

## **ISSUE: Winter Crop: Forage-based cropping systems (NY/PA)**

*NY - Consideration of an additional category of cover crops for nutrient and sediment loss crediting: Commodity Cover Crops with Manure (not inorganic fertilizer). NY sees this as primarily an opportunity to further encourage and credit cover cropping in forage-based dairy cropping systems. Likely requires expert panel support to determine BMP efficiencies.*

*PA – revisit the criteria for commodity cover crop (harvested, nutrients applied), as they are inadequately credited for the value they bring to reducing nutrient and sediment runoff*

Creation of a new crop category, “winter crop,” that would address N fate in forage-based cropping systems and would address NY’s concerns (above)

### **BACKGROUND:**

#### **Approved by WQGIT (2016)**

[Cover Crops Practices For Use in Phase 6.0 of the Chesapeake Bay Program Watershed Model](#)

[Nutrient Management Practices For Use in Phase 6.0 of the Chesapeake Bay Program Watershed Model](#)

#### **Definition:**

A cover crop is generally 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 and the commodity cover crop can be harvested.** Important elements of the practice include selection of the cover crop species, the planting time, and the seeding method. Cover crops are one of the most valuable management practices available for protecting water quality, especially groundwater quality, which is a difficult resource to protect from non-point sources of soluble nutrients like nitrate N.

*Commodity Cover Crop:* involves modification of nutrient applications to winter cereal production fields to reduce nutrient losses by **maximizing the nitrogen scavenging function of traditional cover crops**. The commodity cover crop practice is unique among cover crops in that **the baseline is winter cereal production using standard nutrient application practices while the baseline for the traditional cover crop BMP is winter fallow conditions.**

The commodity cover crop BMP, in which winter cereals are planted for harvest but which are not fertilized in the fall as has been standard practice, should receive a 5, 10, and 15% N reduction credit for the early, normal, and late planting period. This credit should be applied to the summer annual land use where the winter cereal was planted. **Commodity cover crops are equally effective at taking up soil nitrate as traditional cover crops, but the credit is reduced because the baseline condition is standard winter cereal production with a fall N fertilizer application.** Although comprehensive data are lacking, the panel assumed that past standard practice for winter cereal production included a 30 lb/acre N application just prior to fall planting. This panel is not addressing the effect of the commodity cover crop practice related to delaying winter nutrient applications since this change in nutrient applications will be addressed within the winter cereal land uses that will exist in the Phase 6 CBPWM.

*[Traditional] Cover Crop with Fall Nutrients:* The panel recommends that the traditional cover crop practice be applicable to crop land that receives unavoidable fall manure applications due to limits on storage capacity at rates not to exceed 50 lb plant available N (PAN)/acre. **Cover crops planted on cropland where manure is applied following harvest of the summer crops and prior to cover crop planting should be credited for N reductions at 70% of the table values currently used for traditional cover crops planted where no manure is applied in the fall.** The reduction credit is less than for traditional cover crops because increases in the soil N pool reduce the potential for cover crop uptake before leaching

occurs. This option only is available for full rate grass and brassica cover crop options, or grass and brassica mixtures.

**Effectiveness Estimates**

*Commodity Cover Crop:*

**TN:** 4-5% Early, 8-10% Normal, 12-15% Late (depending on hydrogeomorphic region)

**TP:** 0%

**TSS:** 0%

**Land Use:** small grains, double cropped land uses

*[Traditional] Cover Crop with Fall Nutrients*

**TN:** (dependent on hydrogeomorphic region, planting date, planting method, species)

**TP:** 0%

**TSS:** 0%

**Land Use:** silage w/ manure, silage w/o manure, Specialty Crop High, Specialty Crop Low, Other Agronomic Crops, Full Season Soybeans, Grain with Manure, Grain without Manure, Small Grains, Double-Cropped, Specialty Crop Low

**SUGGESTED ACTION:**

Step #1: Cover Crop EP Chair will discuss the commodity cover crop BMP on the December AgWG meeting.

Step #2: Invite Charlie White (Penn State) to discuss recent research on N fate in forage based systems

**CHALLENGE:**

- State concerns overlap with require an Expert Panel, per CBP partnership-approved protocol. Guidance needed from Water Quality GIT.
  - Limited resources available for an Expert Panel.
- Discussion with Modeling WG and CAST team essential to discuss feasibility and possible consequences of change.

**LEAD:** ?

**TIMELINE:**

CAST-21 (Sept 2021)

**Discussion:** Yes

**Change:** Unlikely, due to resource requirements. AgWG & WQGIT guidance needed.

CAST-23 (Sept 2023)

**Discussion:** Yes

**Change:** Possible/unlikely. AgWG & WQGIT guidance needed.

Future Watershed Model?

**Discussion:** Yes, as part of full review of ag inputs & modeling approaches.

**Change:** Possible

**TASK CLUSTER:**

BMP Effectiveness

**WIP III SNAPSHOT:****Commodity Cover Crop**

State	2019 Progress % Implementation	WIP 2025 % Implementation (ac)
DE	77.1	46.1 (28423)
MD	59.3	36.9 (79448)
NY	1.1	5.1 (5996)
PA	0	4 (11000)
VA	0	2.4 (23024)
WV	0	0

**[Traditional] Cover Crop with Fall Nutrients**

State	2019 Progress % Implementation	WIP 2025 % Implementation (ac)
DE	0	0
MD	0	0
NY	0.9	1 (8528)
PA	0.9	30.6 (615135)
VA	0	2.4 (23024)
WV	0	0