



BMP Credit Duration

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BMP Credit Duration Model Analysis

- What is the effect on loads of expiring BMPs, BMPs that have not been reported as inspected and functioning before the end of their credit duration?
- The following results are preliminary, draft



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- Ran three model scenarios
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 - 2) 2018 Progress without credit duration
 - 3) 2019 Progress without credit duration



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BMP Credit Duration

Model Analysis

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- The difference in loads for each comparison estimates the effect of all BMPs reported up to that year – expiring



BMP Credit Duration

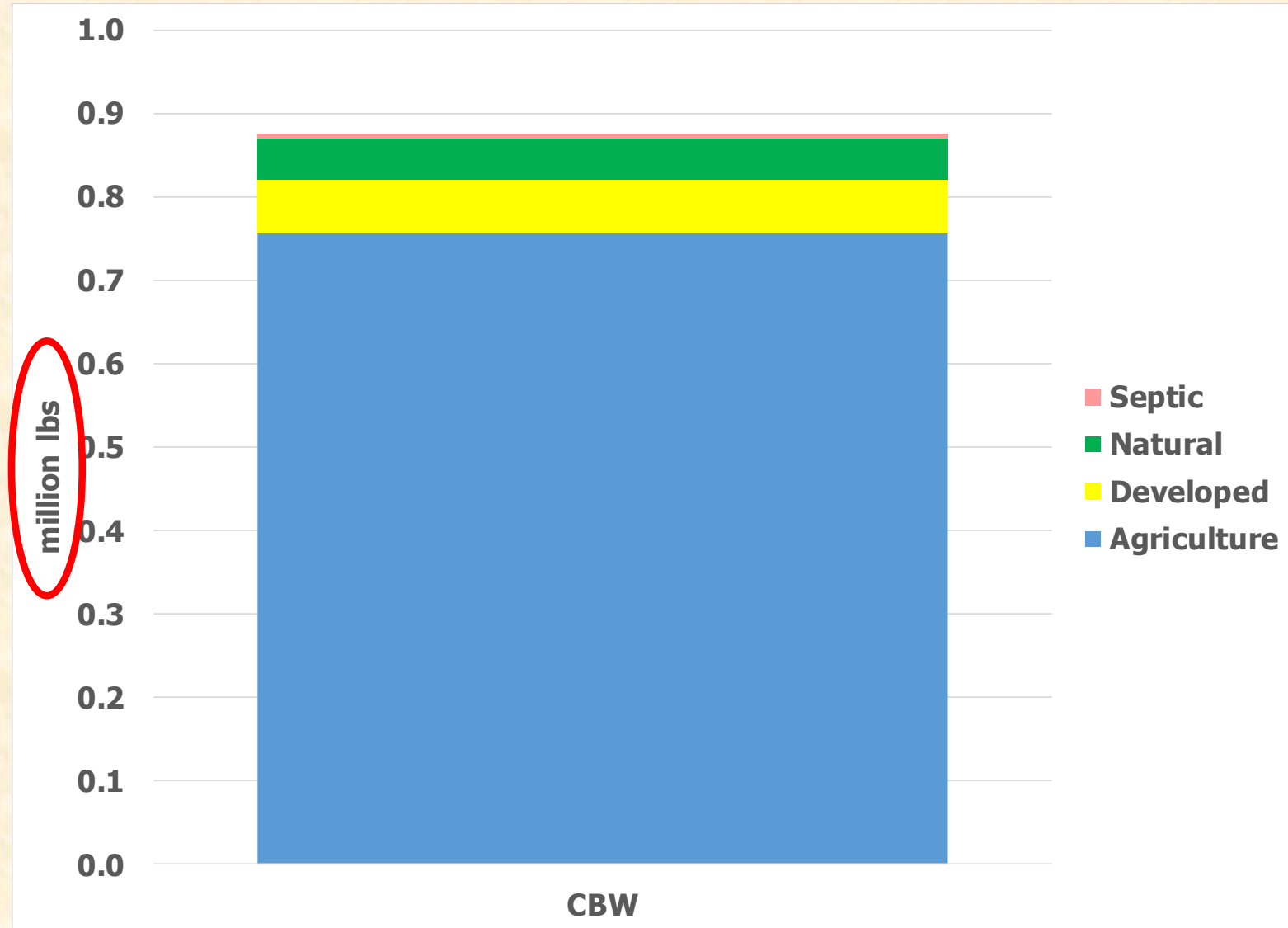
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- The differences between 1 and 2, and 2 and 3 are the annual estimated effects of expiring BMPs



BMP Credit Duration

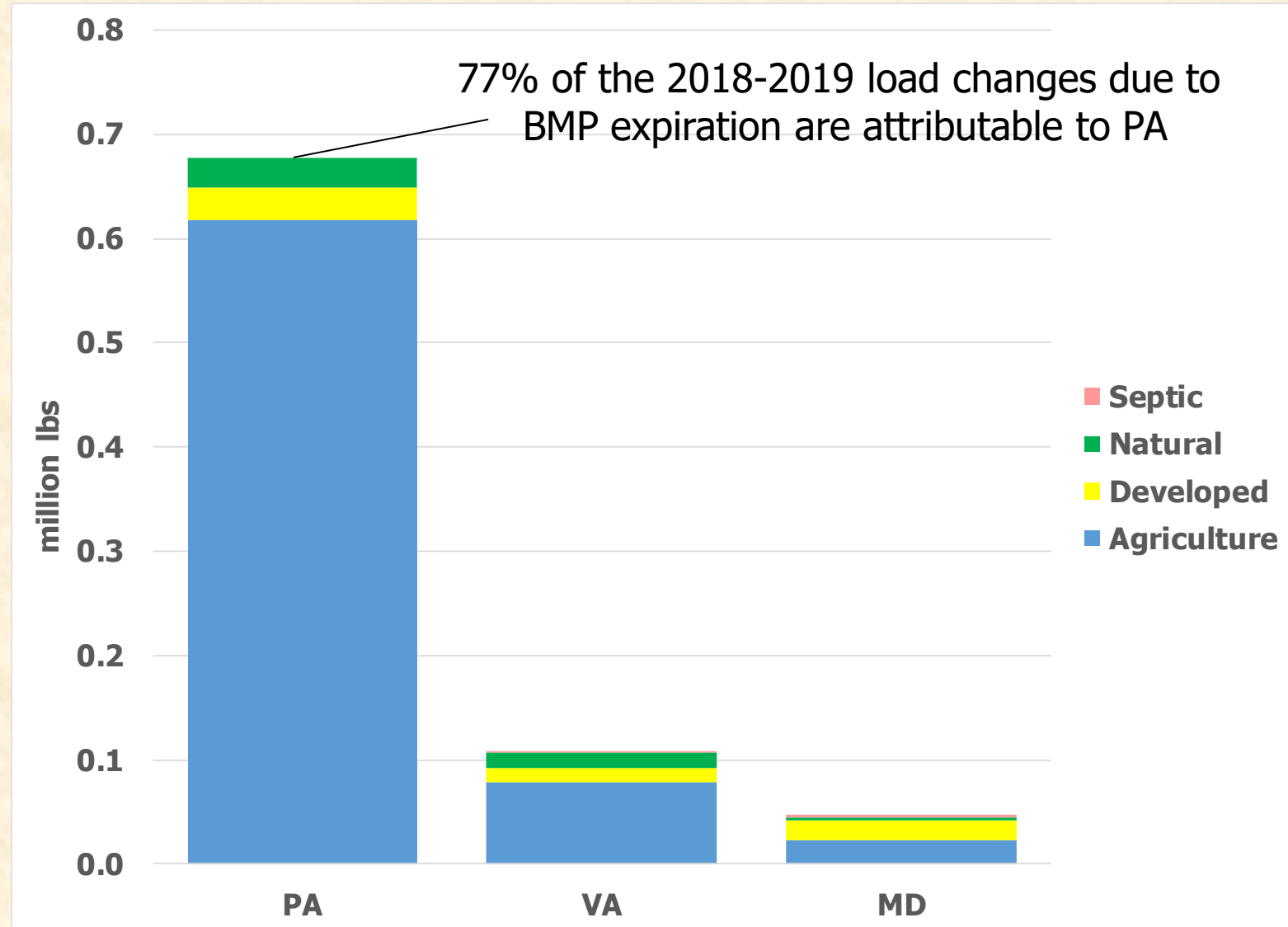
2018-2019 Nitrogen Load Change Due To Expiring BMPs





BMP Credit Duration

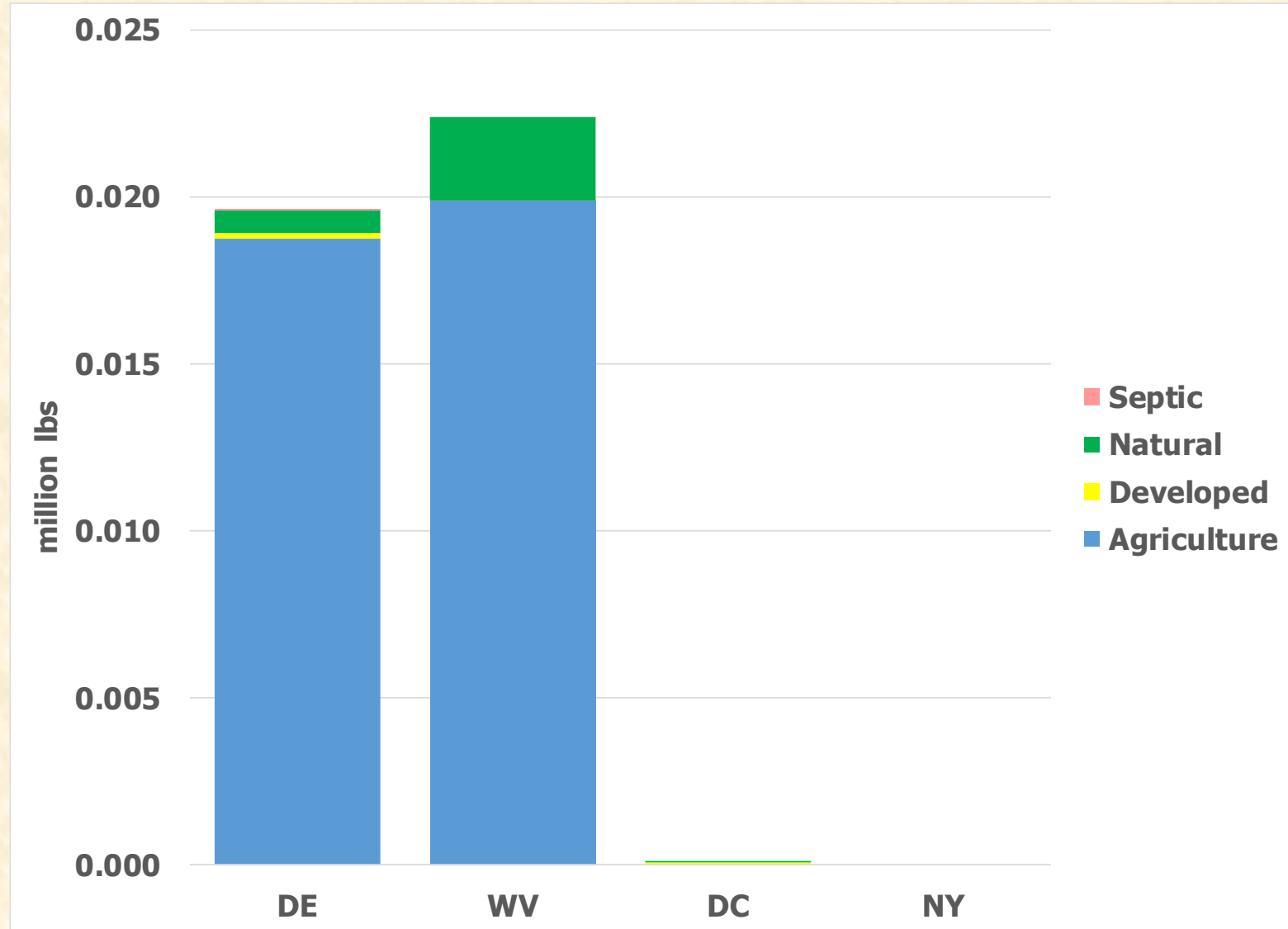
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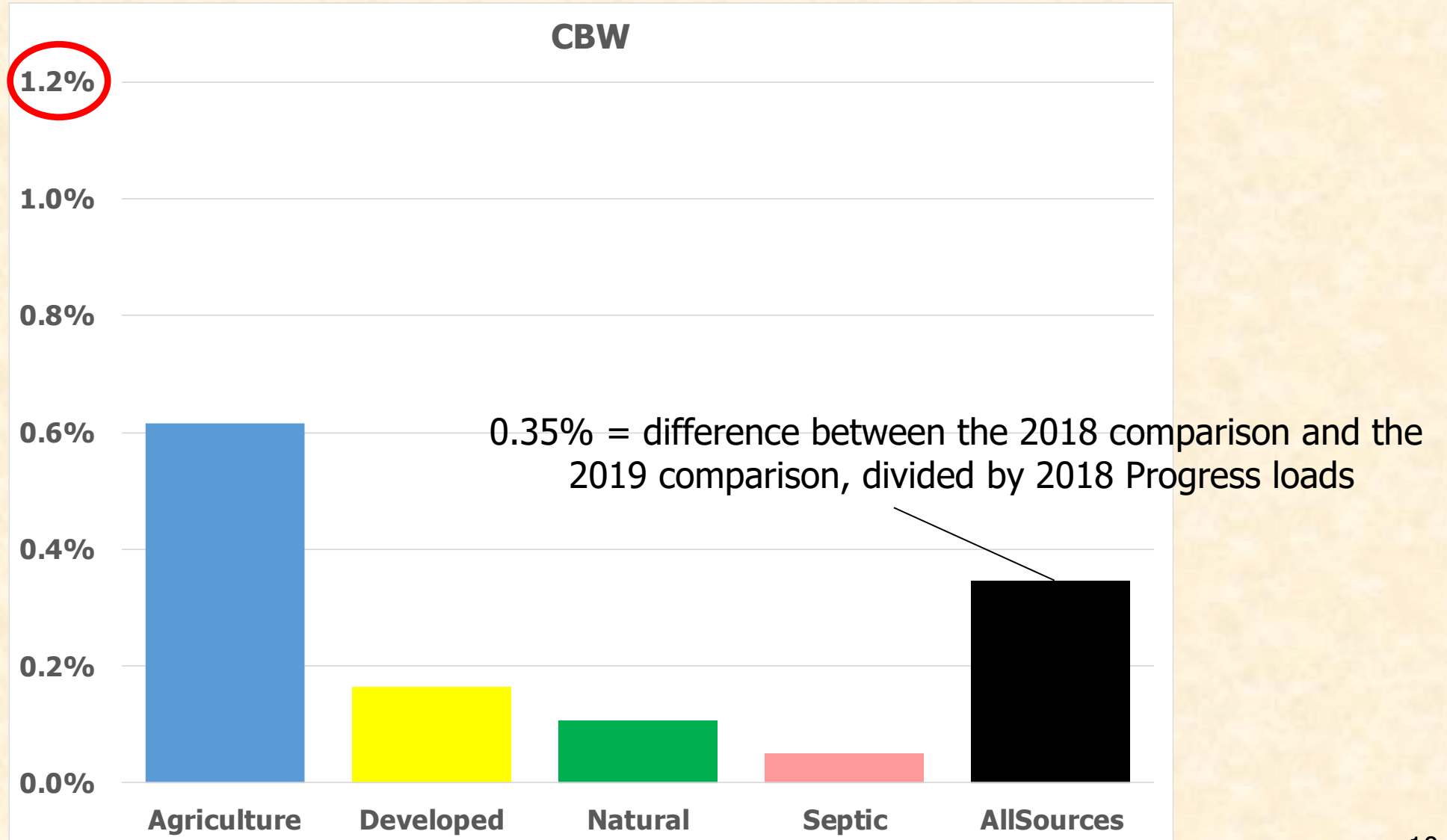
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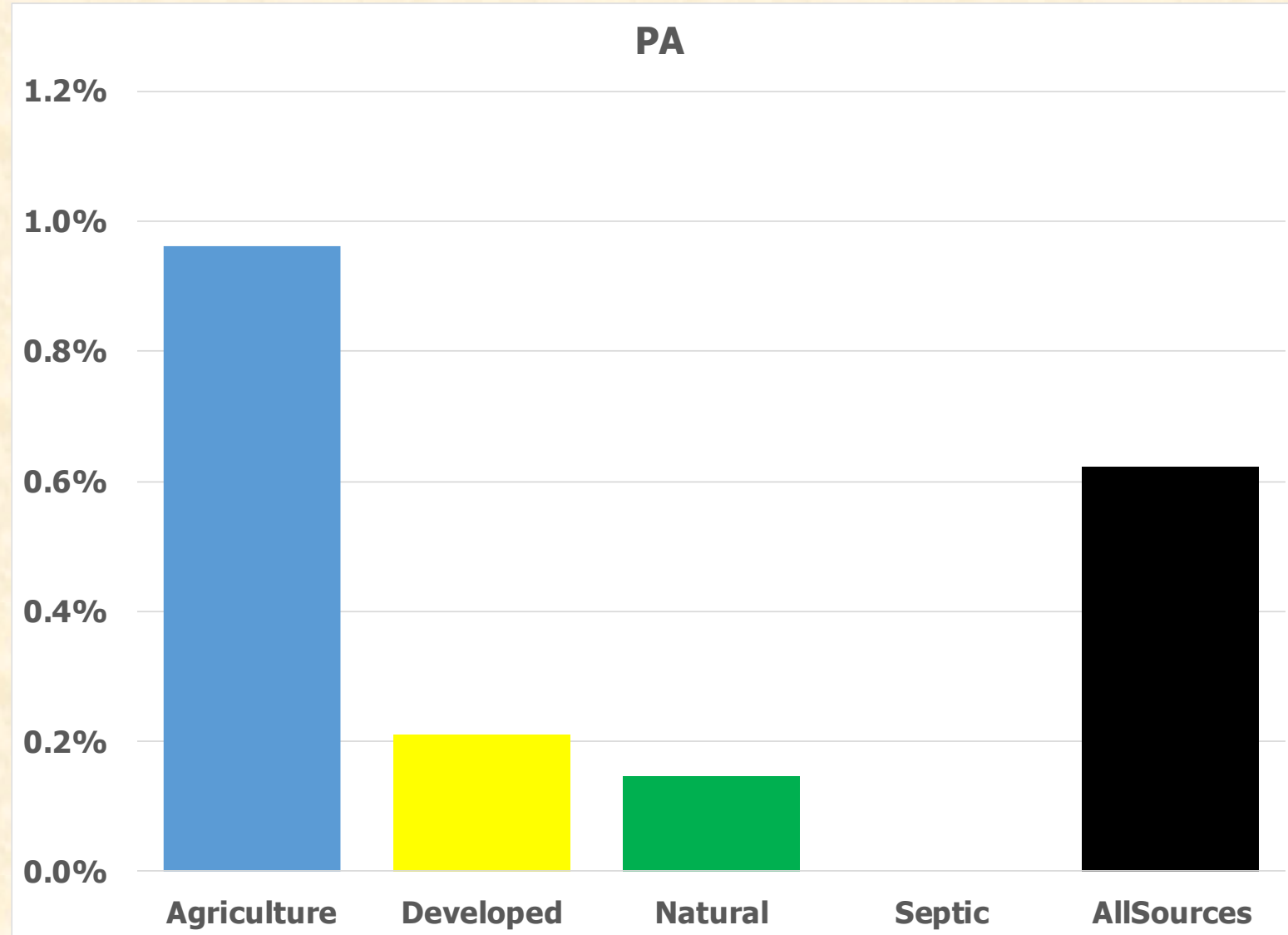
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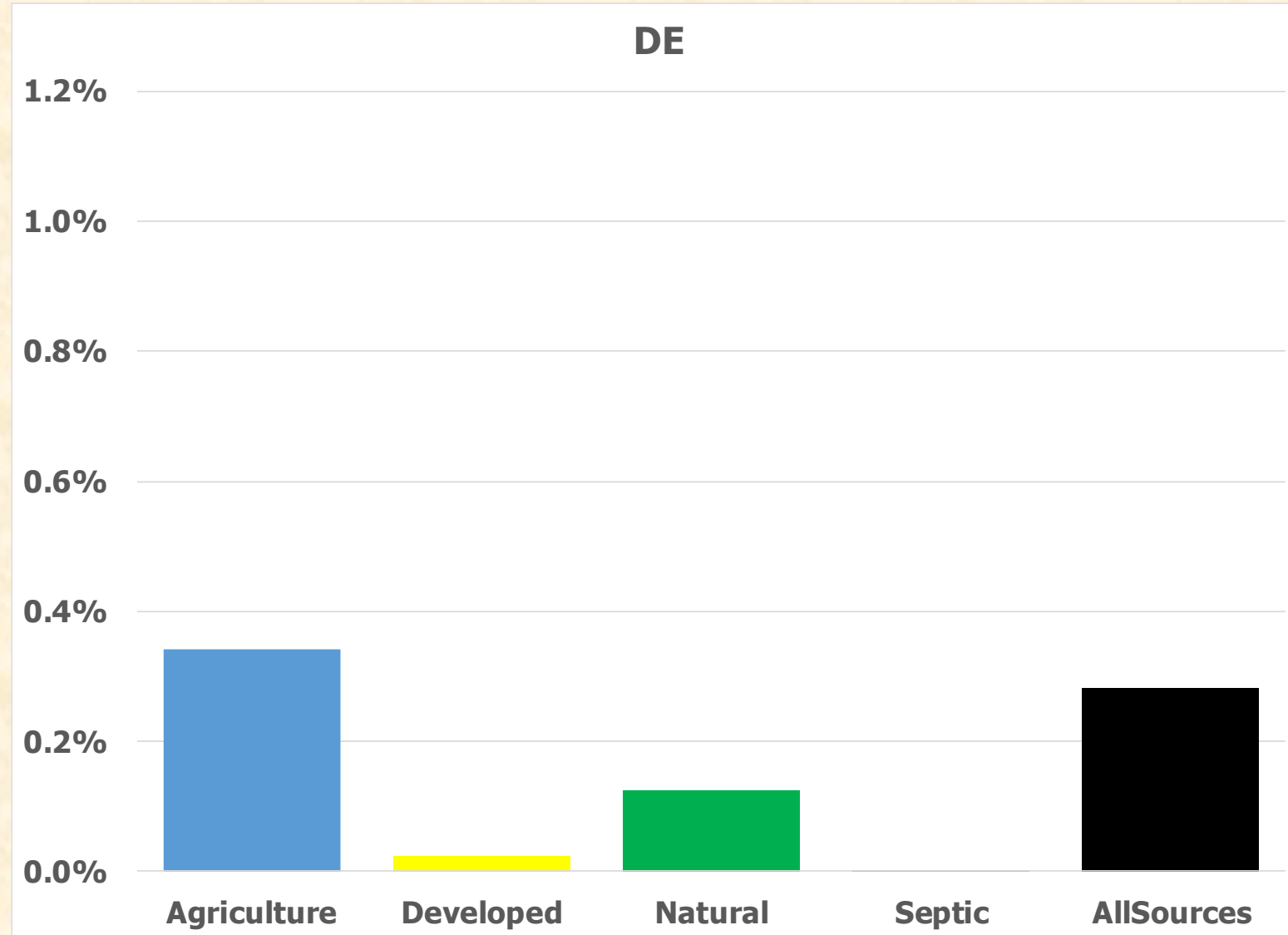
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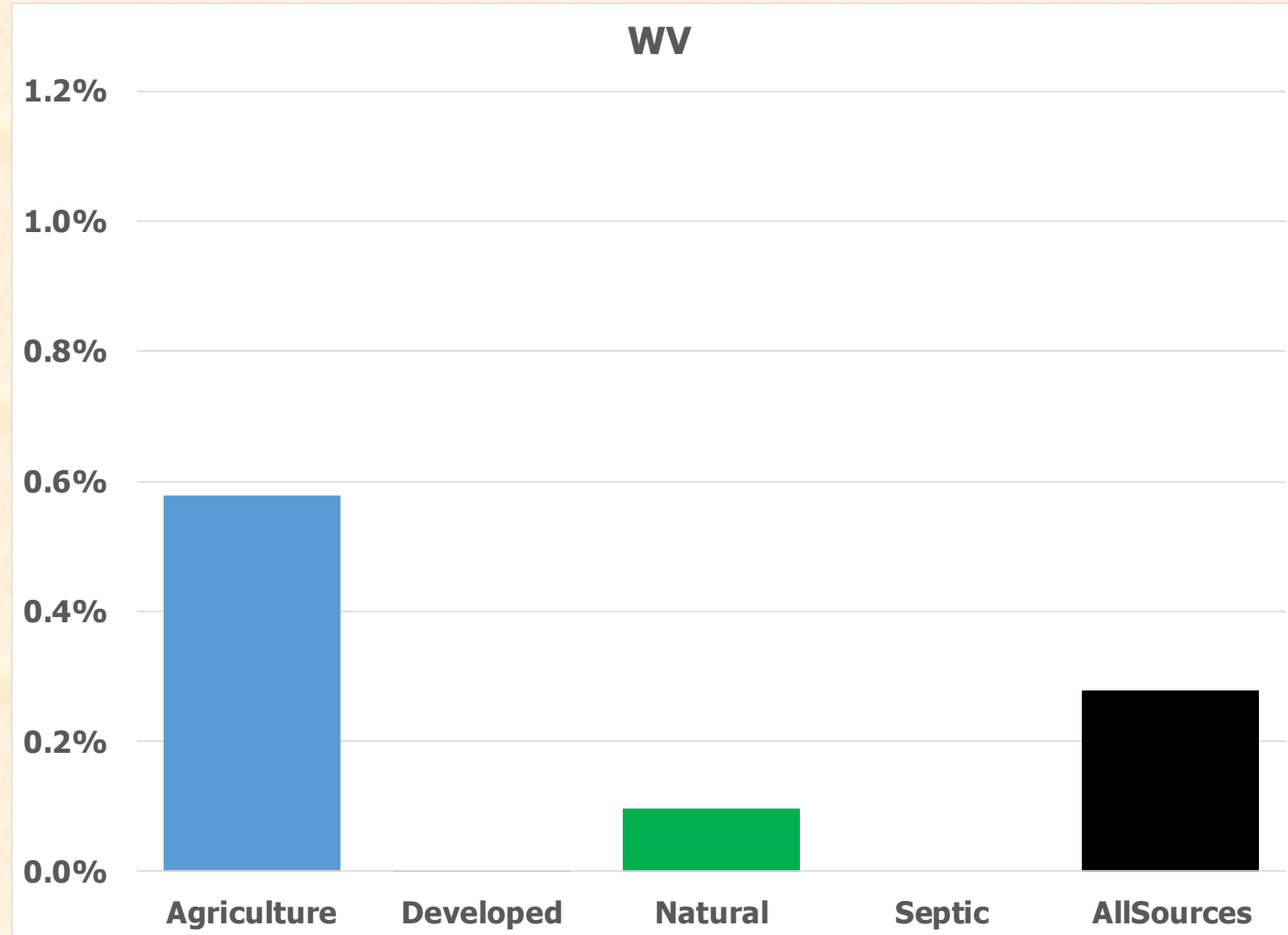
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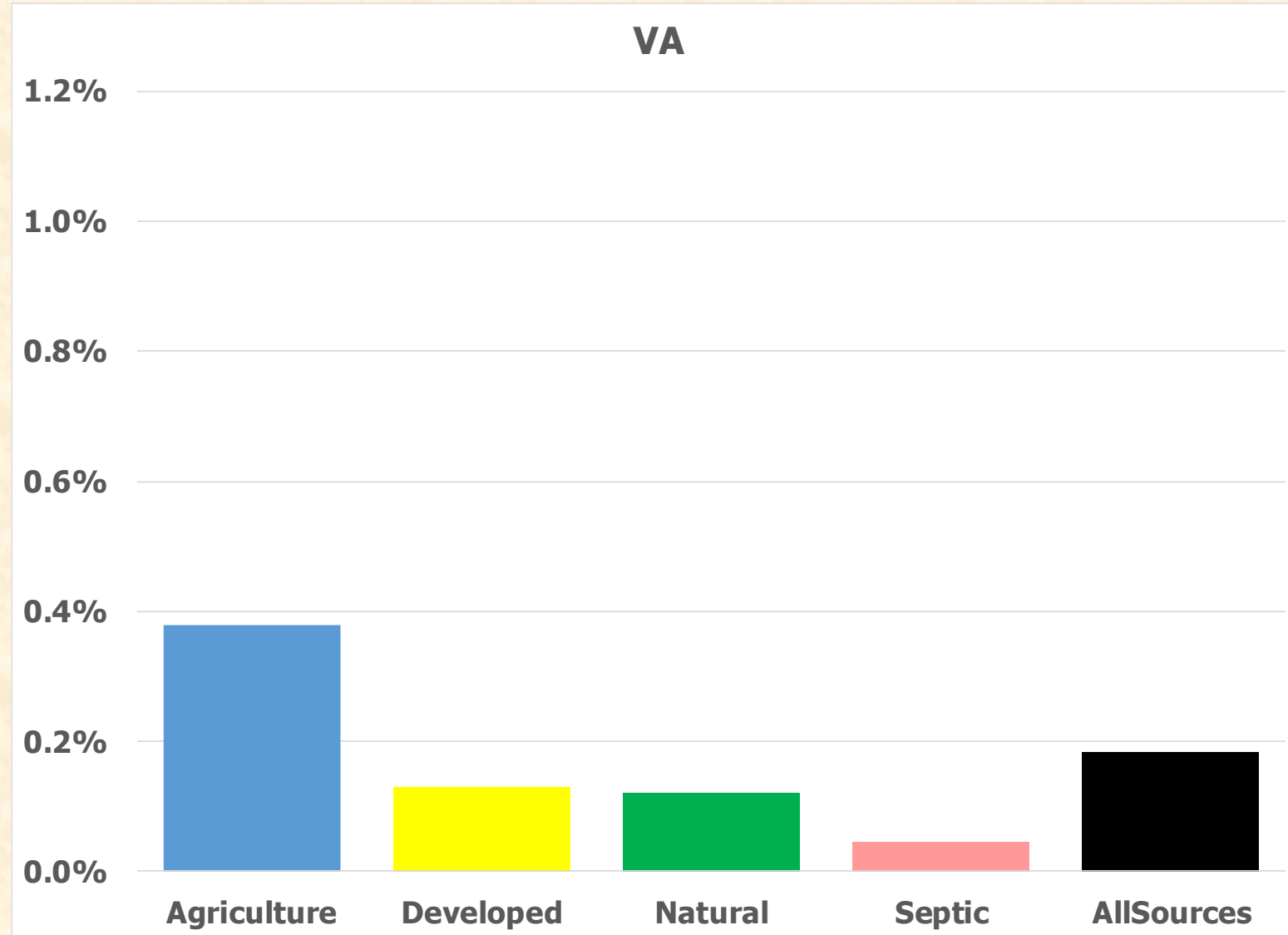
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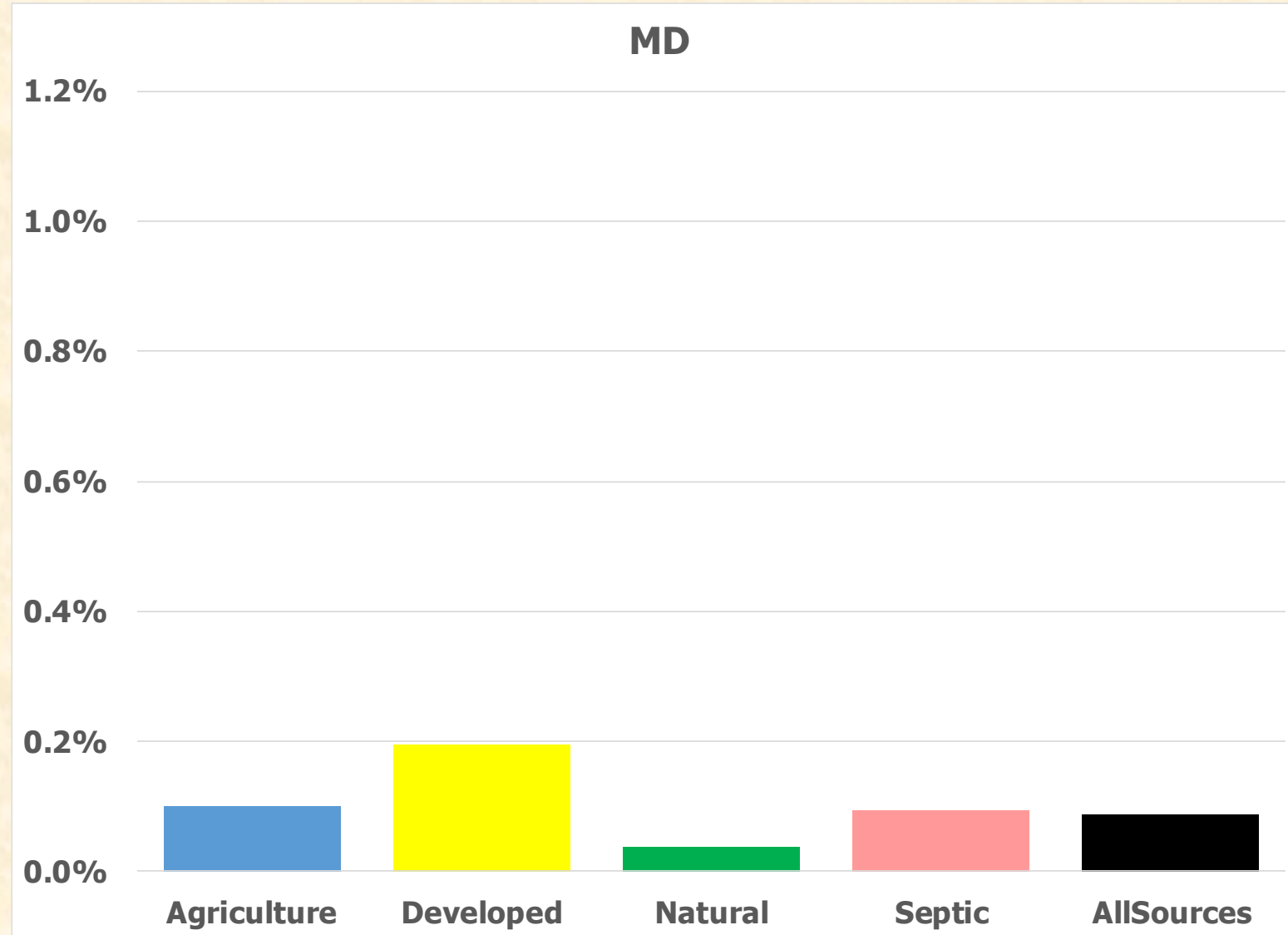
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BMP Credit Duration

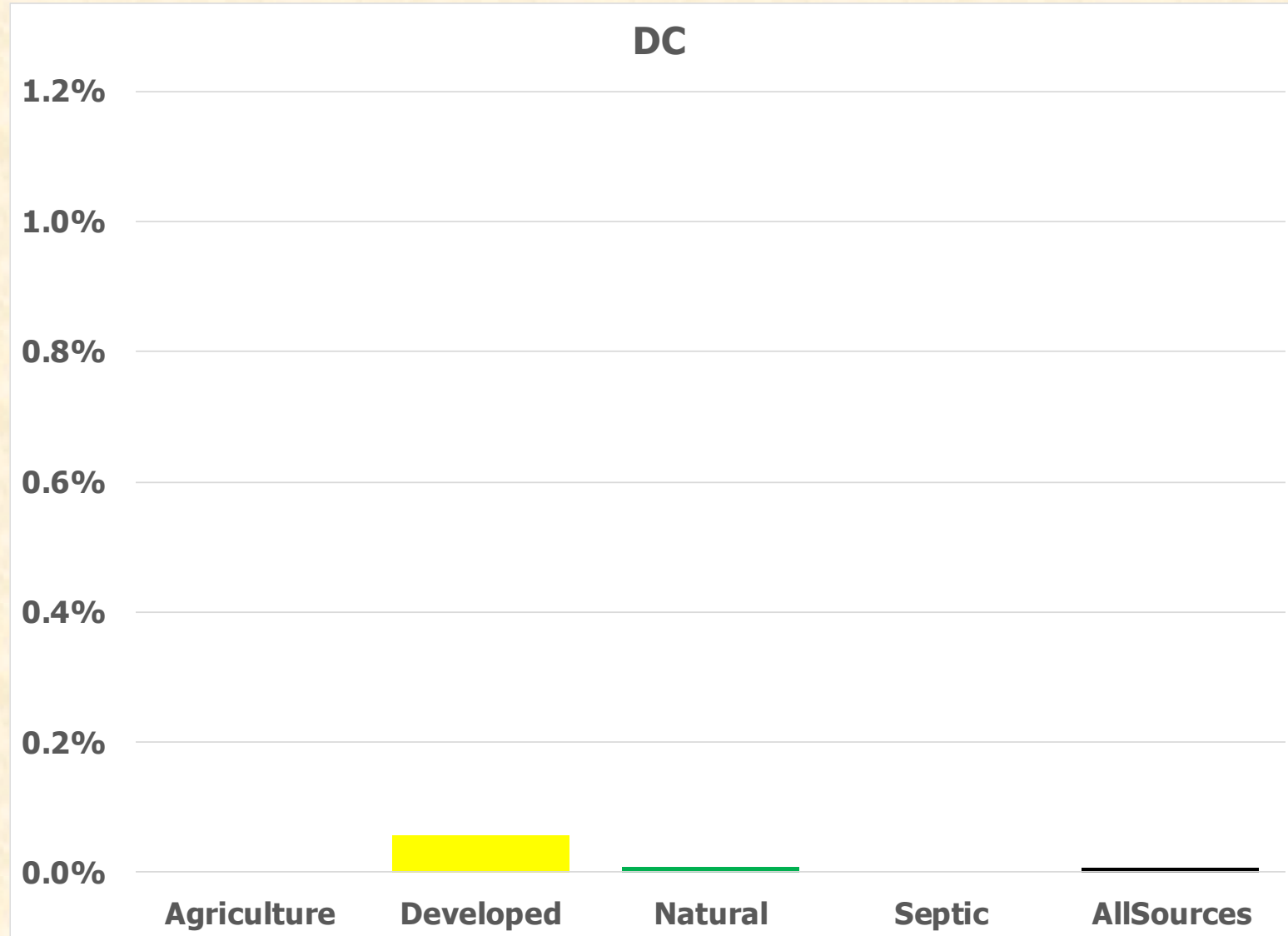
2018-2019 Nitrogen Load Change Due To Expiring BMPs





BMP Credit Duration

2018-2019 Nitrogen Load Change Due To Expiring BMPs





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2018-2019 Nitrogen Load Change Due To Expiring BMPs





BMPs That Are Not Affected By Credit Duration

Agriculture Practices (annual)

Nutrient Application Management Core Nitrogen	Acres
Nutrient Application Management Rate Nitrogen	Acres
Nutrient Application Management Placement Nitrogen	Acres
Nutrient Application Management Timing Nitrogen	Acres
Nutrient Application Management Core Phosphorus	Acres
Nutrient Application Management Rate Phosphorus	Acres
Nutrient Application Management Placement Phosphorus	Acres
Nutrient Application Management Timing Phosphorus	Acres
Conservation Tillage	Acres
High Residue Tillage	Acres
Low Residue Tillage	Acres
Cover Crop	Acres
Cover Crop with Fall Nutrients	Acres
Commodity Cover Crop	Acres
Manure Incorporation	Acres
Capture & Reuse	Acres
Broiler Mortality Freezers	Dry Tons
Manure Transport Out Of Area	Dry Tons
Manure Transport Into Area	Dry Tons
Manure Treatment Technologies Out Of Area	Dry Tons
Manure Treatment Technologies Into Area	Dry Tons
Dairy Precision Feeding	Animal Units
Ammonia Emission Reductions (Litter Amendments)	Animal Units

Urban/Suburban Practices (annual)

Grey Infrastructure(IDDE)	Acres
Erosion and Sediment Control	Acres
Urban Nutrient Management	Acres
Storm Drain Cleanout	Lbs of Sediment
Street Sweeping	Acres
Septic Pumping	Systems

Resource Practices (annual)

Forest Harvesting Practices	Acres
Oyster Aquaculture	Oysters Harvested
Oyster Reef Restoration	Acres
Non-Tidal Algal Flow-way	Acres
Tidal Algal Flow-way	Acres



BMPs That Can Be Affected By Credit Duration

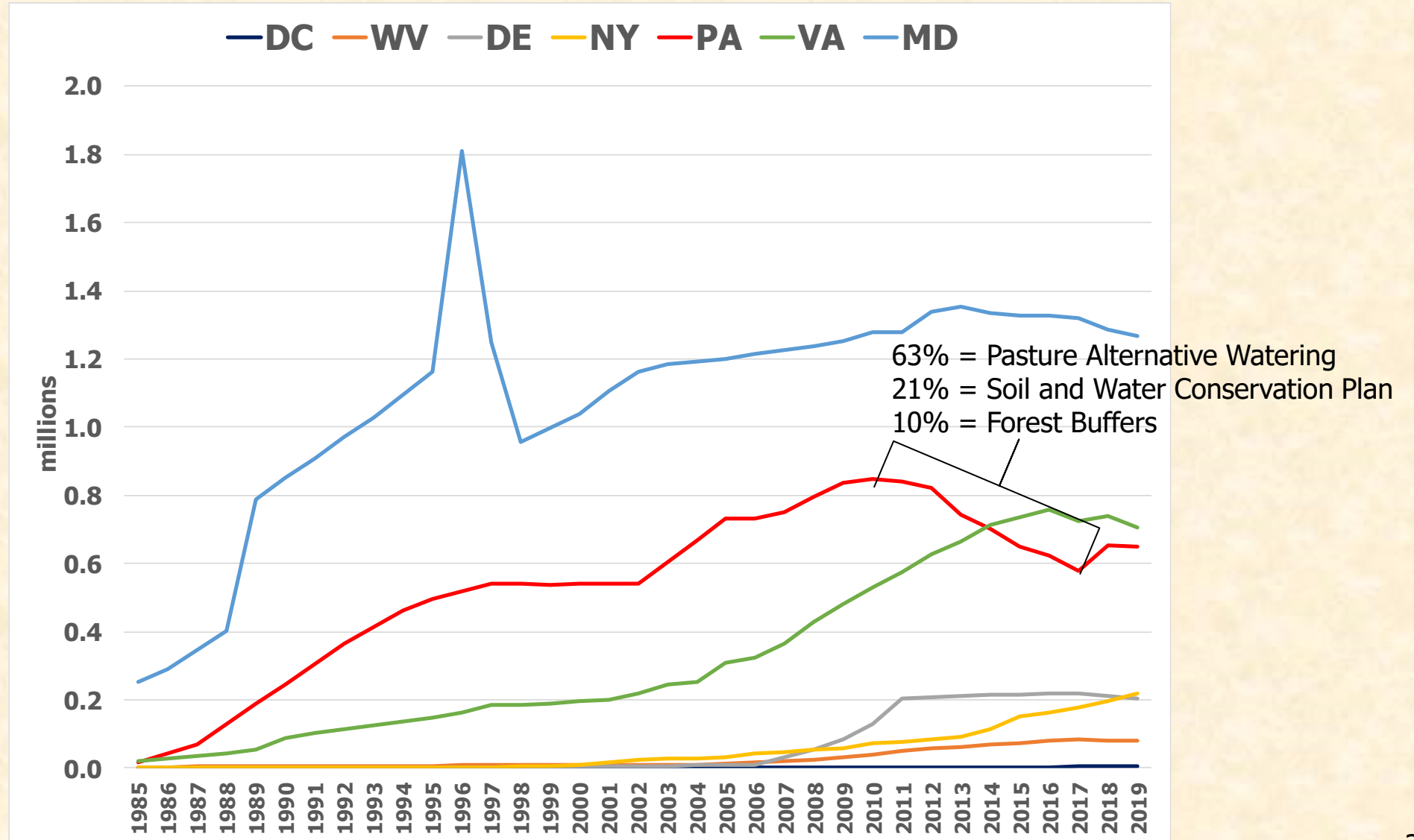
<i>Agriculture Practices (cumulative)</i>	
Pasture Alternative Watering	Acres
Prescribed Grazing	Acres
Horse Pasture Management	Acres
Forest Buffers on Fenced Pasture Corridor	Acres
Grass Buffers on Fenced Pasture Corridor	Acres
Forest Buffers	Acres
Wetland Restoration	Acres
Wetland Creation	Acres
Wetland Enhancement and Rehabilitation	Acres
Land Retirement	Acres
Grass Buffers	Acres
Tree Planting	Acres
Alternative Crops	Acres
Soil and Water Conservation Plan	Acres
Crop Irrigation Management	Acres
Agricultural Drainage Management	Acres
Non Urban Stream Restoration	Feet
Non Urban Shoreline Management	Feet
Livestock Waste Management Systems	Animal Units
Poultry Waste Management Systems	Animal Units
Livestock Mortality Composting	Animal Units
Poultry Mortality Composting	Animal Units
Barnyard Runoff Control + Loafing Lot Management	Acres
Ag Stormwater Management	Acres
Ammonia Emission Reductions (Biofilters)	Animal Units
Ammonia Emission Reductions (Lagoon Covers)	Animal Units

<i>Urban/Suburban Practices (cumulative)</i>	
Runoff Reduction Performance Standard	Acres
Storm Water Treatment Performance Standard	Acres
Wet Ponds & Wetlands	Acres
Floating Treatment Wetlands	Acres
Dry Ponds	Acres
Extended Dry Ponds	Acres
Infiltration Practices	Acres
Filtering Practices	Acres
BioRetention	Acres
BioSwale	Acres
Permeable Pavement	Acres
Vegetated Open Channel	Acres
Urban Filter Strips	Acres
Impervious Disconnection	Acres
Conservation Landscaping Practices	Acres
Impervious Surface Reduction	Acres
Urban Forest Buffers	Acres
Urban Grass Buffers	Acres
Urban Tree Planting	Acres
Urban Forest Planting	Acres
Urban Stream Restoration	Feet
Urban Shoreline Management	Feet
Septic Connections	Systems
Septic Denitrification	Systems
Septic Secondary Treatment	Systems
Septic Effluent	Systems
<i>Resource Practices (cumulative)</i>	
Abandoned Mine Reclamation	Acres
Dirt&Gravel Road E&S	Feet



Cumulative BMPs Credited (1985–2019)

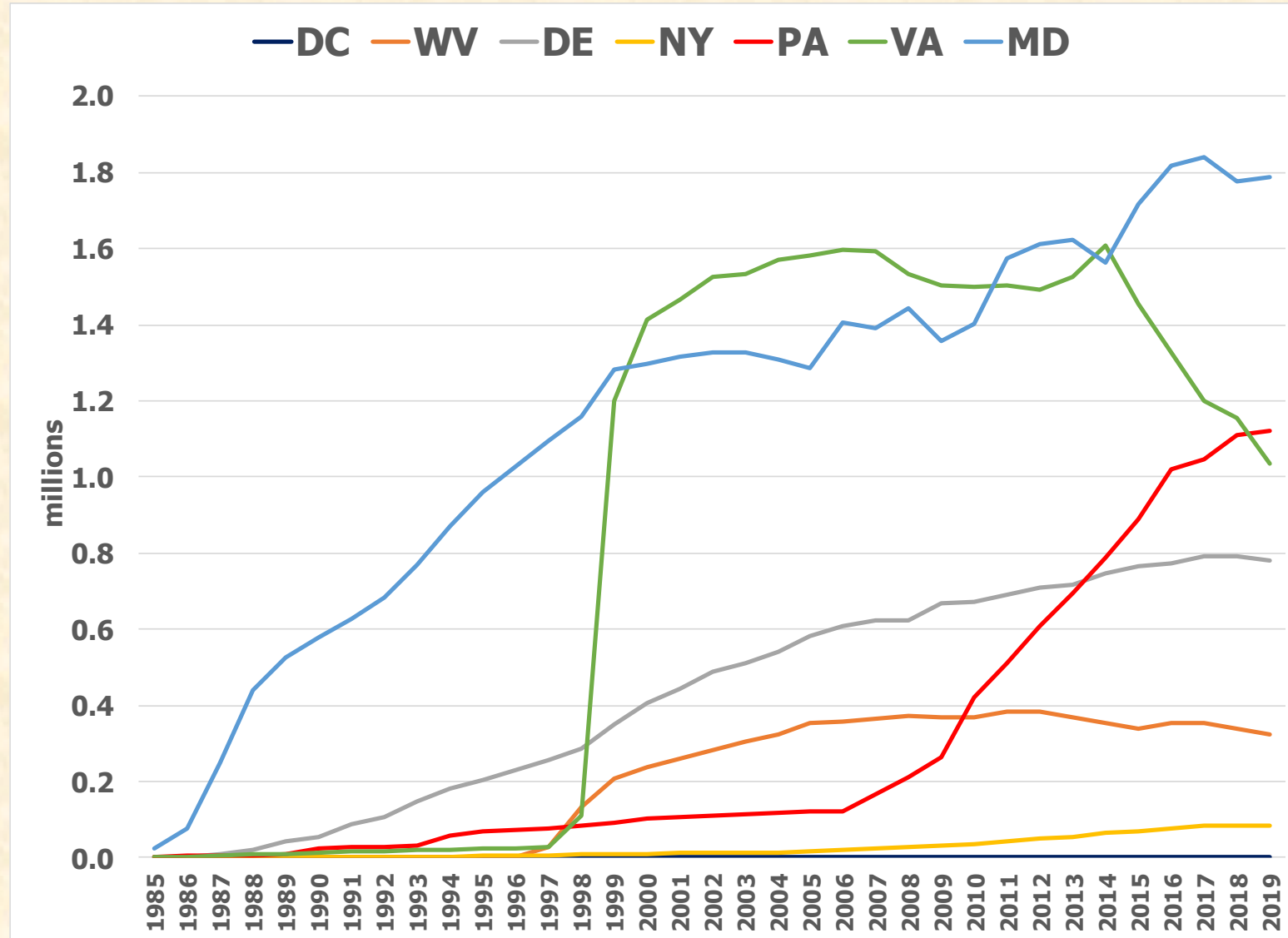
BMP Acres





Cumulative BMPs Credited (1985–2019)

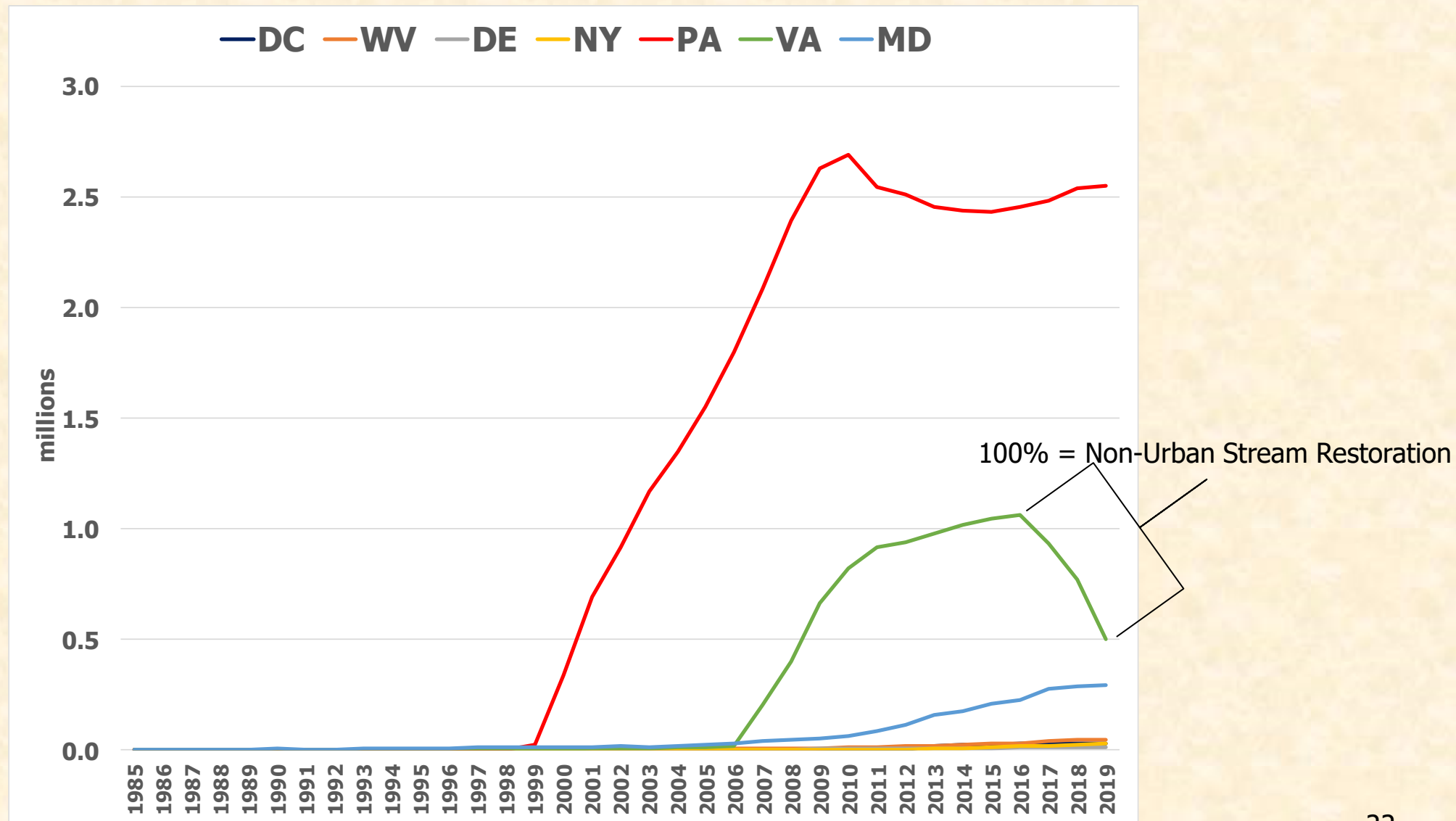
BMP Animal Units





Cumulative BMPs Credited (1985–2019)

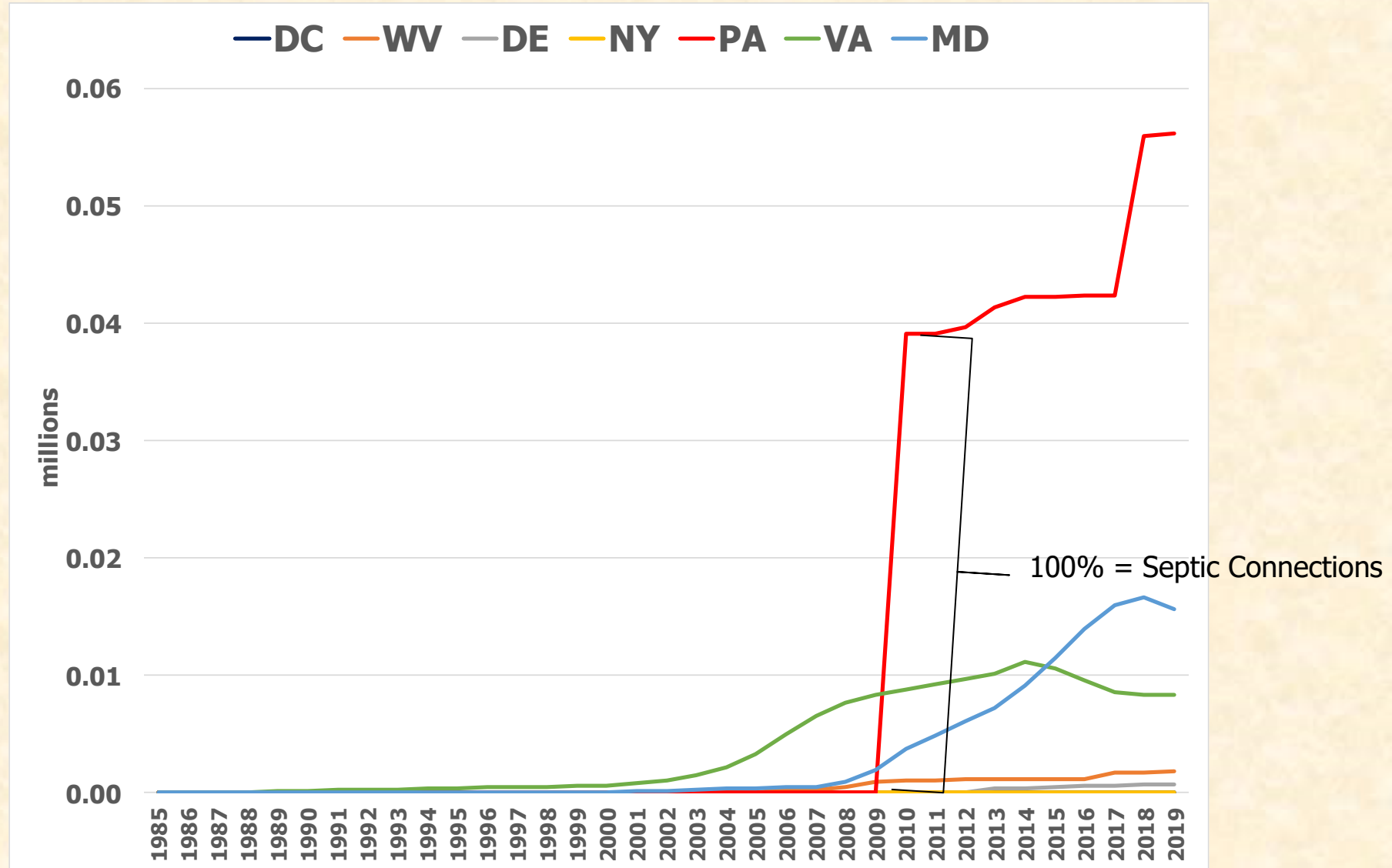
BMP Feet





Cumulative BMPs Credited (1985–2019)

BMP Systems





BMP Credit Duration Model Analysis

- Intend to run a series of scenarios, 2009–2019, to provide estimates of the long-term effect on loads of expiring BMPs, BMPs that have not been reported as inspected and functioning before the end of their credit duration?