Incorporating agroforestry into Virginia’s nutrient trading program

John Munsell
Nutrient credit trading in Virginia

C-CAP overview and initiatives

Obstacles and opportunities
Agroforestry merges Production and Conservation

Illustration by: Elizabeth Moore
Fruit trees and shrubs
Nut trees and shrubs
Floral crops
Woody crops, too
Phosphorus (P) an agroforestry product?
Virginia Nutrient Credit Trading Program

Agroforestry as accepted best practice being tested in Virginia...
Basic proposition is a private market

Financial exchange between two actors that helps regulated parties come into compliance
VA Nutrient Credit Trading Program

Began in 2009 – point- ($) and non-point ($$$$$$) credits

Regulations – TMDL; MS4 (new)

Significant catalyst – UVA study and VDOT

80 non-point facilities (~80% CBW, ~20% SR, ~10-750 lb. P)

5,265 pounds of P released from non-point, 52% purchased

$10.6k to $67.3k (average ~$20k; $100+million)

VDOT (~35%), private development (~55%), municipalities
Non-point front-loaded – reduces risk?
Non-point front-loaded – reduces risk?
<table>
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<tr>
<th>No.</th>
<th>Nonpoint Source</th>
<th>Nutrient Credit Registry</th>
<th>Bank Sponsor</th>
<th>Broker Contact</th>
<th>Phone No.</th>
<th>Email</th>
<th>County</th>
<th>HUC Code</th>
<th>Credits Released</th>
<th>Credits Used/Eligible</th>
<th>Credits Available</th>
<th>Phosphorus</th>
<th>Nitrogen</th>
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<td>1</td>
<td>Wildwood Farm</td>
<td>Chesapeake Bay Nutrient Land Trust, LLC</td>
<td>Scott Neal</td>
<td>(864) 222-2124</td>
<td><a href="mailto:scott.neal@cbnltrust.com">scott.neal@cbnltrust.com</a></td>
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Additionality
VA Nutrient Credit Trading Program

So what does this look like on the ground?
Deed restricted, agricultural retirement

(forests highest and best, 400 stems per acre)
Management allowed

So why not an agroforest?
Conservation Credit for Agroforestry Production
C-CAP Objective

Improve opportunities for agroforestry nutrient offsets on farmland in Virginia's Chesapeake region and beyond
CIG Purpose

Develop **recommendations and practical tools for agroforestry nutrient offsets in Virginia**
CIG Goals

An agroforestry **task force** will draft a **report** with input from **EQIP-eligible landowners** including:

**A matrix** that quantifies nutrient reductions based on the agroforestry system and site location

**Best practices** for agroforestry nutrient credit projects in Virginia
NFWF Purpose

Demonstrate and evaluate agroforestry systems as generators of tradable credits in Virginia’s market
NFWF Goals

Install 18 acres of agroforestry projects at the CSC and Appomattox that theoretically generate credits.

Analyze financial requirements and price the credits for sale in Virginia’s water quality market.

Publish recommendations for effective and profitable agroforestry nutrient offset projects.

Use lessons learned to inform CIG initiative.
SO WHAT?
Stem density
Stem density

Photo courtesy of John Fike, VT
Scale and profitability
Scale and profitability

10+ acres versus 1.2 acres
## Shenandoah-Potomac Basin Land Conversion

<table>
<thead>
<tr>
<th>Land Conversion Type</th>
<th>West of I-95</th>
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<td></td>
<td>TN</td>
<td>TP</td>
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<tr>
<td>Cropland to Forest</td>
<td>10.91</td>
<td>0.81</td>
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<tr>
<td>Cropland to Hay</td>
<td>5.77</td>
<td>0.58</td>
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<td>Cropland to Mixed Open (fallow)</td>
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<td>Hay to Forest</td>
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<td>Hay to Mixed Open (fallow)</td>
<td>1.94</td>
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<td>Pasture to Forest</td>
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Photos courtesy of Jim Burger, VT
SW311
50%
Class 0
Sediment
No-till
AOI area 7.59 acres
Buffer area 0.99 acres
Ratio Trading (Disproportionality)
Subsurface/surface nutrient monitoring
Performance investment

External Investment

Monitoring

$P, N, sed$

Externalities

\textbf{Performance investment}

External Investment

Monitoring

$P, N, sed$

Externalities

\textbf{Performance investment}
General Goal

ROI

TIME

?
General Goal