Aligning Corporate Sustainability and Chesapeake Bay Restoration Goals



Helen Smith and Olivia Devereux, Devereux Consulting

Scott Raubenstine, Perdue AgriBusiness

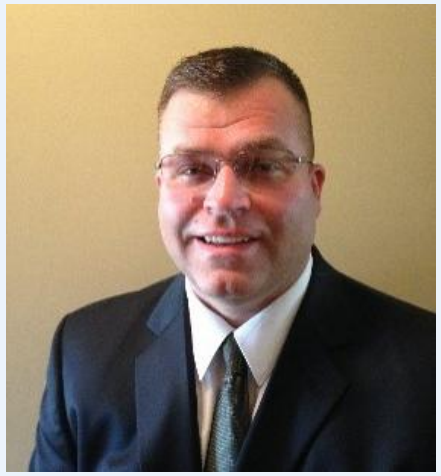
November 20, 2025

Meet Our Speakers



Helen Smith

Watershed Data Analyst



Scott Raubenstine

VP of Agricultural Services



Olivia Devereux

Senior Watershed Strategist

How Agricultural BMPs Enhance Ecosystem Resilience

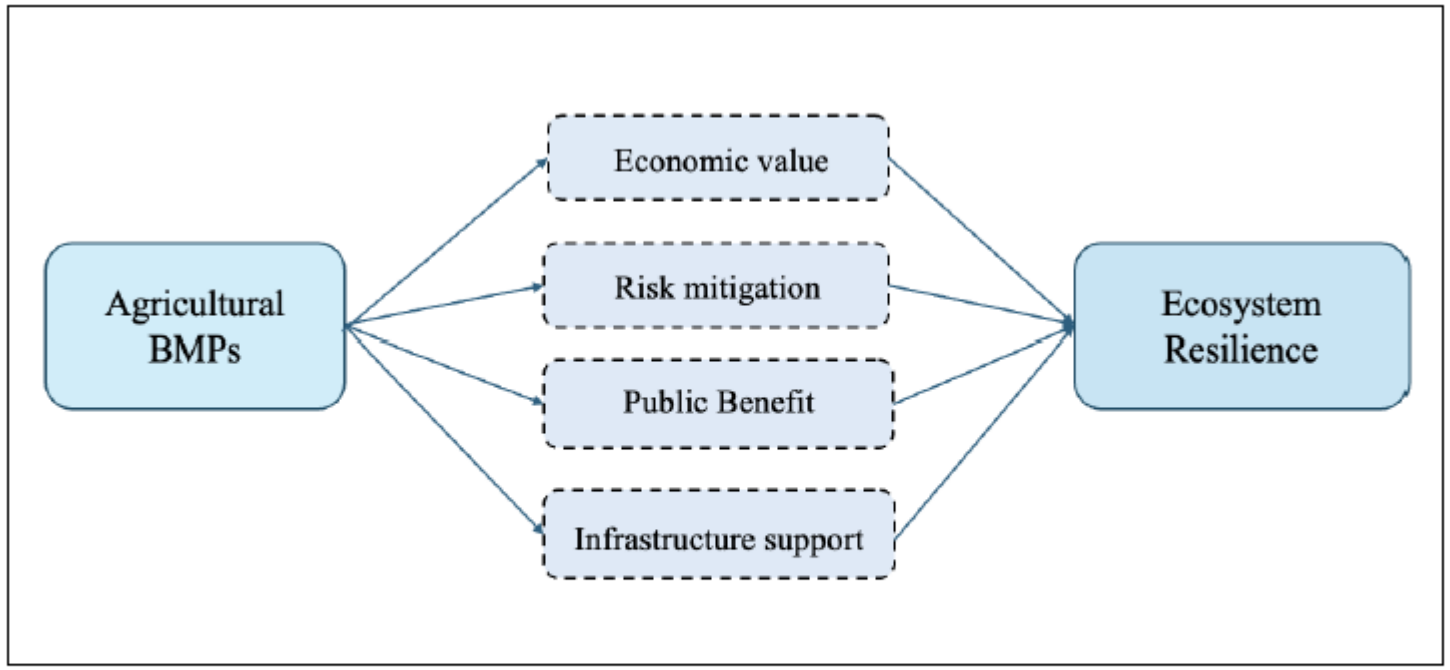


Figure 2: Pathways through which agricultural BMPs enhance ecosystem resilience (adapted from Amadu & McNamara

Corporate ESG Thru Environmental Stewardship

November 2025



Perdue's Sustainability Vision

To be the recognized leader in sustainable food and agriculture.

To achieve this, we will:

1. **Partner with Farmers, Associates, Customers and Consumers** to truly unlock our environmental stewardship potential.

2. **Create and capture value** for Perdue and its stakeholders through sustainability initiatives.

PERDUE'S VISION

To be the most trusted name in Food and Agricultural Products

PERDUE'S VALUES



PERDUE'S REASON FOR BEING

Raise a Better Future

OUR CORPORATE SUSTAINABILITY PLATFORM

We believe in responsible food and agriculture®









Food **Environment** **Animals** **People**

DATA INTEGRITY & TRANSPARENCY W/ METHODOLOGIES FOR SBTI TARGETS, EMISSIONS & REMOVALS RELATING TO LOW CARBON CHICKEN & OIL

Scan to view site

GREENHOUSE GAS PROTOCOL

20 Year Project by World Resource Institute and World Business Council for Sustainable Development (WBCSD)

Enables companies to understand, track, report & manage their emissions and removals

Scan to view site

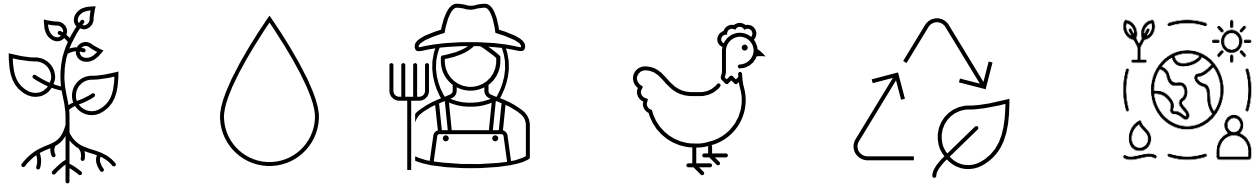
SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Enables companies to set science-based targets in service of climate action

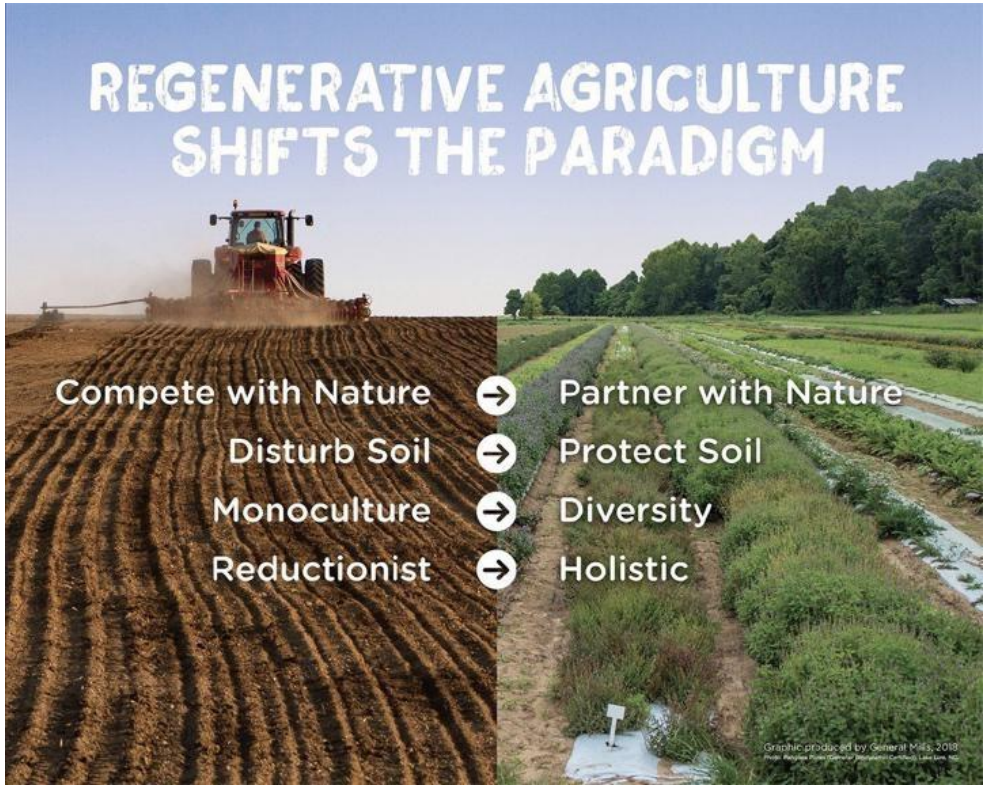
Healthy Soil, Healthy Farmer, Healthy Farm

Regenerative Agriculture Perspective



Soil Water Farmer Animal Welfare Circularity Biodiversity

Collaboration allows the ecosystem to thrive!!



Confidential

Regenerative Agriculture Goals

Simple: Support our Farmers by removing complexity in data collection.

Expertise: 3rd Party Verifies Net Acre Impacts.

Scale: Build a supply chain partner network to scale.

Integrity: Deliver verified Scope 3 Emission Reductions to Support Corporate ESG goals.

Impact: Drive Regenerative AG Practices to Support Generational Farming Resiliency in Our Rural Communities.

Benefit: 70% of Carbon value returns to the Farm Gate.

Cost: Imperative for Supply Chains success while protecting our Natural Resources.





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Regenerative Ag Practice Agronomic Benefits

Measuring Net Acre Environmental Impact While Building Farming Resiliency!

Why cover crops?

Cover crops can help …







Why no till or strip till?

No till/strip till can help …







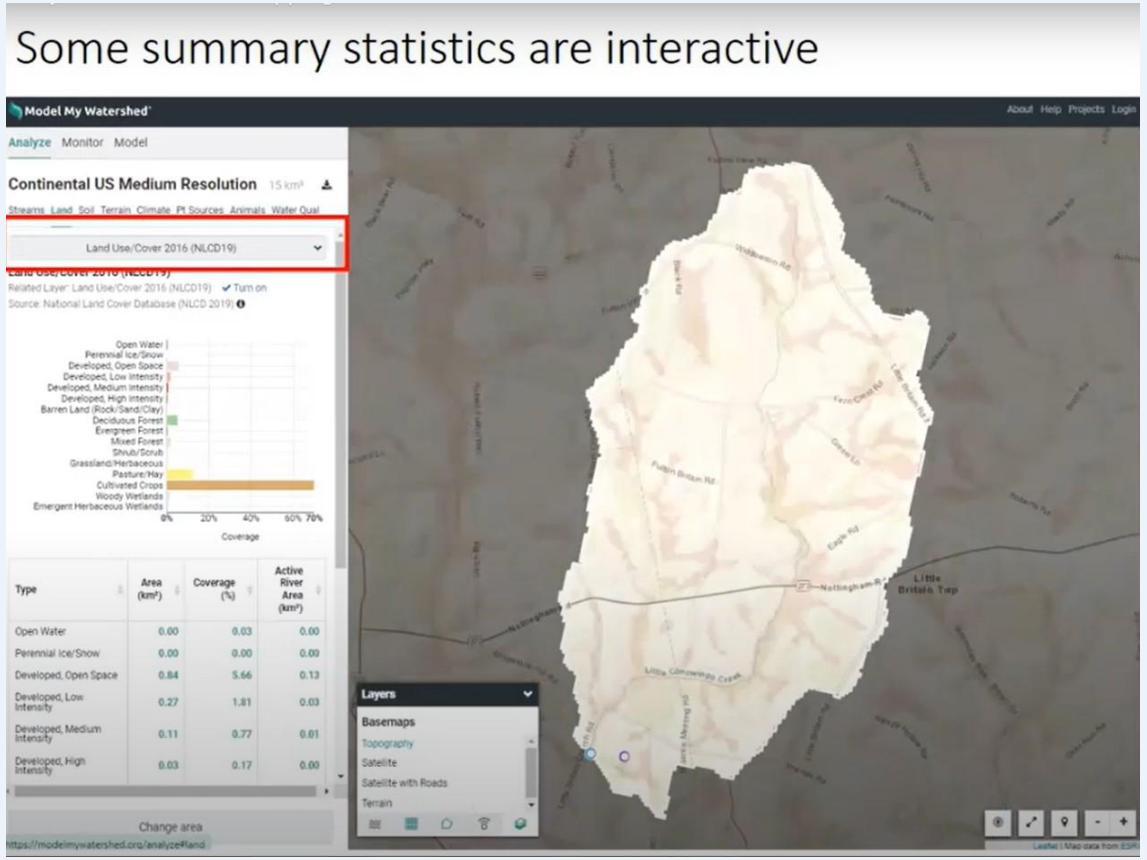
Nutrient Use Efficiency Coming for 2025!!

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Model My Watershed

Model My Watershed is a watershed-modeling web app that enables users to:

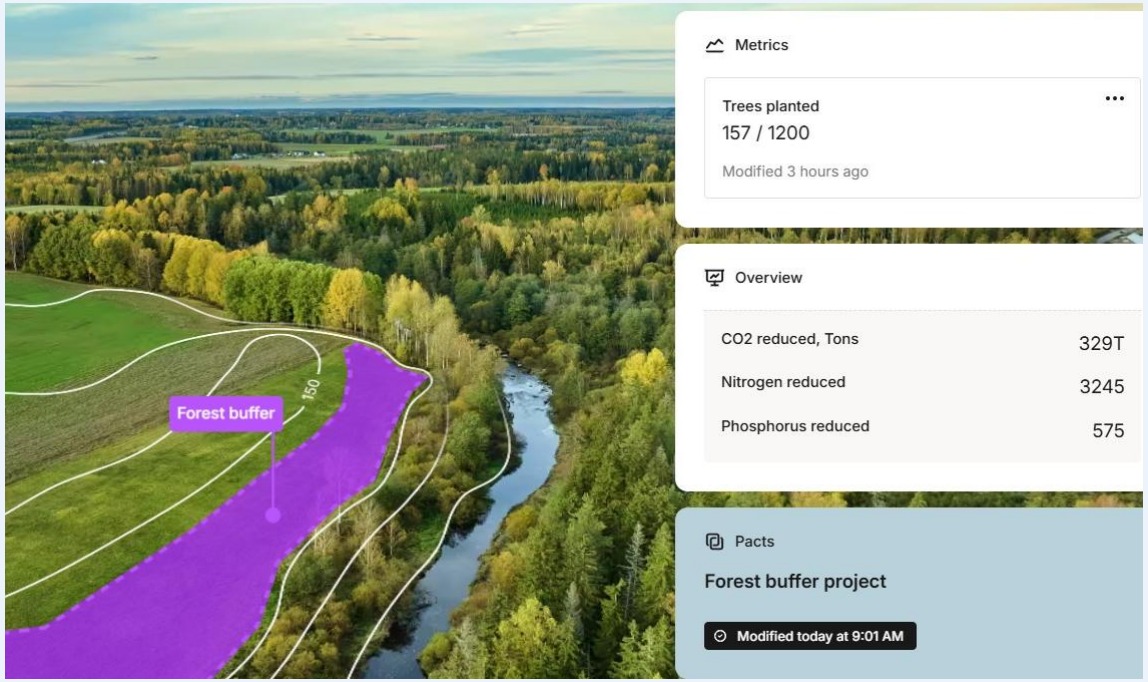
- Analyze real land use and soil data in their neighborhoods and watersheds
- Model stormwater runoff and water-quality impacts using professional-grade models
- Compare how different conservation or development scenarios could modify runoff and water quality



ModelMyWatershed.org

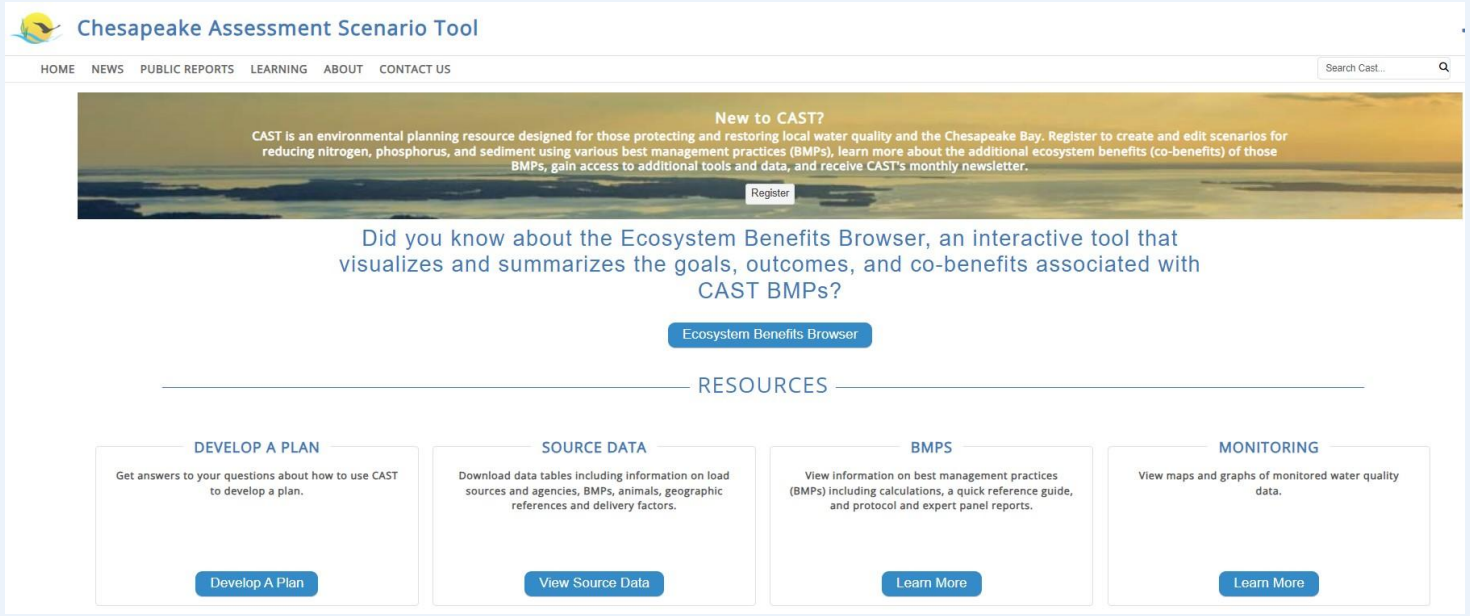
FieldDoc

- **Portfolio Management:** Organize and track restoration projects, activities, and metrics.
- **Metrics & Reporting:** Monitor progress (acres restored, trees planted, stream length) and create funder-ready reports.
- **Impact Modeling:** Estimate nutrient, sediment, and greenhouse gas reductions.
- **Visualization & Storytelling:** Build interactive maps and share results via Atlas and web content.
- **Collaboration & Integration:** Work with teams, set permissions, and connect to ArcGIS Online and other tools.
- **Purpose:** Centralize restoration data, quantify environmental impact, and streamline reporting.



FieldDoc.com

Chesapeake Assessment Scenario Tool



- Web-based planning tool to estimate nitrogen, phosphorus, and sediment load reductions using various **BMPs** (Best Management Practices).
- Calculates both **pollution reduction and cost**, helping users choose the most cost-effective strategies.
- Supports goal-setting and evaluation: users can compare scenarios to TMDL allocations, Watershed Implementation Plans (WIPs), or annual progress.
- Designed for local planners, states, and watershed partners – no modeling background needed.
- Part of the Chesapeake Bay Program's modeling suite, informing restoration decisions across the watershed.

CAST.ChesapeakeBay.net

DTAP – Delaware Targeting and Planning

- **Purpose:** Identify opportunities for reducing nitrogen, phosphorus, sediment, and bacteria to meet TMDL goals.
- **Planning & Evaluation:** Helps develop implementation plans and evaluate long-term pollutant reductions.
- **Key Questions Answered:**
  - How do urban stormwater, tillage, or a combination of BMPs affect pollutant loads?
  - Where should BMPs be implemented for maximum impact?
  - Which BMPs are most cost-effective?
- **Users & Beneficiaries:** DNREC staff, MS4s, U.S. EPA, and anyone invested in Delaware's water quality.
- **Coverage:** Delaware portions of the Piedmont, Inland Bays, Delaware Bay, and Atlantic Ocean Basins.

DTAP.DNRECApps.net

NRCS Cover Crop Economics Decision Support Tool

- Purpose: A spreadsheet-based budgeting tool to help producers assess the costs and benefits of adding cover crops to their rotation.
- Key Features:
  - Evaluate short-term (operating) and long-term (soil health) impacts.
  - Capture benefits such as nutrient credits, reduced chemical inputs, erosion control, grazing opportunities, and improved soil infiltration.
  - “What-if” scenario capability up to 50 years for long-term soil health and economic outcomes.
- Audience & Use: Farmers, landowners, planners, land-use advisors needing data-driven decisions before implementing cover crops.
- Why It Matters: Helps integrate conservation practices with financial planning—making sustainable soil-based strategies economically tangible.



https://www.nrcs.usda.gov/sites/default/files/2022-08/nrcseprd334424.pdf

COMET-Planner – USDA Tool for GHG Planning

- Web-based decision support tool to estimate **greenhouse gas reductions** and **carbon sequestration** from conservation practices.
- Uses regional “fixed” baselines (by county / Major Land Resource Areas) derived from COMET-Farm model outputs.
- Covers dozens of NRCS conservation practices (e.g., cropland management, woody plantings, restoration).
- Provides estimates in CO_2-equivalent (tons/year) for CO_2, CH_4, and N_2O changes.
- Designed for initial planning: ease-of-use makes it ideal for conservation planners, landowners, and farmers.



COMET-Planner.com

Precision Nutrient Management: Analyses Performed for The Mill and Penn State

Question

How can we estimate delivered nitrogen inputs when land grant university recommendations are out of date?

Approach Using CAST

- Used ratio of delivered N to nutrients applied for *Grain with Manure* land use
- Applied estimated reduction of **43 lbs N/acre** from the TN applied
- Calculated new delivered load by using same ratio and **Edge of Tide (EOT)** loads

Result

- Delivered load decreases from **22.7M lbs → 4.07M lbs**
- Approx. **18% reduction**



Manure Injection: Analysis Performed for Sustainable Chesapeake

Question

What nutrient load reductions could be achieved if **50% of liquid manure** were **injected** in the next year, and how much additional reduction occurs if **nutrient management** were also increased to 50% implementation?

Approach Using CAST

- Calculated liquid vs. solid manure ratios by county
- Estimated acres needed for **50% liquid manure injection**
- Built 3 CAST scenarios:
    1. **2022 Progress (baseline)**
    2. **2022 Progress + 50% manure injection**
    3. **2022 Progress + 50% manure injection + 50% nutrient management**
- Ran scenarios and compared **total loads, percent reductions,** and **progress toward WIP 3 targets**

Result

- 50% manure injection reduces ag loads in all states (≈ 1-2% N, up to 4% P)
- Pennsylvania and New York see the greatest benefit
- With **50% manure injection**, PA moves from **12%** → **18%** toward WIP nitrogen target
- Adding **50% nutrient management** provides further reduction in PA and increases progress to **19% nitrogen / 29% phosphorus** toward planning targets



Questions & Discussion



Thank You!



Questions or follow-up?

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Webinar recording & resources (posted soon):

www.devereuxconsulting.com

Devereux Consulting

Data ✦ Research ✦ Analysis ✦ Strategy