CAST BMP Verification/Reporting

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Questions

- How do we know if acres planted are included in the land use as forests or tree canopy in CAST after BMP credit duration has expired?
- How is CAST modeling land use change and how well does land use change in CAST align with land use change from the imagery?
- How do we verify acres planted in data submitted via NEIEN? Is there a way to check and see if we have successfully verified acres in data submitted via NEIEN?
- In detail, please explain all the ways that buffer and tree planting acres are not credited ("removed") in CAST. How can we determine how many acres have been removed, and why they were removed?
- Additional questions?

CAST Tree BMPs

Land Use Change BMPs

- Forest Conservation Policy
- Forest Planting
- Forest Buffer-Narrow with Exclusion Fencing
- Forest Buffer-Narrow
- Tree Planting-Canopy
- Tree Planting

Land Use Change AND Efficiency BMPs

- Forest Buffer
- Forest Buffer-Streamside with Exclusion Fencing
- Urban Forest Buffer

Efficiency BMP

- Forest Harvesting Practices

Land Use Change vs Efficiency

Land Use Change BMPs

- Change a land use from a higher loading land use to a lower loading land use
- Tree BMPs change a higher loading land use, such as cropland or urban turfgrass, to a lower loading land use, forest
- Land use change to forest lasts 15 years, then it becomes part of the land use/land cover data that the Land Data Team provides

Efficiency BMPs

- Efficiency BMPs reduce a percentage of the N, P, and S
- The upland efficiency component in some tree BMPs exists to address the functional benefit of trapping and sequestering nutrients and sediment
- Upland efficiency lasts as long as the BMP is reinspected following the credit duration frequency of 15 years

Example of Land Use Change and Efficiency BMP Crediting

HGMR	Nitrogen Efficiency (%) applied on 4 upland acres per 1 acre of buffer Forest Buffer	Nitrogen Efficiency (%) applied on 4 upland acres per 1 acre of buffer Grass Buffer	Phosphorus Efficiency (%) applied on 2 upland acres per 1 acre of buffer Forest Buffer and Grass Buffer	Sediment Efficiency (%) applied on 2 upland acres per 1 acre of buffer Forest Buffer and Grass Buffer
Coastal Plain Dissected Uplands	65	46	42	56
Piedmont Carbonate	46	32	36	48
Appalachian Plateau Siliciclastic	54	38	42	56
Coastal Plain Uplands	31	21	45	60
Appalachian Plateau Carbonate	54	38	42	56
Piedmont Crystalline	56	39	42	56
Valley and Ridge Carbonate	34	24	30	40
Valley and Ridge Siliciclastic	46	32	39	52
Blue Ridge	34	24	30	40
Coastal Plain Lowlands	19	13	45	60
Mesozoic Lowlands	34	24	30	40

https://cast.chesapeakebay.net/Documentation/BMPs

CAST Land Use

- CAST land use is modeled at the land-river segment scale on an annual basis
- Unique land use for each year 1985-2025
- CAST models a combination of the land use data from the Land Data Team, and land use change BMPs reported by the jurisdictions
  - First 15 years -> Tree BMPs
  - After 15 years -> Tree Land Use

Verification of Acres Planted

- The jurisdictions verify the acres of trees planted and include those methods in their CBRAP Quality Assurance Project Plans (QAPPs)
- CAST Team performs data checks to ensure reported BMPs **validate** in NEIEN
  - Validation checks for errors such as incorrect BMP name, units, etc.
- NEIEN Validation reports are run each Friday during the progress submission period and provided to the state technical leads for correction of errors
- 'Data Quality Checks of Annual Progress Data' Webinar available on the CAST Free Training Videos page, under Scenario Analysis

Ways to Check Validation of BMP Reporting

- NEIEN CAST Validation Reports
  - Available for download from the CAST TMDL Tracking page
  - Error reports outline in detail each BMP that was entered incorrectly, and how
- BMP Excess
  - See the number of excess acres of a reported BMP due to lack of available land by downloading a BMP Submitted vs Credited report
- Credit Duration
  - A BMP will lose credit in the model if the credit duration passes without an inspection taking place
  - The credit duration time period starts over at the date of the BMP's most recent inspection
  - If a BMP is inspected after the credit duration passes, it will again be considered a functioning BMP for the entirety of its reported existence
  - Information about verification available in the Verification Section of the CAST TMDL Tracking page

Additional Questions?