Water Quality & Agroforestry: Intro to multifunctional, for-profit riparian buffers

Photo Credit: Jeremy Kaufman / Propagate

Approximate location of Virgin Old-Growth Forest in 1620, 1850, and 1920





## Five USDA Agroforestry Practices



Alleycropping (Photo: Savannah Institute)



Riparian Forest Buffers (Photo: NRCS)



Windbreaks (Photo: University of Lincoln-Nebraska)



Silvopasture (Photo: Cornell Small Farms)



Forest Farming (Photo: Eric Burkhart)

### Agroforestry is an impact workhorse

CLIMATE MITIGATION 2 - 8 tons of carbon sequestered per acre per year

CATTLE WEIGHT GAIN Up to +1.4 lbs per day due to reduced heat and wind stress



TREE SIZE Up to 3.5x larger

compared to pulp-timber plantations

RURAL JOB DEVELOPMENT **1+ new full-time job** per 100 acres of agroforestry developed

AG. NITROGEN RUN-OFF **4x** - **10x** run-off reduction tree buffers compared to grass-only buffers

AG. PHOSPHORUS RUN-OFF **3x - 7x run-off reduction** 

tree buffers compared to grass-only buffers



Sources: The Impact of Shade on Cattle Performace in the Florida Panhandle -NFREC; Une agroforesterie pour le Québec (Agroforestry for Quebec), Silvoarable Agroforestry For Europe (SAFE) Final Report; The Carbon Farming Solution

## Propagate: on a mission to scale agroforestry into a cornerstone of agriculture

### Who we are

Agroforestry analytics & project development platform that makes it easy for investors to fund low risk regenerative agriculture projects helping farmers increase profitability.

### Vision

Support farmers in accessing the operational know-how, workflow tools, and investments needed to succeed to earn great returns and build the next generation of regenerative farms.



# Agroforestry Opportunities in Riparian Zones



### **Scale Matters!**

- Traditional Riparian Buffers
- Multifunctional Buffers
- Extreme Buffers

# **Traditional Conservation Buffer**





## **Riparian Buffers**

Our reliance on USDA's CREP Program for buffers means no grazing or commercial use

**BUT:** farmers earn income through USDA

# **Edible Multifunctional Buffer**





Productive Riparian Buffer: After - with plant labels

Designed by Holly Greenleaf







Photos: Ann English & Happy Hollow Farm

## **Other Examples: Beekeeping, Hunting, Forest Farming**



## "Extreme" Buffer



## Future "Extreme Buffer"

Photo: Sarahsway Farm Montgomery County, PA



Fiddle Creek Farm - Silvopasture and Riparian Buffer Crow and Berry Land Mgmt, also CREP, Stroud, CBF, TeamAg







**Overyield** By Propagate

> Agroforestry design & financial modeling for your farm



overyield.com

# What's Popular: Multifunctional Buffers

- Silvopasture Buffers and "Extreme" Buffers
- Buffers for CSAs
- Plainsect MFRFBs for personal/family use
- Urban multifunctional buffers/park MFRFBs (streamside food forests?)



# Tree crops - what to consider

- Immediate riparian zone: Elderberry & Aronia
- Upland areas: Black currants (European for WPBR resistance) & Chestnuts (Hybrid or Chinese)
- Silvopasture : Thornless honey locust, Black locust, Oaks, Fodder willow and mulberry, Poplar, American persimmon
- Other options: Hickories, i.e. Bitternut, Serviceberry, Mulberry



There are many native options to incorporate into the commercial agroforestry riparian zones. An important factor to consider before a landowner committing to this is understanding scale.

![](_page_20_Picture_0.jpeg)

Agroforestry Funding Notice for the Hudson Valley Region

Propagate is offering cost-shared farm design and economic analysis services for commercial agroforestry systems to farmers and landowners in New York's Hudson Valley and adjacent regions.

We designed this questionnaire to help you enroll into the program.

![](_page_20_Picture_4.jpeg)

Takes 3 min

Agroforestry Funding Available for Hudson Valley Region, New York

Propagate is offering cost-shared farm design and economic analysis services for commercial agroforestry systems to farmers and landowners in New York's Hudson Valley and adjacent regions.

### Eligiblity criteria include:

- Completing a phone consultation with the Propagate team by April 1, 2022
- Located within in Hudson Valley, New York and adjacent regions
- Access to 40 or more plantable acres (through ownership or long-term lease)
- Willingness to participate in Propagate design process

![](_page_20_Picture_13.jpeg)

tinyurl.com/2bhv5w8b

• Willing to plant trees in Spring 2023

### What is Agroforestry and why is it important?

The integration of trees with farming systems. Here's why it matters:

- Increases farm profitability by 40%
- Sequesters 2-8 tons of carbon per acre per year
- Increases cattle weight gain by up to 60%

Propagate's Overyield software platform makes it easy for farmers and ranchers to access the operational know-how, implementation tools, financing and off-take agreements needed to reduce business risks while integrating fruit, nut and timber trees with animal or crop farming systems. Learn more at PropagateVentures.com

#### In partnership with:

![](_page_20_Picture_22.jpeg)

This opportunity made possible thanks to a generous grant from the Edwards Mother Earth Foundation.

### **Upcoming Event:**

Join Us for the 2022 Silvopasture Tour in the Beautiful Finger Lakes Region of New York on September 15 & 16! This unique two-day tour will showcase how silvopasturing looks and works on a number of farms centered around Watkins Glen area. All are welcome to attend this affordable and first of its kind event. Whether you're a farmer, forester, or simply a friend of regenerative local agriculture and land management, this tour is a can't miss gathering to learn more and meet others interested in silvopasturing.

\$69 Registration

![](_page_21_Picture_3.jpeg)

Cornell University Cooperative Extension

![](_page_22_Picture_0.jpeg)

## **Thank You!**

![](_page_23_Picture_1.jpeg)

Audrey Epp Schmidt Director of Business Development & Strategic Partnerships

audrey@propagateventures.com

![](_page_23_Picture_4.jpeg)

![](_page_24_Picture_0.jpeg)

## Village Acres Farm

Silvopasture for shade, and nutrition

Riparian Buffer Alleycropping

Partners: WPC, DCNR, NRCS, CBF

![](_page_25_Picture_0.jpeg)

![](_page_26_Picture_0.jpeg)

![](_page_27_Picture_0.jpeg)

## **Rotate rows 360°**

![](_page_28_Figure_1.jpeg)

## **Detail on every crop**

![](_page_29_Figure_1.jpeg)

![](_page_30_Picture_0.jpeg)

![](_page_31_Picture_0.jpeg)

# Fodder Silvopasture

## Who Uses Overyield Today?

Farmers

Landowners

Technical Service Providers (TSPs)

Agribusinesses

![](_page_33_Picture_5.jpeg)

![](_page_34_Picture_0.jpeg)

![](_page_35_Picture_0.jpeg)

![](_page_36_Picture_0.jpeg)

## **Propagate-Guided Timeline**

Year Zero - Analysis + Site Prep

![](_page_37_Figure_2.jpeg)

![](_page_38_Picture_0.jpeg)

![](_page_39_Picture_0.jpeg)

![](_page_40_Picture_0.jpeg)

![](_page_41_Picture_0.jpeg)

## Fodder Shrubs for Cattle

![](_page_42_Picture_1.jpeg)

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