Current Efforts to Reduce Agricultural Nutrients and Sediment Pollution in the Chesapeake Bay Watershed
and
Opportunities to Address Toxic Contaminants

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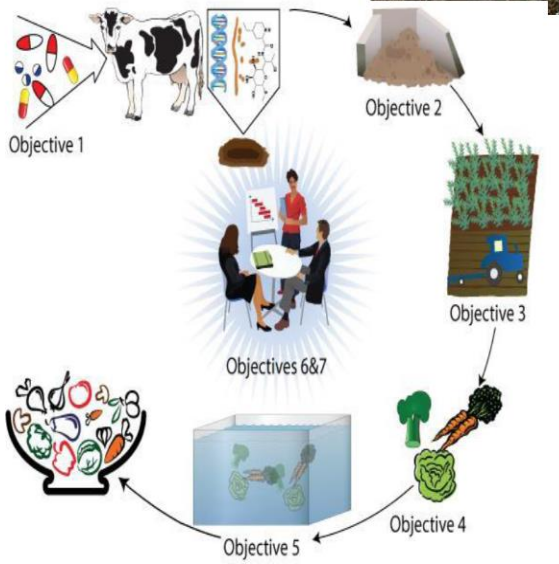
Goals:

- **Examine current implementation efforts, resources & needs in ag sector**
- **Identify cooperative opportunities to increase implementation achieving nutrient, sediment & toxics reductions**

Agricultural Areas:Opportunities to Reduce Toxic Contaminants

- Activated carbon or biochar to established BMPs effectively reduces contaminant transport
- Retention ponds and vegetative treatment reduces pesticide loading
- Manure management including composting, subsurface application, buffer strips, etc. reduce antibiotics and antibiotic resistance



Achieving WIP Goals in the Ag Sector

Increase Ag Regulatory Compliance: Dedicated Funding

Increase Voluntary Ag BMP Implementation:

- Priority Watersheds: Ag Priority Watershed Mapping Tool
- Priority BMP's & Implementation Levels
- Financial Incentives
- Soil Health Initiatives

Enhance BMP Verification, Tracking & Reporting:

- Use of improved data management tools and high-resolution mapping datasets; improve accuracy of BMP tracking, reporting, verification

Increase Ag Regulatory Compliance

Technical Assistance Critical Across All Jurisdictions

- Regulatory Enforcement
  - Federal (NPDES/CAFO, Cost-Share) & State (NMP, MMP, S&W CP)
- Conservation Planning
- BMP Implementation

Increase Ag BMP Implementation

- Priority Watersheds: Ag Priority Watershed Mapping Tool
  - ➢ Emphasizing implementation in priority watersheds/most effective basins
- Priority BMPs & Implementation Levels
- Financial Incentives
- Soil Health Initiatives

Priority BMPs & Implementation Levels

- Agricultural BMPs in the CBW WIP 3 Scenario
- 2019 Progress BMP Implementation

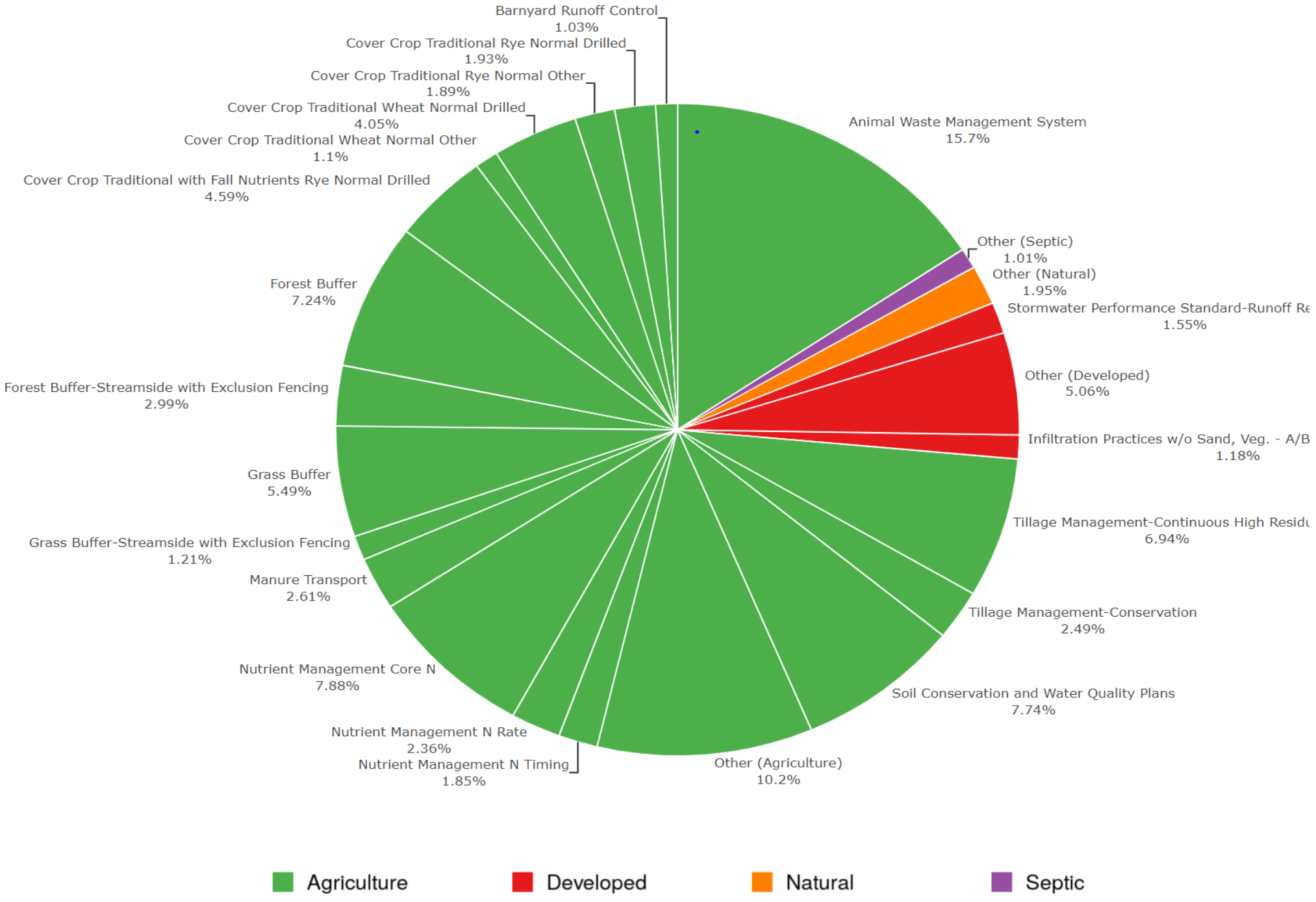
Agricultural BMPs are the solution: major role in achieving WIP 3 reduction goals

Agriculture's Role in WIP 3 Scenario:

- **Ag BMPs achieve 89% of the Nitrogen reductions in the CBWS WIP 3 Scenario**
- **Ag BMPs achieve 77% of the Phosphorus reductions in the CBWS WIP 3 Scenario**

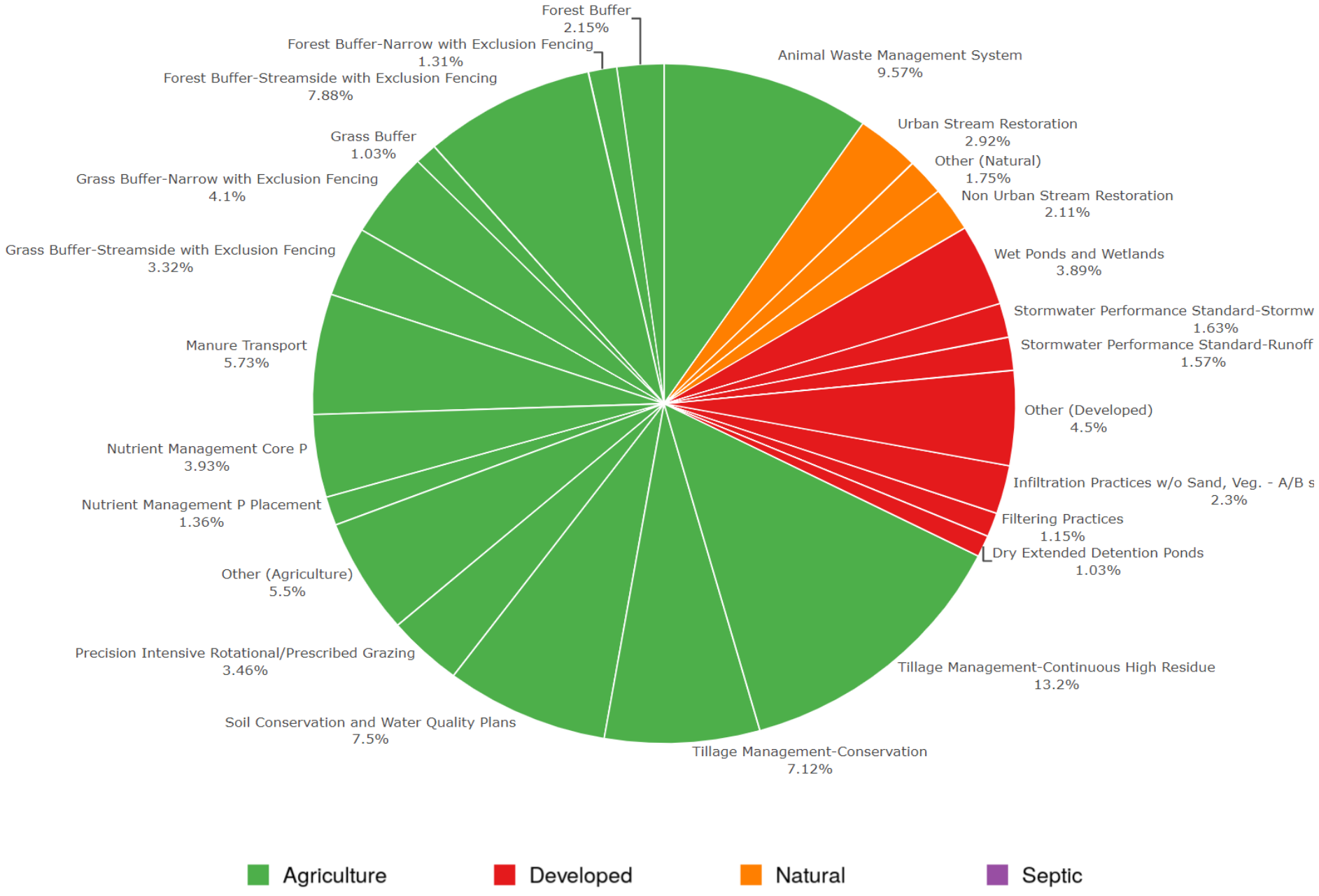
CBWS WIP 3 Scenario Nitrogen Reductions by BMP (100% Implementation)

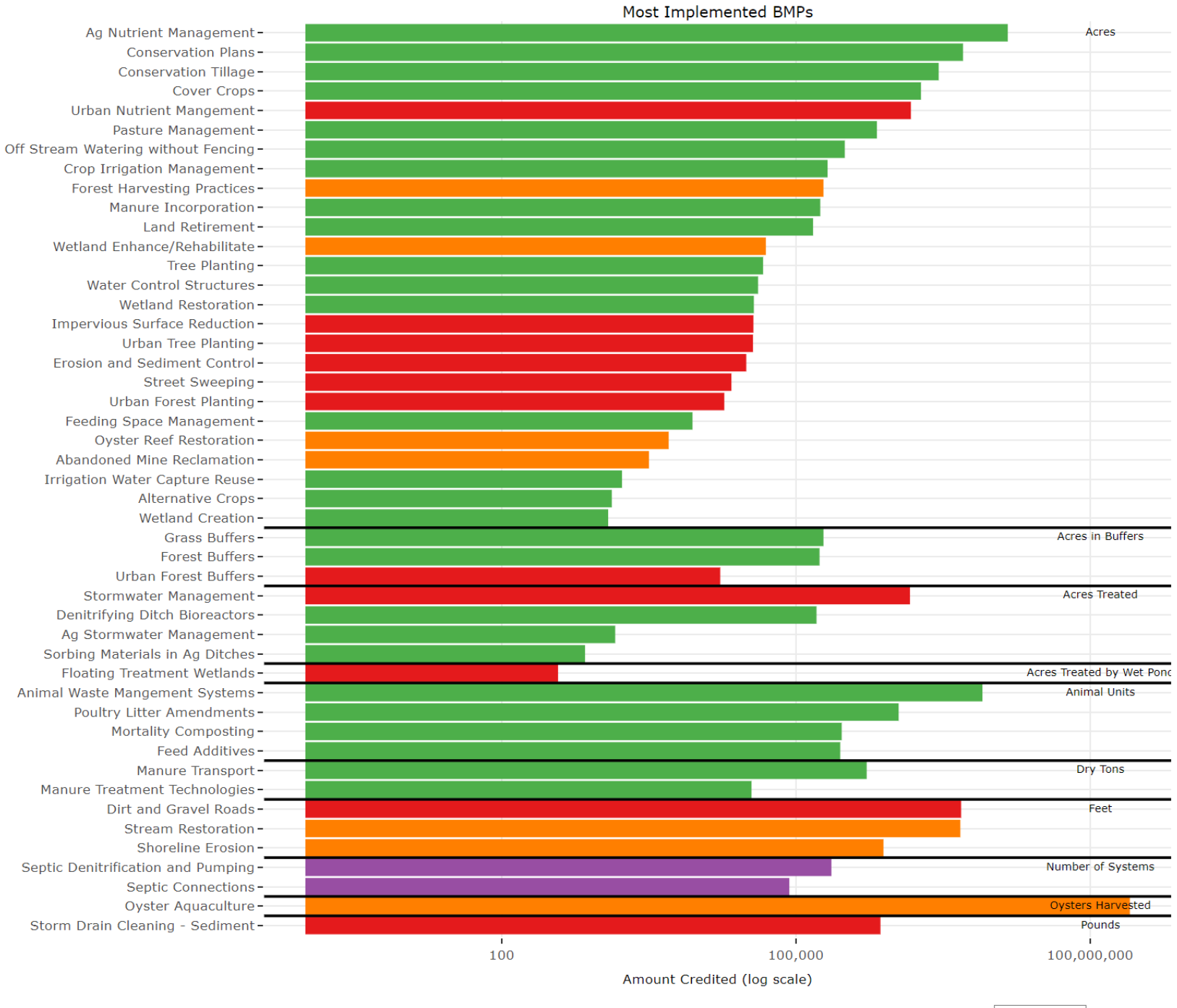
<u>Priority BMPs:</u>
AWM Systems
Cover Crops
Buffers
Nutrient Mgmt
Cons. Tillage
S & W Plans



CBWS WIP 3 Scenario Phosphorus Reductions by BMP (100% Implementation)

Priority BMPs:
AWM Systems
Buffers
Manure Transport
Nutrient Mgmt
Cons. Tillage
S & W Plans
Rotational Grazing





2019 Progress Most Implemented BMPs by Sector and Unit

WIP Priority BMP's

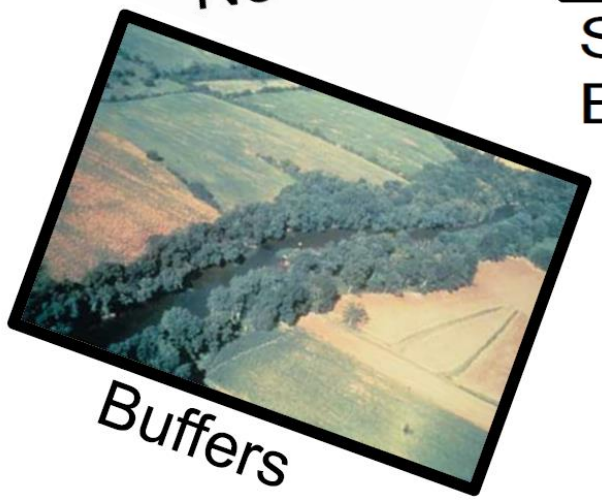
Soil & Water Conservation Plans

No-Till

Stream Exclusion

Prescribed Grazing

Nutrient Management



Buffers

Cover Crops

Dairy Precision Feeding

Manure Transport

Animal Waste Systems

Soil Health BMPs…

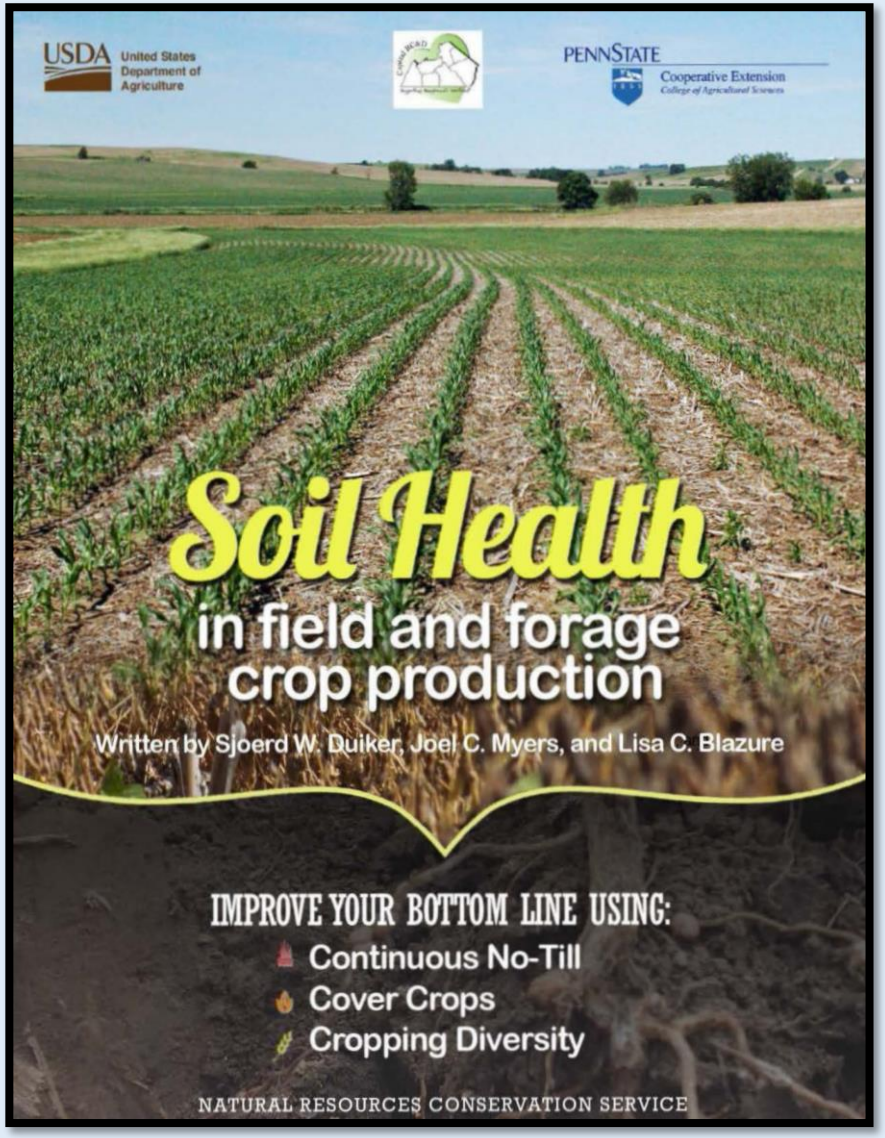
Reduce the need for nutrient and pesticide applications

Improve crop productivity and farm resiliency

Reduce pesticide leaching, allows time for detoxification by microbes

Help farmers protect existing soil from erosion & enhance soil structure, infiltration rates, organic matter, & microbial diversity.

Include practices such as **cover crops**, **conservation tillage**, **nutrient management**, and **prescribed grazing.**



https://www.sare.org/publications/building-soils-for-better-crops/organic-matter-what-it-is-and-why-its-so-important/why-soil-organic-matter-is-so-important/

https://extension.umd.edu/hgic/topics/soil-health-drainage-and-improving-soil

Soil Health Initiatives

- **2018 Farm Bill** includes many provisions to encourage soil health initiatives and practices in programs such as the: Environmental Quality Incentive Program (EQIP), Conservation Reserve Program (CRP), and Conservation Stewardship Program (CSP)

- **State level soil health legislation** to provide incentives for research, education, and technical and financial assistance for soil health BMP implementation:
  - Maryland Healthy Soils Program: passed 2017
  - NY: Carbon Farming Act: pending
  - PA: Agriculture-Linked Investment Program: passed 2019

- **Most State WIPs include goals to incentivize soil health practices**:
  - VA: Revise NMP (Nutrient Mgmt Plan) regulations to improve soil health
  - DE: Soil Health Partnership Program
  - PA Soil Health is a WIP Priority Initiative

- **NGO's/Nonprofits:**
  - The Soil Health Institute
  - Nature Conservancy
  - Chesapeake Bay Foundation

Financial Incentives

Expressed Need for Sustained Financial & Technical Support

Increased Focus on Cooperative Partnerships

- Federal & State Agencies
- NGOs
- Businesses
- Nonprofits
- Local Watershed Associations

Main Funding Sources:

Federal:

- **Farm Bill: USDA/NRCS/FSA programs**: Cost-share to agricultural producers & stakeholders to research, pilot & implement BMPs on farms
  - The Regional Conservation Partnership Program (RCPP) multi-state or watershed-scale projects
  - Environmental Quality Incentives Program (EQIP)
  - Conservation Reserve Program (CRP) and CREP provide cost share assistance for various BMPs ,
  - Conservation Stewardship Program (CSP)

- **EPA:**
  - **NFWF: A**dministers the Chesapeake Bay Stewardship Fund (159 Nutrient and Sediment Reduction Grant Program and the Small Watershed Grants Program)
  - **Section 319 NPS Management Implementation Grant Program** allocated to states to fund watershed projects
  - **Chesapeake Bay Regulatory and Accountability Program Grant** (CBRAP)
  - **Chesapeake Bay Implementation Grant (CBIG)**

- **State:** Cost Share Programs, Grants and Land Preservation Programs

Main Barriers to Implementation

Farmers NEED:

Simplified & consistent funding source

extremely difficult for farmers to raise capital to pay the out-of-pocket up-front cost-share

Adequate & Sustained Technical Assistance

Farmer outreach, education, BMP planning, engineering design support/shared services, installation and maintenance assistance

Summary:
Find opportunities to emphasize the co-benefits of priority Ag BMPs

Increase BMP implementation through support of existing approaches and needs

- **Co-Benefits of Priority BMP's**
  - **Nutrient Management**
  - **Conservation Tillage**
  - **Cover Crops**
  - **Prescribed Grazing**
  - **Animal Waste Management Systems**
  - **Manure Transport**
  - **Dairy Precision Feeding**
  - **Forest and Grass Buffers**
  - **Stream Exclusion**
  - **S & W Conservation Plans**

- **Connect with the Agricultural Workgroup to discuss opportunities for collaboration– representatives from state departments of agriculture, NRCS, and other agricultural stakeholders.**

Contact: rcassilly@chesapeakebay.net

Other References:

- Final State Phase 3 WIPs: https://www.chesapeakebay.net/what/programs/watershed_implementation
- CAST TMDL Tracking: Phase 3 WIP Section:

  https://cast.chesapeakebay.net/Documentation/wipbmpcharts
- Loretta Collins: Ag Workgroup Coordinator, Mark Dubin: UMD Ag Advisor, CBPO, Kelly Shenk-EPA

SARE: Sustainable Agriculture Research & Education

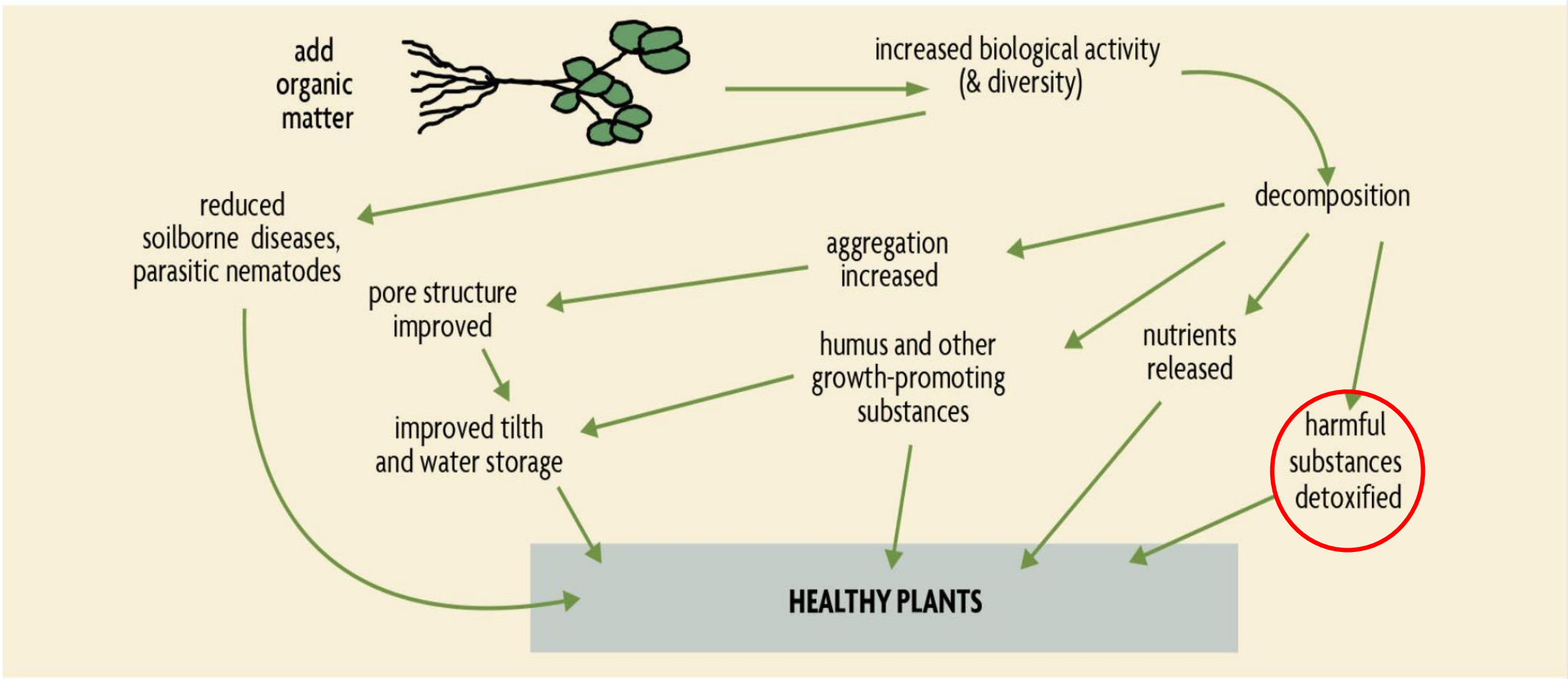


Figure 2.3. Adding organic matter results in many changes. Modified from Oshins and Drinkwater (1999).