Charge and Scope of Work
Cover Crops Phase 6.0 Expert Panel

March 19, 2015

Background

Traditional and commodity cover crops are approved practices in the Phase 5.3.2 (P5.3.2) Chesapeake Bay Program Watershed Model. The Traditional Cover Crops BMP is currently defined as a short term crop grown after the main cropping season to reduce nutrient losses to ground and surface water by sequestering excess nutrients. No additional nutrients are applied in either the fall or spring, and the cover crop is terminated without harvesting. The following traditional cover crop species have associated nitrogen (N), phosphorus (P), and sediment reduction efficiencies:

- Rye
- Wheat
- Barley
- Annual Ryegrass
- Annual Legumes
- Annual Legume plus Grass Mixtures
- Brassica (winter hardy)
- Forage Radish
- Forage Radish plus Grass Mixtures
- Triticale
- Oats (winter hardy)
- Oats (winter killed)

The Commodity Cover Crops BMP is currently defined as a short term crop grown after the main cropping season to reduce nutrient losses to ground and surface water by sequestering excess nutrients. No additional nutrients are applied in the fall, however additional nutrients can be applied in the spring after March 1 and the commodity cover crop can be harvested. The following commodity cover crops have an associated N reduction efficiency:

- Rye
- Wheat
- Barley

Recommendations for Expert Panel Member Expertise

The AgWG expert panel organization process[1] directs that each expert panel is to include eight members, including one non-voting representative each from the Watershed Technical Workgroup (WTWG) and Chesapeake Bay Program modeling team. Panels are also expected to include three recognized topic experts and three individuals with expertise in environmental and water quality-related issues. A representative of USDA who is familiar with the USDA-Natural

[1] http://www.chesapeakebay.net/channel_files/22312/january_9_2015_agwg_expert_panel_organization_process.pdf

Resources Conservation Service (NRCS) conservation practice standards should be included as one of the six individuals who have topic- or other expertise.

In accordance with the July 13, 2015 Water Quality Goal Implementation Team BMP Expert Panel Protocol (BMP Protocol)[2], panel members should not represent entities with potential conflicts of interest, such as entities that could receive a financial benefit from Panel recommendations or where there is a conflict between the private interests and the official responsibilities of those entities. All Panelists are required to identify any potential financial or other conflicts of interest prior to serving on the Panel. These conditions will minimize the risk that Expert Panels are biased toward particular interests or regions.

The Agriculture Workgroup directs that the P6.0 Cover Crops Panel should include members with the following areas of expertise:

- An agronomist or soil scientist with experience with cover crops in the Chesapeake Bay watershed.
- Knowledge of how BMPs are tracked and reported, and the Chesapeake Bay Program partnership's modeling tools.
- Experience verifying cover crop practice implementation.
- Expertise in fate and transport of N, P, or sediment in cover cropped systems.
- Expertise in hydrology to address both surface water and ground water transport.
- Expertise in both grain and forage crops and operations with and without livestock.
- Knowledge of, and experience with, USDA-NRCS conservation practice standards and codes.

The collective expertise of panel members should cover the range of both the physiographic regions found and the cover crop species used within the Chesapeake Bay watershed.

Expert Panel Scope of Work

The general scope of work for the Cover Crops P6.0 Panel will be to define and configure the Cover Crops BMP in the P6.0 model. Specifically, the Agriculture Workgroup defines the following three charges with associated tasks for the P6.0 Cover Crops Panel:

1. Transition and translate all current cover crop reduction efficiencies from the P5.3.2 to the P6.0 model.
2. Review and update the definitions and reduction efficiencies of cover crops that are eligible for commodity cover crop status.
3. Panel will collaborate with the P6.0 conservation tillage Panel to address credits for winter cover crops that receive fall nutrients.

The following two items are recommended for consideration if time allows, or if necessary within the context of addressing charges 1 and 2:

[2] http://www.chesapeakebay.net/documents/CBP_BMP_Expert_Panel_Protocol_WQGIT_approved_7.13.15.pdf

- Create a late-summer planting system for cover crops that are planted in mid- to late-August after a silage removal or short-season crop (e.g., vegetable).
- Consider a change from the current approach that uses average frost date for setting planting dates to one that uses heat units.

This scope of work addresses cover crop reduction efficiencies for N, P, and sediment.

The first charge is necessary because the P6.0 model features a change in land use categories, a possible change in the baseline condition, and some likely changes in how the cover crop BMPs will be applied to specific land uses.

The second charge is necessary to evaluate and update the commodity cover crop portion of the BMP that was not addressed by the Phase 5.3.2 Cover Crops Expert Panel. This evaluation and updating should include an evaluation of the current N reduction efficiencies and possible estimates of P and sediment reduction efficiencies for the existing commodity cover crops, identifying other cover crop species from the current traditional cover crop list that would be eligible for commodity cover crop status, and estimating the N, P, and sediment reduction efficiencies for each new commodity cover crop species.

The third charge is necessary to ensure that recommendations regarding a definition and credits for winter cover crops receiving fall nutrients are based on input from both Panels. The P6.0 Conservation Tillage Panel is charged with this task, but collaboration with this Panel is recommended to both ensure consistency between and take advantage of the expertise available in the two panels.

While the P6.0 Panel is charged only with items 1 through 3 and their associated tasks, it may choose to address the two additional items, if it has time or it is determined that addressing either or both of these items is essential to the successful completion of charges 1 and 2.

The first optional item is suggested to expand the scope of the cover crop BMP to address those covers planted after a summer-harvested crop. Such planting is much earlier than the frost date that is currently in use. In addition, some cover crops will be better suited for early planting (e.g., radishes, warm season grasses) while others will not (e.g., rye, cool season grasses). If the first optional item is undertaken, it will also require estimating the N, P, and sediment reduction efficiencies for each species in the new late-summer planting category. The second optional item is suggested because cover crop planting dates in the P5.3.2 model are based on average frost date, in order to adjust the reduction efficiencies across the whole Bay Watershed. The second optional item recommends that the P6.0 Panel consider the usefulness and practicality of using a heat unit based planting date system. It is recognized that a heat-unit approach would require significant additional data-base work, but the benefits may warrant such effort.

The Panel will follow the process described in the 2015 BMP Protocol for all activities including development of a final report. In addition, the Panel will develop a provisional paper including BMP structure and type, draft BMP definition(s), and initial elements of the BMP such as associated components and conservation practices, and USDA-NRCS associated conservation practice codes. Initially identified literature citations will be included to provide a range of

potential effectiveness values that the panel will consider and supplement with further evaluation. The panel will present their provisional BMP paper to the AgWG, WTWG, and WQGIT for informational purposes, and for initial Partnership comments on the proposed direction of the panel's evaluation. Provisional panel recommendations will be used only for initial Phase 6 model development and calibration, and not for future implementation progress reporting by the jurisdictions.

Timeline and Deliverables

The Expert Panel project timeline for the development of the panel recommendations is based on the Phase 6.0 model development schedule. This timeline includes the development of a provisional recommendation for this BMP prior to the finalization of a fully documented recommendation report with effectiveness values. Provisional panel recommendations will be used only for initial Phase 6 model development and calibration, and not for future implementation progress reporting by the jurisdictions. The Panel coordinator will work with the Panel to develop a detailed project timeline based on the deadlines below.

Summer 2015 – Panel stakeholder kickoff meeting

September/October 2015 – The Panel will present a provisional report to the AgWG, WTWG, and WQGIT for informational purposes, and for initial Partnership comments on the proposed direction of the Panel's evaluation. The paper will not represent a full recommendation report, and the Partnership will not be asked for formal approval at this time.

February 2016 – Target date for Panel to release draft report to the Partnership.

April 11, 2016 – Target date for full Partnership approval of the panel report.

Phase 6.0 BMP Verification Recommendations:
The panel will utilize the Partnership approved ***Agricultural BMP Verification Guidance***[3], as the basis for developing BMP verification guidance recommendations that are specific to the BMP(s) being evaluated. The panel's verification guidance will provide relevant supplemental details and specific examples to provide the Partnership with recommended potential options for how jurisdictions and partners can verify cover crops practices in accordance with the Partnership's approved guidance.

[3] http://www.chesapeakebay.net/documents/Appendix%20B%20-Ag%20BMP%20Verification%20Guidance%20Final.pdf