IMPLEMENTING AGROFORESTRY PRACTICES IN VIRGINIA, USA: CHALLENGES AND PATHS FORWARD

John Fike, John Munsell, Adam Downing, Tim Mize, J.B. Daniel, Jacob Johnson, and Chris Teutsch
Agroforestry and sustainability

- Economic outputs
  - Diversity and stability
    - Forest “crops”, timber/pulp, pine straw, nuts, fruits, fodder
  - Returns at several time scales
    - Livestock/annual crops < tree crops/products < timber

- Environmental quality
  - Production
  - Carbon sequestration
  - Soil health
  - Species diversity
  - Water quality
  - Wildlife habitat

- Social acceptability

http://fromfarmtofactory.blogspot.fr/p/objects_20.html
### Agroforestry utilization in US Southeast

<table>
<thead>
<tr>
<th>State</th>
<th>Farms practicing alley cropping or silvopasture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Farms / Total farms (Percent)</td>
</tr>
<tr>
<td>Alabama</td>
<td>119 / 43233 (0.28)</td>
</tr>
<tr>
<td>Arkansas</td>
<td>47 / 45071 (0.10)</td>
</tr>
<tr>
<td>Florida</td>
<td>137 / 47740 (0.29)</td>
</tr>
<tr>
<td>Georgia</td>
<td>99 / 42257 (0.23)</td>
</tr>
<tr>
<td>Kentucky</td>
<td>96 / 77064 (0.13)</td>
</tr>
<tr>
<td>Louisiana</td>
<td>37 / 28093 (0.13)</td>
</tr>
<tr>
<td>Mississippi</td>
<td>65 / 38076 (0.17)</td>
</tr>
<tr>
<td>North Carolina</td>
<td>119 / 50218 (0.24)</td>
</tr>
<tr>
<td>South Carolina</td>
<td>51 / 25266 (0.20)</td>
</tr>
<tr>
<td>Tennessee</td>
<td>51 / 68050 (0.08)</td>
</tr>
<tr>
<td>Virginia</td>
<td>74 / 46030 (0.16)</td>
</tr>
<tr>
<td><strong>Total farms, Southeast</strong></td>
<td><strong>895 / 511098 (0.18)</strong></td>
</tr>
<tr>
<td><strong>Total farms, USA</strong></td>
<td><strong>2725/~2200000 (0.12)</strong></td>
</tr>
</tbody>
</table>

*Source: Census of Agriculture USDA National Agricultural Statistics Service*
Why isn’t agroforestry more common?

Lack of:

• Familiarity with the term and practices
• Visible research and demonstration sites
• Guidelines for adoption
• Strong research data on production, economics
• Social influence and support networks
Institutional / cultural resistance

• Foresters/Resource professionals:
  Livestock = nuisance or a detriment

• Farmers:
  Trees = nuisance or a detriment

• Both often desire management simplicity
Agroforestry’s Implementation paradox

Those features – diversity and complexity – which create the benefits of agroforestry are the same attributes that challenge land managers and limit adoption.
Paths forward

- Efforts to support agroforestry adoption
- Turn challenges into opportunities
- Developing new forms of research & outreach
Build a team
Address challenges/opportunities

Agroforestry practices
• Alley cropping
• Forest farming
• Riparian buffer strips
• Silvopastures
• Windbreaks
Understand audiences

VDOF prioritization project
Social science landowner segmentation studies
Conservation Credit for Agroforestry Production
NRCS-CIG; NFWF
Interest in practices:

• Affected by social influence, risk expectancy, planting experience, performance expectancy, parcel size, among others.
• Greater among newer owners with higher incomes and who are less active in farming.

• Benefited by having “hands on” exposure
Non-timber Forest Products / Forest Farming

Appalachian Beginning Forest Farmer Coalition
Merging traditional practices and basic science
Blue Ridge Woodland Growers Action Research
Non-timber Product Output Report
Production Functions and Techniques

Panax quinquefolius
Buffers and Upland Contour Plantings

Native plantings at Catawba Sustainability Center
Silvopasture research and demonstration sites
Forest farming is the cultivation of high-value specialty crops under a forest canopy that has been modified to provide the correct shade and micro-environment for the crop.
Train trainers
Participant response to training in VA

- **Training increased knowledge**: None: 10, A little: 5, Quite a bit: 20, A lot: 5
- **Silvopasture is possible**: None: 20, A little: 5, Quite a bit: 5, A lot: 0
- **Spoken with producers**: None: 0, A little: 5, Quite a bit: 20, A lot: 5
- **Now helping with new starts**: None: 0, A little: 0, Quite a bit: 30, A lot: 10

Numbers out of 40 respondents.
Challenge = opportunity?

- Fungal hyphae between fescue cells
- Toxins in endophyte-infected fescue
- Stream use for cooling
- Payment for stream exclusion
- Atmospheric temperatures
- Body temperature
- Stream use for cooling
- Welfare
Lambs in silvopastures spend more time lying down and less time grazing.
Disseminating information

- Create publications
- Build websites, Youtube
- Hold site visits, field days
Follow Producer Adoption & Attitudes

- Cheaper to plant trees that grow in value
- Transitioning land for generational transfer
- Great for marketing: Customers “get it”
Some next steps
Some next steps
Some next steps
Conclusions

Build a team
Address problems / opportunities
Use old and new tools for teaching/learning
Be patient
Forest farming is the cultivation of high-value specialty crops under a forest canopy that has been modified to provide the correct shade and micro-environment for the crop.

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Thanks/Merci!
jfike@vt.edu