

Work-package group 3: Agroforestry with high value trees (transferred from group 4)

Specific group: “Bordure” trees in France

Date and location of meeting: 29 September 2014; Marciac, Gers, South-West France

Date and location of meeting: 17 December 2014; Lavardac, Lot-et-Garonne, South-West France

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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 system

Agroforestry is the practice of deliberately integrating woody vegetation (trees or shrubs) with crop and/or animal systems to benefit from the resulting ecological and economic interactions. Hence agroforestry systems can include rural hedges (Figure 1; Figure 2), which often line the side of a road (Figure 3), and are sometimes associated with buffer strips (Figure 4).



Figure 1. Rural hedge in Normandie



Figure 2. Rural hedge in Gers, South West France



Figure 3. Tree-lined side of road, Normandie



Figure 4. Buffer strips and hedge, Gers

In France, the trees on the border of a field can be termed “Bordure” trees. “Bordure” trees can include trees found in hedgerows, riparian forests, buffer strips (with woody vegetation) and wood edges. In many rural areas, such trees are being removed with negative environmental effects. Such trees can have minimal impact on livestock or crop production, they can provide a source of wood biomass, and they can help provide shelter and prevent soil erosion and runoff. The trees can also be important for biodiversity, and there is an opportunity for public policies to recognize these benefits.

3. Description of participants

The material for this report is largely based on a “France Tour” completed during June 2014 to meet a range of people involved in local projects which are supporting the use of rural hedges, riparian forests and buffer strips. Many of these collaborative projects involve the farmers, co-operatives, and local councilors working together to promote a product which can be derived from “bordure” trees (Figure 5).

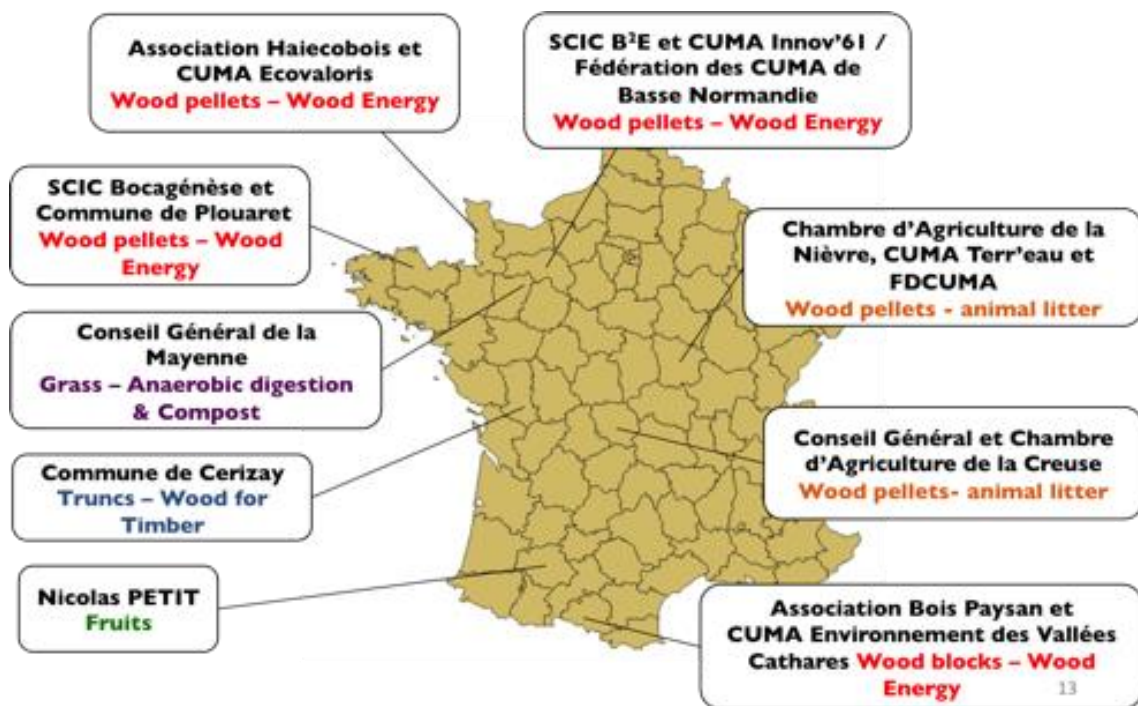


Figure 5. Examples of collaborative projects in France focused on “bordure” tree products.

Secondly, a meeting organized in Lavardac at Lot-et-Garonne in the South-West of France. The meeting was attended by seven stakeholders including riparian technicians, engineers, and a representative of a society for the poplar industry. A third meeting, organized on 29 September 2014 involved 15 farmers, a riparian technician, and the facilitator. In total about 40 people were involved in the meetings. Most of the participants were men, and many were aged between 40 and 55 years old. Ten of the participants answered a questionnaire.

Table 1. Profession of the participants who answered the questionnaire.

Profession	Number of participants
Farmer with bordure trees	3
Member of tree/wood industry	2
Riparian technicians	2
Local project leader devoted to agroforestry	1
Chamber of Agriculture	1
Farmer's cooperative	1
Total	10

4. Description of the meetings

Each meeting comprised an introduction, a field visit, and then further discussion. During the “France Tour”, the story of the collective project, their goals and their functioning were approached in introduction. We organized a field or a technical visit for each group including for example the management of hedge systems, (Figure 6), systems of mechanization, or the use of wood as cattle bedding. Videos were also used to show possible innovative systems of linear tree-planting.



Figure 6. Hedge management in Normandie



Figure 7. Poplar plantation, during the meeting at Lot-et-Garonne

During the meeting in Lavardac, we visited a poplar plantation of the 3C2A society (Figure 7). The aim was to discuss the possibilities of agroforestry integration into the poplar plantations and industry. The last meeting focused on the farmers and a riparian technician, in terms of their needs, what they expected from agroforestry, specifically from “bordure” trees.

5. Ranking of positive and negative aspects of “bordure” trees

Ten participants completed a questionnaire with positive and negative aspects of “bordure” trees. In order to facilitate the analysis a weighted mark was given to the different factors:

$$\text{Mark} = (10 - (\text{Sum of points} / \text{frequency})) * \text{frequency}$$

The **blue** marks are the factors the more often quoted or received “good” marks. The **orange** ones are factors less quoted but that were considered important too. The factors receiving no marks are removed from the tables.

Positive aspects

The most positive aspects (Table 2) were tree products such as wood and the biodiversity benefits. Other positive aspects included improved animal health and welfare, landscape aesthetics, soil conservation and development of pollarding. Other highly ranked aspects included animal production, diversity of products, mechanization, project feasibility, carbon sequestration, farmer image, rural employment, development of production industry, and litter (or bedding) self-sufficiency.

Negative aspects

The most negative issues (Table 3) were the complexity of work, the management costs, the mechanization, and the lack of knowledge. This analysis also picked up a concern about the specific labour, project feasibility, tree regeneration, the administrative burden, the business opportunity, the farmer image, and subsidy and grant eligibility.

6. Qualitative written responses

Positive aspects

Even if environmental factors such as biodiversity, landscape aesthetics and soil conservation are important for the participants, the aspect that received the highest ranking was tree products including timber, pellets, and fruits. Almost all the people met in producing this report indicated that that this was the strongest argument to convince farmers to establish trees, either on the border of the fields or within fields. We also noticed a strong interest in pellets for heat and for animal bedding.

Rural hedges, riparian forests and buffer strips offer substantial potential to provide wood for biomass. Most of the stakeholders considered that planting or letting trees grow on buffer strips was a relevant practice. However they also felt that it was also very important to elaborate an economic strategy regarding the relevant tree products in line with the objectives and features of each farm. In turn, this highlights the importance of there being local markets for these products.

The stakeholders also showed an interest in pollarding as a way of quickly harvesting a lot of wood. For instance, the riparian technicians consider it as a useful practice when encouraging new tree planting. However the technique needs explanation, evaluation and support (booklets, videos) about management methods.

Table 2. Positive aspects of “bordure” trees, with 1 being the highest rank, 2 being the second highest rank, down to a value of 10.

Aspect	Ranking by 10 participants										Freq. (/10)	Times ranked first	Mark
	1	2	3	4	5	6	7	8	9	10			
Production effects													
Animal health and welfare	1		2	5	1	8		5			6	2	38
Animal production	8		3	5	8			3			5	0	23
Crop or pasture production	8		7					3			3	0	12
Crop/pasture quality/safety	5									2	2	0	13
Disease and weed control			2					5			2	0	13
Diversity of products	3		2			10				4	4	0	21
Wood/fruit/nut production	3	1		6	2	1	1	2	1	1	9	5	72
Wood/fruit/nut quality		1									1	1	9
Management effects													
Complexity of work						2	6				2	0	12
Management costs						9	2		7		3	0	12
Mechanization		8	4		10	9	1		4		6	1	24
Project feasibility		1			3		8		8	5	5	1	25
Tree regeneration/survival		9	10	3			7		10		5	0	11
Environmental effects													
Biodiversity/wildlife habitat	1	3	1	1	5	3		1		6	8	4	59
Carbon sequestration	7	3	1	10			9	4			6	1	26
Climate moderation				10				4		10	3	0	6
General environment			9				10		6	9	4	0	6
Landscape aesthetics	2	4	1	2		4		1			6	2	46
Reduced groundwater recharge				1							1	1	9
Runoff and flood control		6		1				6			3	1	17
Soil conservation	1	2	1		6			7	2	7	7	2	44
Water quality				4				8	2		3	0	16
Socio-economic effects													
Administrative burden		5		7							2	0	8
Farmer image	6		5		4	1					4	1	24
Income diversity	10	10	6		9	7		9		8	7	0	11
Local food supply										3	1	0	7
Opportunity for hunting				8							1	0	2
Profit	9								9		2	0	2
Farmer/hunter relations								3			1	0	7
Rural employment	4	7	8		3	5	4	10	5		8	0	34
Subsidy and grant eligibility					7						1	0	3
Other effects													
Poplar industry sector	1										1	1	9
Develop production industry				6		6		2	3		4	0	23
Litter self-sufficiency					2	1	3				3	1	24
Rural network							5				1	0	5
Development of pollarding		1	1	3				2	3		5	2	40

Table 3. Negative aspects of “bordure” trees with 1 being the highest rank, 2 being the second highest rank, down to a value of 10.

Aspect	Ranking by 10 participants										Frequency (/10)	Times ranked first	Mark	
	1	2	3	4	5	6	7	8	9	10				
Production effects														
Crop or pasture production		5		7								2	0	8
Management effects														
Complexity of work			2	1			1	5				4	2	31
Inspection of animals								4				1	0	6
Labor							2		3	3		3	0	22
Management costs			3	2	1	4	3					5	1	37
Mechanization	1		4	3	5	2						5	1	35
Originality and interest									5			1	0	5
Project feasibility									1	2		2	1	17
Tree regeneration/survival					2	5	7		6			4	0	20
Environmental effects														
Landscape aesthetics						6	4					2	0	10
Socio-economic effects														
Administrative burden				4				3				2	0	13
Business opportunities		2							4			2	0	14
Cash flow	4											1	0	6
Farmer image				5		1		2				3	1	22
Regulation	2		1		4			1				4	2	32
Subsidy and grant eligibility					6	7	5		2			4	0	20
Other effects														
Varieties	3											1	0	7
Lack of knowledge		1	5	6	3	3				1		6	2	41
Partnership with cooperatives		4										1	0	6
Plantation costs				2								1	0	8
Bad advice		3										1	0	7

Negative aspects

The most negative factor is the lack of knowledge, and there was also uncertainty about the impact of regulations. It appeared that the farmers needed to be reassured and informed. Poor advice and management of such systems can quickly become negative adverts for agroforestry. A lot of things need to be checked when a project is beginning: that the tree species is appropriate for the soil and climate, the planting method, and methods to extract economic value. The participants also wanted to know who would or could give them advice about how to manage their trees. The evaluation of the costs such as establishment and of the production of wood and pellets was also important.

It was also noted that two people gave “bordure” trees negative marks for “landscape aesthetics”, and these participants manage their hedges by “top cutting”. This can be considered to be part of current landscape and can be thought of as “good practice” by farmers; something which it can be hard to change. However this was opposed by four other participants who considered that

agroforestry was good for a farmer's image perhaps because it show farmers as innovative people, who work closely with nature.

Other discussion

During the meetings of this stakeholder group, people were more attracted by trees that bordered rather than were planted within fields. The following stakeholder needs were highlighted:

- the development of local markets for tree products;
- more knowledge to produce and use wood pellets for heat, animal bedding and as a soil conditioner;
- the involvement of local authorities;
- more evaluation and support for farmers for planting, managing and using different products from the trees;
- collective mechanization;
- more discussions about pollarding and its biomass potential.

7. Reference

Dumont E, Jacquin F-X, Lizet B, Mansion D (2007). Les Trognés en Europe: Rencontres Autour des Arbres Têtards et des Arbres d'Emonde. Maison Botanique.

8. Acknowledgements

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