

Work-package group 2: High Natural and Cultural Value (HNCV) agroforestry

Specific group: Agroforestry in the Spreewald flood plain, Germany

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1. Context

The AGFORWARD research project (January 2014-December 2017), funded by the European Commission, is promoting agroforestry practices in Europe that will advance sustainable rural development. The project has four objectives:

- 1) to understand the context and extent of agroforestry in Europe,
- 2) to identify, develop and field-test innovations (through participatory research) to improve the benefits and viability of agroforestry systems in Europe,
- 3) to evaluate innovative agroforestry designs and practices at a field-, farm- and landscape scale, and
- 4) to promote the wider adoption of appropriate agroforestry systems in Europe through policy development and dissemination.

This report describes one of about 40 initial stakeholder workshops to address objective 2. Further details of the project can be found on the AGFORWARD website: www.agforward.eu

2. Description of the system

The Spreewald is located at about 100 km southeast of Berlin (Figure 1). As a result of the last Ice Age, around 20,000 years ago, the river Spree was split into a 'fine maze of waterways'. Today the waterways run through a unique cultural landscape shaped by human activities over hundreds of years. The Spreewald region is now a habitat for numerous plant and animal species, several of which are extinct or endangered in other areas. It was designated a biosphere reserve in 1990 and was recognized by UNESCO as such in March 1991. The Spreewald region amounts to approximately 3000 km² of which the Biosphere Reserve occupies about 475 km² (Figures 1 and 2).

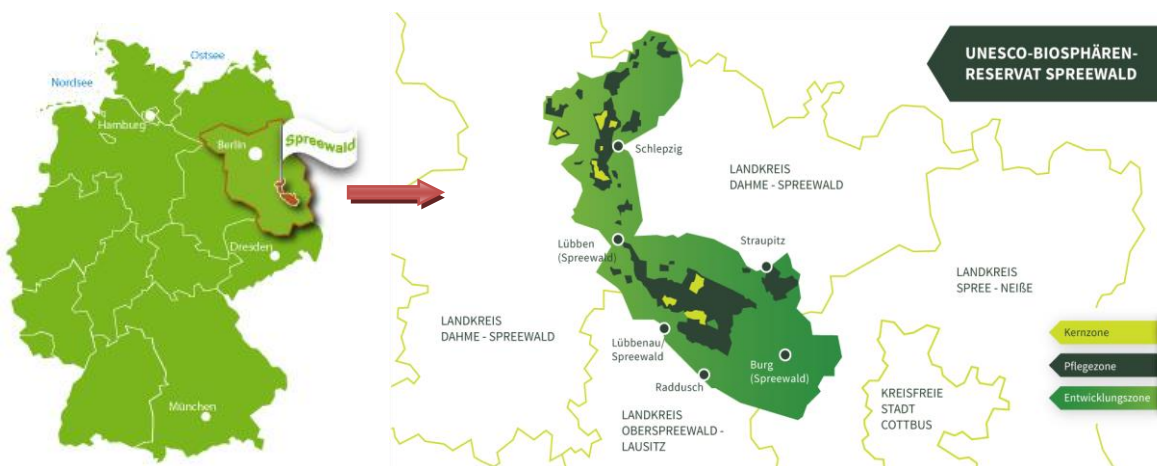


Figure 1. A map of Germany (left-hand-side) and the Spreewald Biosphere Reserve (right-hand-side) illustrating its core zone (light green), buffer zone (dark green) and transition area (medium green).

It has been claimed that fields from the primeval forest created the park-like landscape unique to the Spreewald region. In the biosphere reserve the main area include pastureland (37.5%), forest (27.4%) and agricultural land (24.3%) (Beesk 2013). Parts of the system are characterized by closely-spaced hedgerows that demarcate individual fields (Figures 2 and 3). Common tree species are black alder (*Alnus glutinosa* (L.) Gaertn.), black poplar (*Populus nigra* L.) and bird cherry or hackberry (*Prunus padus* L.). In some areas there is a more open landscape (Figure 4). Grassland is managed through cattle grazing or mowing. Products are either milk or meat.



Figures 2, 3, and 4. Some of the Spreewald is characterized by tree-lined hedgerows creating boundaries for relatively small fields typically used as pastures and for grass production. In other areas, there is a more open landscape

3. Participants

The meeting was attended by three stakeholders and two facilitators from BTU Cottbus-Senftenberg. The three stakeholders included one from the administrative district of Oberspreewald Lausitz, one from the Spreewald biosphere reserve, and one farmer. The farmer was a representative of the South Brandenburg Farmers Union.

4. Introduction session

The meeting comprised an initial introduction followed by a general discussion among participants about the agroforestry system (Figure 5). It was hosted by Michael Petschick at the Information Centre of the Biosphere Reserve Spreewald in Burg. The meeting started at 9.00 a.m. and lasted until 12.30 p.m.



Figure 5. Initial discussions on the opportunities and challenges of agroforestry in Spreewald

The meeting began with a short presentation by Michael Petschick regarding the structure and organization of the biosphere reserve. The area is protected by NATURA 2000, all of the reserve is considered a Special Protected Area, and 27% is considered an important flora-fauna-habitat. A concern in the biosphere reserve is an increase in precipitation rates in recent years resulting in flooding. In addition, compared to 1951, the annual growing season had increased by about 28 days. These changes require the development of a new more holistic strategy which can cater for the heterogeneous nature of the Spreewald. The quest to preserve the Spreewald is also complicated by the fact that most farmers do not own their land. What is particularly important is that the problems are considered at the regional level because they are site specific.

Dr Mirck gave an interactive presentation covering the main goals of the AGFORWARD project and the range of partners involved. It also covered the aims of the Participatory Research and Development Network (PRDN) and the different sectors introduced.

The farmer representative indicated that to farmers the most important aspect for establishing or preserving agroforestry systems was the financial advantage over conventional agricultural systems. The profit had to be high enough to compensate the farmer for the additional effort of establishing and managing the agroforestry system. However farmers were interested in understanding the interaction between the tree and the crop/pasture component and how crop and pasture yield/products are affected by the trees. Another point was that due to the high proportion of rented land, obtaining permission from land owners was seen as potentially a very time consuming process for tenants.

There were several suggestions provided during the discussion for increasing interest in implementing agroforestry systems:

Economic and environmental benefits

- Agroforestry was thought to be most attractive to farmers in areas of low soil quality where agricultural production is not profitable.
- Farmers understand how windbreaks can be used for soil protection, but do not seem to fully understand other agroforestry systems. Additionally it is challenging to add a monetary value to soil protection.
- The maintenance of the system has to be minimized to make the system attractive for the farmers.
- A marketing system at the regional level is necessary to facilitate the distribution and use of products from the agroforestry system. It is important to keep in mind that while the marketing is important, consumer choice is crucial. German consumers have pushed the price of food products to one of the lowest in Europe; it was felt that many German consumers are not willing to pay more for better quality compared to those in the UK or France.

Policy and administration

- It would be useful to make subsidies available for historical landscapes and not only for agricultural systems (Note: Brandenburg has not adopted agroforestry as one of the “Greening Solutions”, while some other States or Bundesländer have). The current character of the landscape has to be protected. The systems can be either preserved or further developed. Current programmes are not providing sufficient support. For example, the maximum amount that can be obtained for compensation of costs incurred and lost income by farmers for NATURA 2000 sites is 200€/ha (MUGV 2014).
- Increase access to subsidies, alternatively reduce bureaucracy; a threat to the development of the rural areas in this region is land abandonment.
- Regulations should be designed through the participation of all interested parties and organizations at the regional level (see also Jungcurt et al. 2004).
- Permission to use the products obtained in the tree rows, e.g., fruit, biomass. (Note: currently tree rows are considered nature protected elements, which cannot be utilized in any way).

5. Field challenges

Next the current problems at the field were discussed. This includes the lack of natural rejuvenation as a consequence of damage due to trampling and grazing or grassland expansion (Figure 6).



Figure 6. Trampling damage and grass growth in the region of Spreewald

The methods that were discussed can be summarized as follows:

Fencing: fencing imposes additional costs to the farmers, which they are reluctant to cover. Alternative methods such as invisible fencing for cattle are not allowed in Germany for nature conservation areas. In addition, this fence is not considered suitable for cultural landscapes that are also a touristic area due to uncertainties caused by potential power failure, or presence of dogs.

Rotational grazing: rotational grazing was suggested as an option to control the access of animals to the hedgerows. However, due to sometimes prolonged water logging this was not deemed suitable for the Spreewald region. It was considered more appropriate for meadows.

Existing structures: the hedgerows are reducing the area eligible for agricultural support, which presents a conflict between the interests of the farmers and nature protection goals. For hedgerows that have become wider than 10 m, a width reduction is recommended. Cattle can damage the roots of existing trees due to trampling (Figure 6). Covering the roots of trees by deadwood to protect them from cattle was suggested as an option which was currently not practiced due to lack of time or ignorance.

Planting of new structures: planting of new structures should take place in accordance with already existing structures. New planting should be a priority where gaps in the tree rows exist. Special care has to be given to the border structures that are currently not eligible to receive any funding, but are very important for biodiversity.

6. Ranking of positive and negative aspects of grazed pastures

Two participants completed a questionnaire to highlight the key positive and negative aspects of grazed pastures (Table 1 and Table 2).

Positive aspects: the most positive aspects were crop and pasture production and biodiversity and wildlife habitat. The diversity of products and soil conservation was also ranked highly (Table 1). These results suggest that both economic and environmental benefits were valued by the two stakeholders.

Table 1. Positive aspects of the Spreewald agroforestry system as ranked by two stakeholders

Aspect	Ranking by two participants		Summary
Crop or pasture production	1		1 x 1 st
Biodiversity and wildlife habitat	5	1	1 x 1 st , 1 x 5 th
Diversity of products	2		1 x 2 nd
Soil conservation		2	1 x 2 nd
Labour	3		1 x 3 rd
Business opportunities		3	1 x 3 rd
Project feasibility	4		1 x 4 th
Income diversity		4	1 x 4 th
Farmer image		5	1 x 5 th
General environment		6	1 x 6 th
Landscape aesthetics	6		1 x 6 th
Water quality	7		1 x 7 th
Tree regeneration/survival		7	1 x 7 th
Relationship between farmer/owner	8		1 x 8 th
Complexity of work		8	1 x 8 th
Subsidy and grant eligibility	9		1 x 9 th
Animal health and welfare		9	1 x 9 th
Tourism	10		1 x 10 th
Relationship between farmer/hunter		10	1 x 10 th

Table 2. Negative aspects of the Spreewald agroforestry system as ranked by two stakeholders.

Aspect	Ranking by two participants		Summary
Labour	1	5	1 x 1 st , 1 x 5 th
Local food supply		1	1 x 1 st
Management costs	2	4	1 x 2 nd , 1 x 4 th
Administrative burden	4	2	1 x 2 nd , 1 x 4 th
Tree regeneration/survival	3		1 x 3 rd
Mechanisation		3	1 x 3 rd
Cash flow	5		1 x 5 th
Regulation	6	8	1 x 6 th , 1 x 8 th
Animal health and welfare	9	6	1 x 6 th , 1 x 9 th
Profit	7		1 x 7 th
Relationship between farmer/owner		7	1 x 7 th
Relationship between farmer/hunter	8		1 x 8 th
Inheritance and tax		9	1 x 9 th
Project feasibility		10	1 x 10 th
Complexity of work	10		1 x 10 th

Negative aspects: the most negative issues raised were labour and local food supply. The reason for the latter was most likely the lack of regionally developed markets for potential products as a result of regulatory constraints. Management costs, the administrative burden and regulations were also ranked as negative aspects by both respondents (Table 2).

7. Qualitative written responses

Both of the respondents gave a written answer to the question: “what constraints and challenges could be addressed by changes to an existing agroforestry system or establishing a new agroforestry system”. The themes broadly matched those given orally.

- Utilization of the wood at the local market
- Investment costs for technique, fencing, plant material
- Minimizing the need for maintenance
- Market difficulties regarding landscaping materials
- Area abandonment due to water logging

Both respondents gave written responses to what were potential solutions or research themes:

- Adjustment of the support programmes in Brandenburg (Agroforestry not in the rural development measures adopted in Brandenburg)
- The access to financial aid should be facilitated
- Acceptance by politicians and regulators (those that give subsidies)
- Economic feasibility calculations

Both participants who completed the form indicated that they would be interested in supporting research related to agroforestry.

8. References

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9. Acknowledgements

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