

## Collaborative partnerships between organic farmers

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### Abstract

*A survey of Danish dairy farmers show that around 70% of all organic dairy farmers collaborate around manure, and that the main factors for success in collaboration are trust, reliability and timely communication. Organic exporting farmers are less concerned with distance because the organic network is more dispersed. Development of well-functioning collaborative partnerships may increase farm robustness to changing conditions.*

### Introduction

Organic farms are faced with the same external conditions as conventional farms in terms of environmental regulations, market uncertainties and increased quality standards. This has led to the specialization of organic farms and the decoupling of crop and animal systems resulting in deficits of manure on many arable farms and a nutrient surplus on livestock farms (Darnhofer et al., 2010). One solution to this problem is to establish collaborative partnerships between independent farms (Asai et al., *in review*). In 2009 76% of Danish organic arable farms had agreements with livestock farms to receive their manure, whilst about 70% of organic dairy farms were involved in partnerships and exported their manure (Asai et al., 2012). These agreements can be seen as examples of strategic partnerships that organic farms establish as a way to increase the robustness of their farm enterprise. For farmers, advisors and policy makers, to be able to include collaboration as a potential future strategy, there is a need to know more about the character of existing partnerships: what are farmers collaborating on, and how do they perceive successful partnerships? Therefore we aim to investigate partnerships among organic dairy and arable farmers: what forms of collaborations are established among partners, how are the collaborations organized and maintained and how stable are they? As an example we use a frequently established type of partnerships among organic farmers, manure agreements between dairy and arable farms.

### Material and methods

We investigated manure partnerships between organic dairy and crop farmers and between conventional dairy and crop farmers in two regions of Eastern Denmark (Jutland) where organic dairy farming is mostly concentrated. The collaborative partnerships were investigated through a survey. Dairy farms exporting manure to other farms were identified from the Central Husbandry Register (CHR) and the Danish Fertilizer Account reports 2009-2011. Among 256 organic and 1,250 conventional dairy farms which had exported manure, 200 organic and 410 conventional farms were randomly selected. A total of 95 organic dairy farmers and 144 conventional dairy farmers completed the questionnaire. Farmers were asked to evaluate the importance of factors related to the function of the existing partnership: quality and frequency of communication, flexibility of manure reception and the stability of the partnership. They were also asked about their preferences if they were to choose a new partner: how important was the location of the partner's fields for them, the social relations and the partner's skills in farm management. In addition, the questionnaire included a question if they had any other collaborative activities with the partner. In order to understand the diversity of strategies among organic farmers, Multiple Correspondence Analysis and Hierarchical Cluster Analysis were used to establish typologies of organic partnerships.

### Results

Dairy farmer found reliability of and timely communication with the partner to be the most important characteristics of their partnership (Table 1). Also flexibility as to when manure was delivered, how much and whether agreements could be adjusted was important. These characteristics were more important than previous knowledge of the partner or his/her professionalism. Only in the case of spatial characteristics

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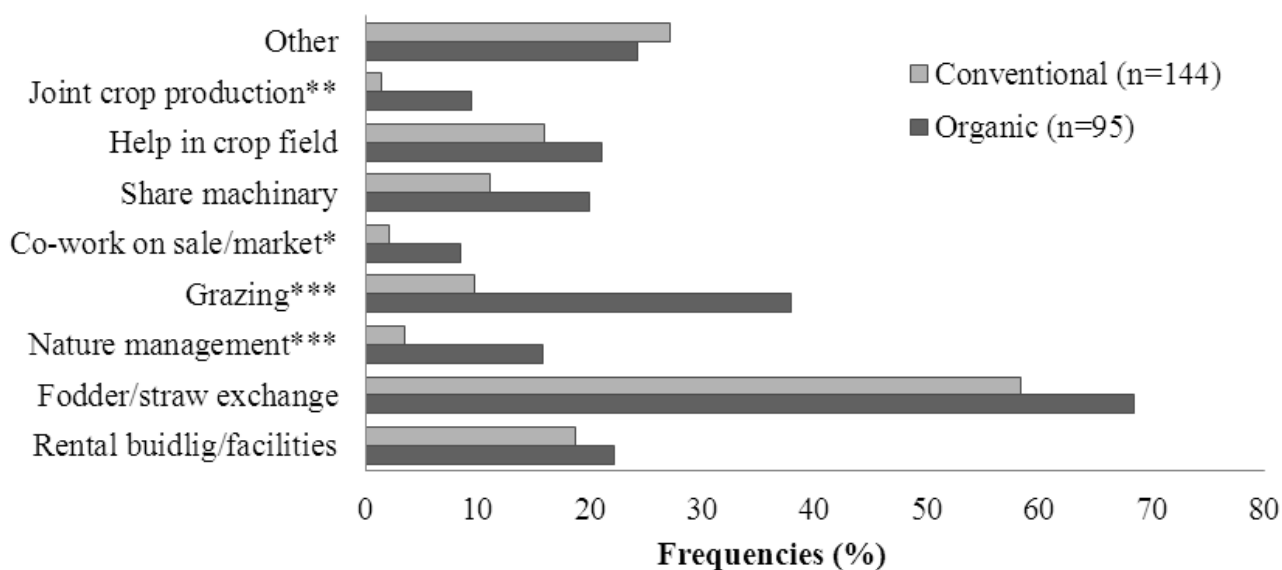
(distance to and accessibility of the fields receiving the manure) the organic and conventional dairy farmers differed in their preferences. In all other questions there were no differences.

**Table 1. Mean rankings for perception of statements on successful collaborative arrangement by manure exporters.**

Rank	When selecting a new partner, how important is it that:	Org.	Conv.
1	The partner fulfils our agreements	4.5	
2	The partner informs me well in advance of changes which may affect our agreement	4.2	
3	The partner runs a solid business, so the arrangement can be extended	3.7	
4	The partner conducts organic farming	3.3***	1.1
5	The partner is flexible as to when he receives the manure	3.3	
6	The partner is a person from the local area	3.2	
7	Fields of partner are located close to my animal houses	3.1***	3.4
8	The partner is easy to get in touch with	3.0	
9	The partner is flexible in relation to the amount of manure	2.9	
10	Fields of partner are easy to access	2.7***	3.3
11	The partner will accept manure outside the agreed period	2.7	
12	The partner is a person I already know	2.7	
13	The partner is well informed about environmental regulations and subsidies	2.5	
14	Fields of partner are aggregated and not dispersed	2.5***	3.0
15	The partner is a competent farmer in his/her specialist area	2.3	
16	The partner runs a professional farming enterprise	2.4	
17	We can have frequent contact	2.3	
18	The partner is known by my advisor	2.0	
19	The partner is a person known by someone from my network	1.8	

Mann-Whitney U test: \*\*\*P<0.001. Scale ranging from 1 (not important) to 5 (very important)

About 80% of the organic and 70% of the conventional farmers had established at least one additional collaborative activity with their partner besides the manure arrangement. Partnerships between organic dairy and arable farmers comprised significantly more collaborative activities (2.3) than between conventional partners (1.6). Organic partnerships more frequently, in addition to manure, also encompassed grazing agreements, joint nature protection, joint sales and marketing and joint crop management (Figure 1).



**Figure 1. Frequencies of other types of collaborative activities**

Frequencies between organic and conventional groups were checked by chi-square test: \*P<0.05, \*\*P<0.01 and \*\*\*P<0.001. No marks mean not significant.

Our exploration of the diversity of organic partnerships showed that they differ in social and spatial settings and in their degree of mutual obligations, expressed in the duration, communication frequency, economic burden sharing, and form of other collaborative activities (Table 2).

**Table 2. Characteristics of partnership types between organic dairy and arable farms**

	Group 1 Manure-driven (n=9)	Group 2 Socially-integrated (n=16)	Group 3 Local (n=33)	Group 4 Professional (n=21)	Group 5 Business-like (n=16)
Social relationship	Introduced by other people	Family, local network	Neighbour, local network	Professional network (e.g. farm group)	Neighbour, local network
Communication	Inactive	High frequency: weekly-daily	Infrequent: ~5 times/year	Infrequent: ~5 times/year	Relatively high: monthly
Duration	<5 years	>15 years	5-10 years	Around 10 years	10-15 years
Distance	Mainly >10km	5km~10km	~5km	Mainly >5km, partly >10km	~5km
Price of manure	70% free	Free	Free	50% paid	70% paid
Number of other collaborations	0.4	5.1	2.1	1.6	1.9

## Discussion

Farmers perceived collaborative arrangements as successful if the partner could be trusted and reliable, fulfilling the agreements and with the prospect of sustaining a long term partnership. Also the physical and social accessibility of the partner were appreciated as well as the flexibility of the arrangement. Although the demand for organically certified manure by organic arable farms results in more organic partnerships being established without prior knowledge of the partner, many organic dairy-arable partners have strong social connections in spite of being spatially distant. Exploration of the diversity of organic partnerships shows that partnerships among organic farmers are defined mainly by social linkages and spatial settings. As organic farmers are continuously faced with global market conditions and tightening regulations, the development of

collaborative partnerships is necessary as a way of social innovation to strengthen farmers' adaptive capacities to the external changes.

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