Enhancing Rural Economies through Agroforestry:
Emerging Opportunities

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Setting the Stage

Why are we here?
What will we be doing?
What will happen next?
Why are we here?

Why agroforestry?

- Builds sustainable farms and ranches
- Protects and enhances ecosystem services
Agroforestry

The *intentional* integration of trees or shrubs with crop and animal production to create environmental, economic, and social benefits.
U.S. Agroforestry

- Riparian Forest Buffers
- Windbreaks
- Alley Cropping
- Silvopasture
- Forest Farming
Production Benefits

Crops
• Increases crop yields
• Improves water use
• Plant protection

Livestock
• Improves forage
• Reduces animal stress
• Increases weight gain
# Crop Yields

<table>
<thead>
<tr>
<th>Crop</th>
<th>Average yield increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>French beans</td>
<td>6</td>
</tr>
<tr>
<td>Oats</td>
<td>6</td>
</tr>
<tr>
<td>Potatoes</td>
<td>6</td>
</tr>
<tr>
<td>Spring wheat</td>
<td>8</td>
</tr>
<tr>
<td>Dry beans</td>
<td>10</td>
</tr>
<tr>
<td>Maize</td>
<td>12</td>
</tr>
<tr>
<td>Soybeans</td>
<td>15</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>16</td>
</tr>
<tr>
<td>Rye</td>
<td>19</td>
</tr>
<tr>
<td>Grass hay</td>
<td>20</td>
</tr>
<tr>
<td>Winter wheat</td>
<td>23</td>
</tr>
<tr>
<td>Barley</td>
<td>25</td>
</tr>
<tr>
<td>Raspberry</td>
<td>40</td>
</tr>
<tr>
<td>Snap beans</td>
<td>40</td>
</tr>
<tr>
<td>Millet</td>
<td>44</td>
</tr>
<tr>
<td>Strawberry</td>
<td>56</td>
</tr>
</tbody>
</table>

Schoeneberger et al. 2017
Increasing productivity over time

Wolz et al. 2018

Alley Cropping
Diversifies Income Sources

• Provides long and short term income
• Distributes labor across seasons
• Enhances risk management
Soils

Windbreaks and the Soil Health Cycle

Windbreaks positively influence microclimate on an area much greater than the space they occupy. These influences extend into fields about twenty times the height of the windbreak (20H) and affect crops and soil environment.

Windbreak

- Reduces wind speed
- Increases water holding capacity
- Improves soil structure
- Supports soil biology
- Increases organic matter
- Little effect after 20H
- Increased yield
- Enhances crop growth/yield
- Reduces wind erosion of soil year-round
- Zone of competition

United States Department of Agriculture
Water quality

Buffer strips decrease pollution runoff:

- Suspended solids: 70-97%
- Phosphorus: 60-98%
- Nitrogen: 70-95%
Additional benefits for:

- Wildlife
- Carbon sequestration
- Marginal or degraded lands
What do producers say about agroforestry?

“...can be the best tool for creating ... value on parts of the landscape poorly suited for ... primary crops,”

John Henrikson, Wild Thyme Farm

“... allows us to use the entire farm, including the half covered by trees,”

Brett Chedzoy, Angus Glen Farm

“... creates an opportunity for two operations on the same land,”

Kelly Mulville, consultant and leasee
Current trends affecting agriculture:

1. Sustainable agriculture, for
   a. Water
   b. Soils
   c. Humans
   d. Wildlife
Current trends (cont):

2. Local/regional foods
   a. Energy savings
   b. Human health
   c. Local economies
Current trends (cont):

3. Sustainable ag investment
   a. Ecosystem service markets
      a. Water
      b. Carbon
   b. Public Investment
b. Impact investors
   i. Percent investing in food and agriculture: 63%
   ii. Annual rate of increase: 32.5%
USDA Investment in Agroforestry

- Executive Steering Committee
- Interagency Team
- Strategic Framework
- Programs
- Research
USDA
National Agroforestry Center

Mission:
Advance the health, diversity, and productivity of working lands, waters, and communities through agroforestry

USDA Forest Service
- Research & Development
- State & Private Forestry

USDA Natural Resources Conservation Service
Why are we here?

Why economics?
Economics on several levels

- Economic opportunities for practicing agroforestry
  - Access to land and capital
- Opportunities for gaining economic benefits from agroforestry:
  - Cooperatives
  - Markets
    - Products
    - Ecosystem services
    - Value-added processing
- Research
  - What we know
  - What is needed
What will we be doing?

- Presentations
- Large group discussion
- Small group discussion
Monday

Setting the stage through panels and open discussion

Producer perspectives

Victor Harris

• Reginaldo Haslett-Marroquin, Main Street Project, Minnesota
• Colin Muller, Muller Ranch, California
• Vickie Roberts-Ratliff, Shelton Roberts Properties, LLC, Mississippi
• Nate Olive, Ridge to Reef Farm, Virgin Islands
• Jacob Marty, Green Fire Farm, Wisconsin
Monday (cont.)

Economic factors affecting producer access and decision-making

- Marca Weinberg, USDA Economic Research Service
- Jay Variyam, USDA Economic Research Service
Tuesday Morning:
Panels, Large and Small Group Discussion

Theme 1: Accessing Resources

- Considerations for accessing land and capital, Larry Godsey, Missouri Valley College
- Land access and tenure, Keefe Keeley, Savanna Institute
- Private investment, Kevin Egolf, Iroquois Valley Farms LLC
- Public investment, Sarah Campbell, USDA Farm Service Agency
Tuesday Afternoon
Panels, Large and Small Group Discussion

Theme 2: Accessing Markets

- Chris Chmiel, Integration Acres
- Mark Shepard, Forest Agriculture Enterprises LLC
- Emily Lachniet, Appalachian Sustainable Development
Wednesday Morning
Panels, Large and Small Group Discussion

Theme 3: Incentives and markets for ecosystem service benefits

- Incentives & markets for ecosystem service benefits, Jonas Epstein, USDA Forest Service
- Ecosystem service credits & markets, David Primozich, Freshwater Trust
- Payments for ecosystems services, Kelley Hamrick, Forest Trends
- Agroforestry and Virginia’s Nutrient Trading Program, John Munsell, Virginia Tech
What will happen next?

- Synthesis of panels and sessions
- Production of draft workshop report
- Report review by workshop participants
- Final report
Why are you here?
How will this workshop help you?
Do you have any questions?
Thank you for joining us!

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