Initial Stakeholder Meeting Report
Agroforestry for organic poultry and pig production in Denmark

Work-package group 5: Agroforestry for livestock farmers
Specific group: Agroforestry for organic poultry and pig production in Denmark
Date of meeting: 18 September 2014
Date of report: 29 October 2014
Location of meeting: Troldgaarden, Skanderborg, Denmark
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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

This initial stakeholder report should be read alongside the initial report on "Free-range pigs integrated in energy crops" (Kongsted, 2014). At the beginning of September 2014, we advertised a workshop on agroforestry in organic pig and poultry production in order to get a wider view than reported by Kongsted at two producers. However only a few students, 'experts' (e.g. researchers and advisors) and very few farmers signed up for the workshop. As a consequence, we cancelled the workshop and invited selected expert representatives from slaughterhouses, farmer associations, animal protection associations and consultancy services for a joint meeting.

2. Description of system and participants

The stakeholder meeting on 18 September 2014 was held on the organic smallholding of Philip Dam Hansen. The smallholding, which includes pig and poultry production is part of the concept Velfærdsdelikatesser® ('welfare delicacies') (Troldgaarden, 2014). Velfærdsdelikatesser® is a fairly new initiative within organic meat production in Denmark. The concept has the purpose of promoting natural and diverse livestock production on *small* organic farms and was initiated by the Danish Animal Protection Association ('Dyrenes Beskyttelse') together with a number of organic smallholders (currently 13 farmers). The overall aim is to preserve and to use the biological diversity, including livestock breeds, which are adapted to the Danish and Nordic climate and tradition, e.g. the Danish Black-Spotted pig (Kongsted et al., 2011). The meat is sold in diversified and distinctive cuts directly to consumers and the production is based on seasonal production with farrowing in spring and mating in December-January as 'in nature'. An important idea of *Velfærdsdelikatesser*® is to test and develop production systems with agroforestry elements, e.g. combined livestock and fruit- or vegetable production.

The objective of the stakeholder meeting on 18 September was to identify important challenges in terms of implementing agroforestry in organic pig and poultry production in general, and on organic small-holder farms in particular, both from farmers and experts' point of view. In total eight persons participated in the meeting: the farmer, four experts, one journalist, and John Hermansen and AG Kongsted from the AGFORWARD project.

Philip Dam Hansen is an organic farmer with ten sows of the traditional Danish "Black-Spotted" pig breed. All the pigs are outdoors through the whole year. The sows farrow in tents with access to pasture – four sows in each tent (Figure 1). The sows are housed individually the first week after farrowing, where after they are grouped in groups of four sows with pigs. The pigs are weaned at 'natural weaning age' at around 12-17 weeks. They are slaughtered at around 5-6 months of age and approximately 50 kg liveweight. The empty and pregnant sows are also housed in tents of four sows.

One tent is placed in an agroforestry system with fruit trees (primarily apple), bushes (700 gooseberry plants) and vegetables. In total there are 450 trees on approximately 1 ha, 8 m between each row of tree and 4 m between trees within the same row. After harvesting of the vegetables (e.g. pumpkins, squash and Jerusalem Artichokes) in autumn and early winter, pregnant or empty sows gain access to the area to forage on leftovers. All fruit and vegetables are also sold locally. In the future, the plan is to initiate a production of organic eggs and chicken meat based on a traditional dual-purpose breed.

Figure 1. Photos of the pig and poultry agroforestry system

The second participant was a member of the Board of Livestock within the Danish Animal Protection Association and has been involved in numerous research and development projects within production systems for organic pigs and poultry. He/she is also one of the principial initiators of the concept Velfærdsdelikatesser®. The third participant was a private consultant with huge interest and experience in organic farming, and in particular agroforestry systems. The fourth participant was the Head of Office of the Center of Development for Outdoor Livestock Production (UHF). The center is a partnership between the Danish Animal Protection Association and Friland *A/S*, which is

the largest player in Denmark within sale of organic meat. This participant heads several development projects on organic pig production and has substantial experience in the development of the sector in Denmark and decision making in relation to regulations. The last participant was chief advisor at Organic Denmark and has a deep insight in the background for the regulation of the organic production in both Denmark and internationally, and has recently been involved in adapting the administration of the Danish regulation to systems with poultry integrated in energy crops.

3. Ranking of positive and negative aspects

The participants were asked to complete a brief questionnaire which sought to highlight the key positive and negative aspects of agroforestry in organic pig and poultry production.

Positive aspects: the most positive aspect, ranked first by two and mentioned by all respondents was animal health and welfare. The effects on diversity of products, and biodiversity and wildlife habitat were also ranked in the top three by at least two participants. Runoff and flood control, the general environment, carbon sequestration and landscape aesthetics also received high rankings (Table 1).

Table 1. Positive aspects of agroforestry in organic pig and poultry production (the last respondent split up the first and third ranking)

Aspect	Ranking by the five respondents					Comments from the respondents
Animal health and welfare	1	5	3	6	1	
Biodiversity and wildlife habitat	6	2	1			
Diversity of products	4		5	1	3	
Runoff and flood control	8	1		8	6	The farm become more climate-robust
Others			4[1)]		1[2)]	[1)] Joy/satisfaction in daily work, [2)] Land use
General environment			2		7	
Animal production	2			9		
Timber/fruit production				2		
Landscape aesthetics		3	7	4	5	
Carbon sequestration	9	4	10	3		
Marketing premium	3			5		
Local food supply/production	7	7		10	3	
(Global) climate moderation		6	6		4	
Originality and interest	5					
Mechanisation				7		
Disease and weed control		9			8	Including pest control
Farmer image		8	9			
Protection of ground water			8			
Soil conservation/quality		10				
Business opportunities	10					

Negative aspects: Primary negative issues were the burden of labour and the complexity of work. The administrative burden and the lack of subsidy and grant eligibility also featured highly. 'Mechanisation", 'Disease and weed control', 'Management costs', 'Regulation', and 'Marketing risks' was scored high (1, 2 and 3) by some of the respondents (Table 2). One participant noted that water voles can be a problem.

Table 2. Negative aspects of agroforestry in organic pig and poultry production

Aspect	Ranking by the five respondents					Comments from the respondents
Labour (burden of labour)		1	2	5	4	
Others			1		2*	The public's/peoples lack of knowledge of what AF is. Conflict with legislation
Complexity of work	1	3			3	
Administrative burden	3	6	6	1		
Mechanisation			4	6	1	
Management costs		2	3			
Subsidy and grant eligibility		7	8	4	2*	
Disease and weed control	2		5			
Regulation		8		2		
Marketing risk	4			3		
Timber/fruit quality		4				
Losses by predation			7	8	5	
Control of manure/noise/odour	5			7		
Inspection of animals		5				
Tree regeneration/survival				9		Water-voles can be a huge problem

*The last respondent split up the second ranking

4. Constraints and challenges

The five respondents mentioned/wrote the following as the most important constraints and challenges in relation to agroforestry in organic pig and poultry production in general and in smallholding in particular:

Marketing

- The current lack of marketing and premium price from including agroforestry practices.
- It is a huge challenge to make marketing of several/diverse products in smaller quantities competitive. It presupposes direct sale to consumers and this is a very challenging initiative.

Management of agroforestry systems

- Lack of knowledge, for example, on suitable plant varieties, mechanisation, best practice, and technical data. "First of all, the system has to be attractive for the individual farmer".
- Lack of suitable and sustainable technology.
- Labour intensive system.

Legislation and subsidies

- Subsidy arrangements do not match agroforestry practice. Agroforestry is not a concept in the current agriculture policy in Denmark.
- Legislation makes it difficult to implement forage based agroforestry systems. For example plant cover is required for environmental reasons and whether there are trees or not makes currently no difference in the regulations.

Others

- The public do not know what agroforestry is.
- Numerous farmers prefer huge square fields in order to use large machinery.

5. Potential research themes

The respondents expressed the following in terms of potential solutions or research and development themes.

Marketing

- Development of marketing concepts, identification of arguments for premium prices.
- Co-ordinated marketing and information through organisation of the farmers.

Management of agroforestry systems

- Research in and description of best practice, and collection of technical data from the farms for bench marking.
- Long-term projects with different tree varieties and combinations and large-scale studies
- Research and development activities focused on:
  1) new technology such as electricity driven autonomous vehicles,
  2) long-term crop-rotations including 'permanent/controlled' traffic paths, and
  3) 'From bare soil to agroforestry' (how to plan and manage agroforestry systems from scratch).
- Development of solutions that can make agroforestry systems more efficient and competitive.

Legislation and subsidies

- Co-ordinated talks between all the involved Danish legislative players (FVST, NERV, MST) with the aim to develop a simple overview regarding:
  1) salmonella and direct sales
  2) plant cover and the handling of manure
  3) possibilities for subsidies and for marginal areas
  4) what is allowed in open countryside, and the impact of planning law (Danish: *Planloven*) and nature protection law in relation to agroforestry.
- New subsidy-rules and legislation targeting agroforestry (e.g. possibility for using pigs and poultry as weed controllers and for soil tillage. This requires that bare soil without plant cover is allowed for a certain period).
- A considerable effort is needed to incorporate agroforestry systems in the common agricultural policy.

Identification/quantification of positive effects

- Projects with focus on the effect of agroforestry on climate change aspects.
- Identification of obtainable production results and animal welfare (focus on 'natural' behaviour) in agroforestry systems.

Concrete research activities

- Use of straw around trees to control weed and increase the amount of worms and insects which are available for foraging poultry.
- The nutritional value of fruits and nuts from the trees and bushes for monogastrics.

The farmer and the experts indicated that they would be very interested in supporting research related to the project AGFORWARD and interested in being part of a network regarding agroforestry in pig and poultry production.

6. References

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7. Acknowledgements

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