been there previously per roadside observations and we can use that as an input for the machine learning process.

**Dave Gustafson:** Your roadside observations record what the previous crop was?

**Tom Howard:** Yes. if we wanted to distinguish between them then we have the data.

**Eric Hughes:** I think the AgWG is the appropriate place to make these decisions, but I think it would also require approval from the WTWG and notice to the WQGIT.

**James Martin:** I have an idea for a hybrid model for cover crop incentive programs. We could continue our "normal" cost-share programs and pay producers to implement cover crops and do multiple verification cycles to make sure they are doing so. Or we could modify that system and to where we continue to enroll producers to implement cover crops, pay them a reduced rate for their base enrollment, and then use the performance based metrics in terms of % cover to pay them additional compensation based on performance. Then add another performance based payment at the end for biomass associated with reduced nitrogen application on the following crop. CESR tells us we should be doing pay for performance, but not all BMPs are easy to measure by performance. But with cover crops, this information could really help us do that.

**Ruth Cassilly:** There is still an issue of how to determine commodity cover crops vs regular, and also the application of manure. Can't tell this distinction with remote sensing. There would be a need to tell if nutrients have been applied and some sort of method be applied.

**Dave Gustafson:** I think you could infer some information about nutrients applied but you would have to ground truth it with additional data.

**Dean Hively:** I agree. Ruth, if there is a dataset from the transect survey that distinguishes between those two fields I'd like to take a look at it. James - I worry a bit about paying more for more biomass because you have situations like dairy farms that harvest silage and plant rye very early as a cover crop, but the soil nitrogen remains high. So the cover crop tends to take up about half of the nitrogen, and if you have a field that has 150% excess nitrogen, they'll take up about 75-80% and the rest will leach out, in comparison to a cover crop where the farmer has been managing their N very tightly. It's tricky.

**James Martin, VA DCR (in chat):** Ruth - In our current cover crop tracking and reporting we also do not "know" about nutrient applications. Enrolled producers agree to follow the rules.

**Ruth Cassilly (in chat):** James- in order to be in compliance with CBP verification protocols- states need some way of determining whether nutrients have been applied to the cover crops, if that data is being collected in some other way (since transect survey is not approved for this) then they would be able to report those acres directly, but they should not be extrapolated or carried forward into future years.

**James Martin, VA DCR (in chat):** Ruth - No one is out there watching every field every day. We rely on producers following the rules. I am curious how you imagine any cover crop could be reported otherwise.

**Ruth Cassilly (in chat):** This is not about the producers following the rules, it is about jurisdictions using approved verification protocols to the best of their ability to ensure the most accurate model estimates we can get.

**Ken Staver:** I agree with Dean's concerns. It's always been a problem of "what is a good cover crop". If you're going to get credit for your cover crop having a lot of nitrogen, then maybe you need to reduce the benefits from the nutrient management credit because you have a lot of nitrogen on your land. It gets more complicated when you're trying to account for mixes of cover crops.

**Dave Gustafson:** Do you incentivize the inclusion of nitrogen fixing cover crops?

**Ken Staver:** We have a strong soil health movement in MD. Mixes have to get paid as high a rate as any cover crop. They aren't credited the same in the Watershed model but they get the same payment in our system because of the soil health aspect.

**Elizabeth Hoffman, MDA (in chat):** There's a couple combinations of incentives.

**James Martin, VA DCR (in chat):** In VA we do pay for legume cover, but at about half the rate of Rye.

**Nick Hepfl:** Even with some of the inaccuracies that were mentioned with remote sensing, we're probably still better off using that than how we're reporting now.

**Dave Gustafson:** We are aware of states in the Midwest that are in the same place as CBP. I think ultimately something like 10 years from now most of this will be based on remote sensing, but we're on the cusp of that starting to take place. We need ground truthing data right now. Not just in CBW, but across the country. Needs to be great collaboration across the country on this, maybe led by NRCS.

**Scott Heidel, PA DEP (in chat):** Just for my clarity, this issue would not impact conservation tillage verification and reporting, correct?

**Tom Howard:** Data sharing is very important for verification. It will also be important to train folks consistently for ground truthing.

**James Martin, VA DCR (in chat):** Getting back to tillage...Because the Bay Model uses % residue instead of tillage practice, it forces more variability in the BMP reporting based on crop rotation (if we did the analysis/surveys annually). So how frequently would we want the % residue assessed if we moved to a remote sensing approach?

**Ken Staver:** We also have to interface with NASS and that will remain a challenge.

**Dean Hively USGS (in chat):** James - I think once Landsat Next is up RS could be performed annually. It would require a workflow that would follow individual fields to measure at the best time in spring (post-plant).

**Jim Riddell (in chat):** Excellent presentations; Discussion. thanks. More remote sensing use/examination with all BMPs, etc.

## **Wrap-up**

### **11:55 New Business, Announcements & Updates – 4 minutes**

- **Agricultural Modeling Team**
  - Tom Butler, Coordinator of the AMT, provided a brief update on the group's latest activities.
- **In-Person Meeting Poll**
  - Summary of responses received so far.
  - Please complete the poll if you have not already:  
<https://forms.gle/Eevq1zQfNXXSS7866>.

- **Agriculture Advisory Committee**
  - Review of [actions & decisions](#) from December 8<sup>th</sup>, 2023 PSC meeting.
  - “PSC Decision: The partners agreed to establish an action team to develop recommendations on whether to establish an Agricultural Advisory Committee. Final recommendations should be ready for PSC consideration in time for the June PSC meeting. The partners also agreed to the action team [charging document](#).”
- **Beyond 2025 Updates**
  - Clean Water Small Group: The [WQGIT Feb 26<sup>th</sup>](#) meeting will include a recap from the Clean Water leads on the feedback heard during the [Feb 1 Clean Water Listening Session](#).
  - Climate Small Group [Listening Session](#): Thursday, Feb 22<sup>nd</sup> from 10:00 AM – 12:00 PM
  - [Beyond 2025 Symposium](#): Feb 28 – 29<sup>th</sup>. The purpose of this meeting is to convene the Beyond 2025 Steering Committee to integrate and discuss Small Group recommendations and consider the support and steps needed to inform the Executive Council of a recommended path forward.
- **U.S. Geological Survey fact sheet about Chesapeake agricultural water quality: [Your land, your water—Using research to guide conservation practices on local farms in the Chesapeake Bay watershed \(usgs.gov\)](#).**
  - This fact sheet summarizes some important topics about water-quality conditions and drivers in Chesapeake agricultural settings. USGS used feedback from local farmers, NRCS staff, and SWCDs to make sure that the text and visuals in the document would be relevant to farmers and local resource managers.
- **[Southeast PA Grazing Conference](#) on Thursday & Friday, February 15 & 16. Lancaster County.**
  - Join us at the 31st Annual Southeast PA Grazing Conference, featuring speakers interested in promoting grass and sharing how to capitalize on its myriad advantages.
- **National Fish and Wildlife Foundation (NFWF) Request for Proposals**
  - Small Watershed Grants (SWG) Program
    - More information can be found on [NFWF’s SWG website](#).
    - Proposals due April 3<sup>rd</sup>, 2024.
  - Chesapeake Watershed Investments for Landscape Defense (WILD) Program
    - More information can be found on [NFWF’s WILD website](#)
    - Proposals due April 10<sup>th</sup>, 2024.
- **Other Announcements?**
  - Send to Jackie Pickford ([Pickford.Jacqueline@epa.gov](mailto:Pickford.Jacqueline@epa.gov)) for inclusion in “Recap” email.

11:59 **Review of Action and Decision Items**

12:00 **Adjourn**

**Next Meeting:** Thursday, March 21<sup>st</sup>, 2024: 10AM-12PM, Call-in Zoom

### **Participants**

Jackie Pickford, CRC  
Eric Hughes, EPA-CBPO  
Kathy Braiser, PSU  
Caitlin Grady, GWU  
Alex Echols  
Amanda Barber, New York

Arianna Johns VA DEQ  
Ashley Hullinger, PA DEP  
Auston Smith, EPA-CBPO  
Brady Seeley, SCC  
Bruce Naylor  
Carlington Wallace

Charlotte Weinstein, Chesapeake Conservancy  
 Cindy Shreve, WV  
 Dave Gustafson (Conservation Technology Information Center, [www.ctic.org](http://www.ctic.org))  
 Dean Hively USGS  
 DOI-JPKGFP7GN-iPhone  
 Dylan Burgevin - MDE  
 Elizabeth Hoffman, MDA  
 Elliott Kurtz, Chesapeake Conservancy  
 Helen Golimowski, Devereux Consulting  
 Hunter Landis, VA DCR  
 James Martin, VA DCR  
 Jason Keppler - Maryland Department of Agriculture  
 Jeff Sweeney, EPA  
 Jim Riddell , VA Cattlemen's Assoc.  
 John Clune, USGS  
 John Wolf, USGS  
 Karl  
 Blankenship, Bay Journal  
 Kate Bresaw, PA DEP  
 Katie Walker, Chesapeake Conservancy  
 Kelly Shenk, EPA  
 Ken Staver, UMD  
 Kristen Hughes Evans, Sustainable Chesapeake, and NFWF Field Liaison  
 Kristen Saacke Blunk, Headwaters LLC, field liaison in support of NFWF CBSF  
 Kristen Wolf, PA DEP

Leah Martino  
 Lisa Blazure, PA Soil Health Coalition & Stroud Water Research Center  
 Lisa Duriancik, NRCS  
 Marel King, Chesapeake Bay Commission  
 Mark Dubin, UME/CBPO  
 Matt Kowalski- CBF  
 Matt Monroe, WV Dept of Ag  
 Mike Morris, PA DEP  
 Nichole Christ, MDE  
 Nick Hepfl, HRG  
 Olivia Devereux, Devereux Consulting  
 Paul Bredwell - U.S. Poultry & Egg Assoc.  
 PFB GovCom  
 R.O. Britt, Smithfield  
 Ron Ohrel, American Dairy Association North East  
 Ruth Cassilly, UMD-CBPO  
 Scott Heidel, PA DEP, CB Partnership Section Chief  
 Seth Mullins VA DCR  
 Sherri Degraphenreed, USDA  
 Suzanne Trevena, EPA-CBPO  
 Tad Williams, Virginia Tech  
 Tom Butler, EPA  
 Tom Howard, Resolve Hydro LLC  
 Tyler Trostle PA DEP  
 Zach Evans - Mountaire Farms

#### **\*\*Common Acronyms**

AgWG- [Agriculture Workgroup](#)  
 CAST- [Chesapeake Assessment Scenario Tool](#) (user interface for the CBP Watershed Model)  
 CBP- [Chesapeake Bay Program](#)  
 CBPO- Chesapeake Bay Program Office  
 CBW-Chesapeake Bay Watershed  
 CTIC – Conservation Technology Information Center  
 CVN – Conservation Validation Network  
 EPA- [United States] Environmental Protection Agency  
 FSA – Farm Service Agency  
 NRCS – Natural Resources Conservation Service  
 NFWF – National Fish and Wildlife Foundation  
 OpTIS – Operational Tillage Information System  
 PSC – [Principals' Advisory Committee](#) (CBP)  
 PSU- Penn State University  
 SWCD – Soil and Water Conservation Districts  
 SWG – Small Watershed Grant Program  
 WQGIT- [Water Quality Goal Implementation Team](#)  
 WILD – Watershed Investments for Landscape Defense  
 UMD- University of Maryland

AMT- [Agricultural Modeling Team](#) (Phase 7)  
 USDA – United States Department of Agriculture  
 USGS – United States Geological Survey