

Rapid Review:
CBP (CAST) Cover Crop BMP
Definitions, Tracking, Reporting & Verification

May 19, 2022

Definitions (2016 Cover Crop Expert Panel)

Traditional Cover Crop: short-term crop grown after main cropping season to reduce nutrient losses by sequestering excess nutrients

Includes Crop Land with Unavoidable Fall Manure Applications

- *rates not to exceed 50 lbs plant available N (PAN)/acre*
- *only available for full rate grass and brassica cover crop options, or grass and brassica mixtures*

Baseline for Reduction Efficiencies

- *winter fallow conditions*

Spring Management

- *termination*

Commodity Cover Crop: reduce nutrient losses by maximizing the nitrogen scavenging function of traditional cover crops

Involves Modification of Nutrient Applications to Winter Cereals

- *no fall N appl.; spring N allowed*

Baseline for Reduction Efficiencies

- *standard nutrient application practices*

Spring Management

- *harvested*

Phase 6 CAST Cover Crop Options:

Traditional

Traditional w/ fall nutrients

Commodity

14 species

planting dates (early, normal, late)

planting methods (aerial, drilled, other)

Relevant Land Uses from CAST

Sector	LoadSource	LoadSourceMinor	LoadSourceDescription
Agriculture	Full Season Soybeans	Row Crops	Soybeans that are not double-cropped
Agriculture	Double Cropped Land	Row Crops	Double-cropped land represents areas that have two crops grown on the same acre between January and December. Crops eligible for double-cropping vary by state and may include alfalfa, barley, rye, small grain hay, sorghum for silage, soybeans, triticale, wheat, corn for silage or greenchop, and other haylage, grass silage, and greenchop. No other land use includes double cropping.
Agriculture	Silage with Manure	Row Crops	Includes the crops corn and sorghum for silage or greenchop that is not double-cropped and receives fertilizer and manure where available
Agriculture	Small Grains and Grains	Row Crops	Includes canola, oats, rye, wheat, barley, buckwheat, emmer and spelt, and triticale that is not double-cropped
Agriculture	Grain without Manure	Row Crops	Includes the crops corn and sorghum for grain that is not double-cropped and receives only inorganic fertilizer
Agriculture	Silage without Manure	Row Crops	Includes the crops corn and sorghum for silage or greenchop that is not double-cropped and receives only inorganic fertilizer
Agriculture	Specialty Crop Low	Row Crops	Includes aquatic plants, orchards, Christmas trees, asparagus, nursery stock, short-rotation woody crops, sunflower seed, berries, peas, lima and snap beans
Agriculture	Other Agronomic Crops	Row Crops	Includes summer fallow, idle cropland, sod, tobacco, cotton, sweet corn, peanuts and dry edible beans
Agriculture	Grain with Manure	Row Crops	Includes the crops corn and sorghum for grain that is not double-cropped and receives inorganic fertilizer and manure where available
Agriculture	Specialty Crop High	Row Crops	Includes bedding/garden plants, cut florist greens, potted plants, mushrooms, other nursery and greenhouse crops, greenhouse vegetables, fruits and vegetables grown outside that are not included in Specialty Crop Low

Double Crop Land Area Example

Harvested Crop Land Area = 5,000 acres (harvested cropland acres)

Sum of area of all crops = 8,000 acres (sum of crops)

$8,000 - 5,000 = 3,000$ (area needed to be double cropped)

Crop group 1 (corn, beans) = 2,500 acres

Crop group 2 (winter grains) = 3,000 acres

Double cropped area is 2,500. Adjusted double crop acres because not enough to double crop 1 and 2.

Each crop within its group is apportioned to the 2,500 acres using the original proportions of the crop types

Assign appropriate plant and harvest dates and application timing to those double cropped crops



Alternative Methods of BMP Verification

- Producer Inventory Surveys
 - [Roadside] Transect Surveys ←
 - Remote Sensing
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- Need CBP Approval
 - Methods & Application
 - Statistical Thresholds for Ground-Truthing



<https://www.capitalrcd.org/>



May 2016 Transect Survey Report

Application of Survey Data

“...roadside transect surveys were approved only for traditional cover crops in 2015 (AgWG 2015, Fox and Richards 2015). Neither commodity cover crops nor traditional cover crops with fall manure applications were approved for verification with roadside transect surveys...” (p. 9)

- [May 2017 AgWG Minutes w/ Discussion](#)
- [Sept 2015 AgWG Minutes w/ Discussion](#)

Survey Dates

Early Fall

- Cover crop species
- Estimated establishment date, establishment density
- Planting method
- Manure application

Late Spring

- Confirm species
- Termination method

BMP Verification Framework (Oct 2014)

Appendix B Ag BMP Verification Guidance (p. 9-10)

Part 4: Agricultural BMP Verification Methods

...Verification of BMPs for all farms, regardless of presence or absence of cost-shared or regulatory programs can be accomplished through the following:

4c. Transect Survey

An inspection of a statistical-based sampling of BMPs. A transect survey is appropriate for a single year visual assessment of practices such as tillage management. The reliability of this method is based on the sampling and inspection methods and the training and independence of the inspectors. Transect surveys as a visual verification method are not considered an adequate method for verifying non-visual BMPs, or multi- year visual BMPs which require direct inspection, office/farm records, or certified training and engineering.

EPA CBPO 2022 GRANT AND COOPERATIVE AGREEMENT GUIDANCE: Attachment 7

Reporting BMP Implementation: (p.9)

...Jurisdictions are to report BMPs as they occur on the landscape at the most site-specific scale that conforms with legal and programmatic constraints, and at a scale compatible to data input for the Chesapeake Bay Program partnership modeling tools

BMP implementation reporting is meant to track changes in management actions: (p. 10-11)

...The expectation is that new BMPs are tracked, not estimated. For example, BMP implementation should not be estimated by looking at the acreage available to that BMP in the model, assigning a percent implementation to that BMP based on available acreage in CAST, converting that percent implementation to acres, and submitting that acreage for annual progress as if the acreage had been tracked on the ground. This does not apply to BMPs where surveying is a Bay Program-approved collection method and reporting implementation levels as a percent is allowed, like conservation tillage.

Resources:

- [Cover Crop Expert Panel \(2016\)](#)
- Chesapeake Assessment Scenario Tool (CAST)
 - [Source Data](#)
- [May 2017 AgWG Meeting Materials](#)
- Roadside Transect Survey Statistical Methods (Mar 2017)
 - [Application of Roadside Transect Survey to Identify and Inventory Agricultural Conservation Practices for the Bay Model](#)
- Water Quality GIT BMP Verification Committee (Oct 2014)
 - [Strengthening Verification of Best Management Practices Implemented in the Chesapeake Bay Watershed: A Basinwide Framework](#)
- EPA CBPO 2022 GRANT & COOPERATIVE AGREEMENT GUIDANCE
 - [Attachment 7](#)

Other AgWG Cover Crop Discussions:

- AgWG CAST-21 Workplan Ad-Hoc Group
 - [July 2021 Materials](#) (Winter Cover Crop Discussion)
- AgWG Charlie White Presentation Jan 2021
 - [Nitrogen Retention by Cover Crops with Fall Manure Applied](#)
- AgWG Ken Staver Presentation Dec 2020
 - [Review of 2017 Cover Crops Expert Panel](#)
- AgWG Mark Dubin Presentation Feb 2020
 - [Cover Crops and Climate Change](#)