Complexity and Agroforestry: Ways to Embrace to Challenge

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Agroforestry as a multiple land use

Farmers identified work complexity as a key negative aspect of silvoarable systems (Graves et al., 2009).
Initial results from the AGFORWARD project asking 344 farmers and other stakeholders in the EU to identify the key positive and negative aspects of agroforestry against 45 criteria.
What is Complexity?

Complex: “consisting of many different and connected parts” “not easy to understand”

Complexity is the result of the interconnections of many diverse non-standard components that interact in non-linear ways (Boulton et al., 2015)
Agroforestry, like life, is complex and complicated

**Complexity**: large numbers of simultaneously interacting entities giving rise to emergent (often surprising) patterns.

**Complicatedness**: systems, typically with some function, with an organisation that demands lengthy descriptions.

After Anderson (2014)
Approaches to embrace complexity

1. Thinking differently

The most important component of an agroforestry system are people

The glass is half empty

The glass is half full
Initial results from the AGFORWARD project asking 344 farmers and other stakeholders in the EU to identify the key positive and negative aspects of agroforestry management.
Approaches to embrace complexity
2. New arrangements to work together

If you own an apple orchard; can you work with someone who wants grazing for their sheep?
Levels of output per unit of land (dashed line) and unit of labour (solid line) between 1953 and 2000 (1953 = 100) (Thirtle and Holding, 2003).

Approaches to embrace complexity
3. Moving beyond yield per unit labour

Labour productivity drives many decisions
Alternatives:
• Higher product prices
• Lower machinery costs
• More fulfilling work
Approaches to embrace complexity

4. Thinking beyond the farm

Modelled effect of trees in the 4 km² Pontbren sub-catchment, Wales (Wheater et al., 2012)

<table>
<thead>
<tr>
<th>Management choice</th>
<th>Change in flood peaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove all trees</td>
<td>+20%</td>
</tr>
<tr>
<td>Baseline situation</td>
<td></td>
</tr>
<tr>
<td>Add tree shelterbelts</td>
<td>-20%</td>
</tr>
<tr>
<td>Afforestation</td>
<td>-60%</td>
</tr>
</tbody>
</table>

(Balaguer 2015)
Summary

• Agroforestry is complex
• This may be off-putting to managers who seek to minimise uncertainty; to others agroforestry offers originality, interest, and opportunity
• Lower labour productivity may be offset by increased product prices, lower machinery costs, or more enjoyable work
• Agroforestry may be less complex if we think beyond the farm boundary
References

http://www.slideshare.net/SIANIAgri/clas-andersson.


