**Does growth hurt? Resilience of farms in growing local organic food networks**

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**Abstract**

Marketing organic products locally with close consumer-producer relationships has been suggested to foster sustainable development of the food chain in numerous ways. However, the volume of products is small as well as the number of farmers and consumers involved. Also, there is a lack of knowledge on how farms are affected when local organic food networks grow in scale and output. This paper presents preliminary findings of research exploring growing local organic food chains and how the farms in these chains are affected in terms of social-ecological resilience. Resilience is the capacity to deal successfully with change and is a systemic approach to the assessment of farming systems. Two cases are studied in-depth. The first case is an organic vegetable subscription system ("box-scheme") outside Vienna, Austria, and the second case is a farmer cooperative that created a label of organic, local beef in Uppland, Sweden. First results indicate that growth leads to changes and restructuring of the networks, influencing resilience and the relationship with consumers. In both cases there was an ambition to have direct contact and communication with end consumers, and growth of the networks influenced this ambition in different ways. In the Austrian case producers that could provide larger quantities became more important in the network and could therefore stay well in contact with end consumers. On the other hand, diversified and/or small-scale producers had to make an effort to find new connections with consumers. In the Swedish case, growth led to challenges in the wholesale part of the food chain. The butcheries used by the network could not deliver directly to the supermarkets, and the middleman who could, was not able to declare from what farm each piece of meat came. Thus, the label could not communicate with end consumers as well as the network would have liked.

Key words: Resilience, local food system, organic agriculture, Sweden, Austria

**Introduction**

Two major challenges are currently facing the European organic sector. One is to scale up organic production and consumption while retaining the authenticity of the values embedded in an organic production system. The other challenge is to enhance the ability of organic farms to adapt to change. Being able to cope with change is a key ability since change is pervasive both in agricultural policy and on agricultural markets. Within a framework of rapid and partly unforeseeable change, the capacity of farms to cope with change, to recognise new opportunities and to adapt their activities is crucial for their long-term survival. Since the market strategy is intimately linked to production plans and methods (Björklund et al., 2009), it influences their capacity to cope with change. Therefore, it is necessary to reflect upon the implications and the effects of strategies pursuing the scaling-up of organic food networks.

Concerning marketing of organic products, two major development paths can be seen in the last decades. One route has a regional focus, marketing products locally with close consumer-producer relationships. The other direction is to embrace the global economy and seek its 'greening', thus engaging in conventional food chains, marketing products in supermarkets and exposing a large number of consumers to organic products. A large part of the expansion of the organic food sector since the beginning of the 1990's can be attributed to the latter development (Richter & Padel, 2005) thus enabling economies of scale in logistics and distribution (cf. Smith & Marsden, 2004). Long supply chains have specific requirements, as supermarkets need large batches of a standardised quality. To have access to contracts

with supermarkets, organic farmers have had to specialise by increasing the area planted with one crop. Specialisation requires a higher degree of mechanisation to cope with labour peaks and usually leads to a higher use of external inputs (Buck et al., 1997). The specialisation of large farms has implications for medium and small-sized farms since the latter fall under heavy price pressure (Guthman, 2004). Changes at the farm level may include reduction in crop diversity, increased farm size, higher capital input, lower labour use and stronger dependency on industrial, energy-intensive inputs (Best, 2008; Darnhofer et al., 2010). Such changes can possibly affect a farm's ability to cope with change, i.e. the resilience of the farm (Milestad & Darnhofer, 2003).

Resilience is the capacity of a system to absorb changes and reorganise while retaining essentially the same functions and structure (e.g. Walker et al., 2004). Resilience is a promising concept for analysing adaptive change of farms towards sustainable agriculture because it provides a framework for analysing how to maintain a system's functions in the face of change (cf. Berkes et al., 2003). One of the crucial aspects of the debate on organic food networks concerns the possibilities for such networks to enable producers to survive and to empower them (Brunori et al., 2008), i.e. to prevail in the face of change and thus build farm resilience. Folke et al. (2003) suggested four aspects that characterise social-ecological resilience: 1) Learning to live with change and uncertainty, 2) Nurturing diversity for reorganisation and renewal, 3) Combining different types of knowledge for learning and 4) Creating opportunity for self-organisation. These aspects are taken as a point of departure in this paper when analysing farm resilience.

The resilience of a farm is – among other factors – influenced by the marketing strategy the farmer pursues. Many farmers and farmer co-operations engage in a diversity of market strategies involving direct marketing (i.e. short food chains or localised food systems) and large retailers (i.e. long food chains) or a combination of both. Short food chains connect farmers and consumers and tend to enable farmers to retain a higher proportion of the final retail price. Capturing a greater proportion of the total value-added in food is particularly critical at a time when a growing proportion of value is added after the farm gate (Knickel et al., 2006). Small-scale food marketing systems can strengthen the profitability and economic resilience of small entrepreneurs by increasing diversification, providing more labour opportunities and building social networks (Renting et al., 2003). This increases the potential of sustainable development in rural areas (Pretty, 1998). Short food chains also enable farmers to communicate the specific values of the products e.g. local quality differences, rare breeds used, artisan processing, ethical aspects or a certain context in which the food has been produced. However, localised food systems typically only involve a small amount of farmers and consumers (Mount, 2012). Attempts to scale up local organic food networks include box schemes that deliver organic products from different organic farms to consumers (Seyfang, 2006), as well as farmer co-operations aiming to market their products to a diversity of customers (cf. Marsden et al., 2000).

This paper takes a closer look at the growth of local organic food networks and how this growth influences the network itself, the participating farmers, and the resilience of the respective farms. The results are preliminary since the paper reports from research that will be finalised in two years.

**Methods**

The paper presents one Austrian and one Swedish local organic food network. In both cases, semi-structured interviews with farmers participating in the networks were central. Farmers were asked why they participated in the local organic food network; how they thought growth of the network influenced them, the network itself and the relationships within and outside the network; and in what way they thought the network could continue to grow. During the interviews, a questionnaire with pre-defined questions related to farm resilience was also included. In the questionnaire, the farmers were asked to assess 12 aspects central to resilience for their farms five years ago, currently, and in five years, based on self-evaluation. We used a 6-point Likert-scale, ranging from zero (no occurrence/not applicable) to 5 (high

occurrence/highly applicable). The aspects related to farm resilience are listed below (table 1), and are based on four factors characterising resilience of social-ecological systems (Folke et al., 2003).

Table 1. Farm resilience self-assessment used in the study.

| **Factors of social-ecological resilience (Folke et al., 2003)** | **Interpretation - aspects of farm resilience used in this study** |
|---|---|
| Learning to live with change and uncertainty | Degree to which the farmer pays attention to trends in the agricultural sector |
| | Time spent on trying new things on the farm |
| | Degree to which small changes are introduced at the farm |
| Nurturing diversity for reorganisation and renewal | On-farm biological diversity |
| | Diversity of the farmer's social network |
| | Economic diversity on the farm/marketing channels |
| Combining different types of knowledge for learning | Time spent on education/knowledge development |
| | Diversity of information sources used |
| | Importance of experiential learning and own practical experience for farm management |
| Creating opportunity for self-organisation | Degree of closed cycles on the farm |
| | Number of available resources currently not used on the farm |
| | Number of (energy) resources that originate from the farm |

In each case, central actors in the local organic food network were interviewed to gain an overview and a (subjective) rich picture of the network. For sampling, the researchers were provided with complete lists with all participating farmers/members of the network. From these lists, interviewees were selected based on two main criteria: duration of membership in the network, and importance of the producer in the network (based on e.g. volume of delivery quantity and/or importance of the delivered product). Altogether, 28 farmers were interviewed (10 in the Swedish case, 18 in the Austrian case). The interviews were digitally recorded, transcribed and analysed thematically according to similar analytical codes in both cases (Bernard, 2006).

**Case study descriptions**

"Biohof Adamah[1]" is an organic farm outside Vienna that has developed a vegetable box scheme that now delivers about 4,500 boxes/week to households in and around Vienna. The boxes are filled with produce (mainly vegetables) from the farm, but also with produce from approximately 100 organic farms in Eastern Austria, and with imported products purchased via organic traders. In addition, customers can chose from a wide variety of additional products that can be put in the boxes. The farm also has a farm shop, and sells at a number of farmers' markets in Vienna. Adamah also engages in various additional activities, e.g. research is conducted at the farm or in cooperation with research institutions (e.g. concerning organic vegetable breeding); photovoltaic power plants were installed at the roofs of the farm; catering services are provided for schools in the surroundings; and social projects in the region are supported. Adamah currently employs 82 persons.

The farmer cooperative "Upplandsbondens[2]" (UB) was formed in 2006. The name of the initiative suggests that only farmers from the province of Uppland (north of Stockholm) take part. UB only has members from this province and processes and sells their organic meat products within the province. UB has 60 to 70 active members (some are not delivering to UB each year). The idea is to process and market organic high quality meat with their own label to supermarkets in the province and in meat boxes directly to consumers, and by doing this, offering farmers a better price than other intermediaries. Most work in UB is done on a voluntary basis.

[1] Homepage in German: www.adamah.at
[2] Homepage in Swedish: www.upplandsbondens.se

**The impacts of growth on two local organic food networks – preliminary findings**

*How the local organic food networks have grown*

The Adamah vegetable box scheme was established in 2001 and grew intensively during the coming years, from about 50 boxes/week in the beginning to the current 4,500 boxes/week. The consumer demand has grown 20-30% each year, and is still growing. To be able to provide a broad product range, Adamah cooperated with regional organic producers from the beginning, and currently about 100 producers (mainly in Eastern Austria) deliver to Adamah. Adamah is centrally organised, i.e. the farm and trading company "Biohof Adamah" is the heart of the network, and the farmers that deliver to Adamah are not involved in the organisation. Adamah therefore works as a middleman and a regional organic trader for the farmers that deliver to the network. The main reason producers delivered to Adamah was because producers valued the way Adamah marketed the products directly to consumers, and they received fair prices. The producers were not bound by contracts but were highly flexible when trading with Adamah, concerning amount, product range, or properties of the products (that did not have to fulfil standardised requirements demanded by the 'mainstream market', e.g. supermarkets). Adamah is well known in the region and has a good reputation for its high commitment to organic farming, direct marketing and additional activities linked to sustainable regional development.

Every year since the start in 2006 at least ten new farmers have joined UB. Their main reason for joining was the better price offered for beef in UB, but also the possibility to network with other organic beef producers in the region. In addition, farmers liked the idea that their animals did not travel outside the region for slaughter. This fact was one of the most important things communicated to consumers together with 'organic' and 'high quality'. No new member had to date been declined membership – as long as the producer fulfilled the quality standards of UB, namely being certified organic and producing high quality meat. The high quality was assumed as animals were raised organically on semi-natural pastures to a high degree. The organisational set-up has not changed in UB since the start. It is a cooperative with members, an elected board and a yearly assembly. The people working actively in the cooperative (and a handful of time-wise employed) market the products to supermarkets, negotiate prices with slaughterhouses and processors, handle the homepage and plan demonstration events in shops. This was the main way for farmers to meet consumers directly and to boost demand for their meat.

*How growth influenced the local organic food networks (including relationship with consumers)*

In both cases there was an ambition to have direct contact and communication with end consumers, and growth of the networks influenced this ambition in different ways.

Adamah realized a high degree of consumer contact and information. Box subscribers were provided with additional information about the purchased products (including recipes) and the producers behind the products in every box. Adamah also published a quarterly journal that was distributed via the boxes. Additionally, consumers could buy the products at the farm shop or on farmers' markets, where they could inform themselves about the products via personal contact. Reciprocally, Adamah received feedback from the consumers via direct contact and/or via telephone or e-mail, as several employees of Adamah were dedicated to customer service. Farmers that delivered to Adamah appreciated this intensive consumer contact and the fact that their products were not anonymous for the consumers. Information that Adamah provided with the vegetable boxes was seen as advertising of their farm and products, as they became known to thousands of consumers in the region.

For UB, growth led to challenges in the wholesale part of the food chain as well as in the workload of the members. The butcheries used by the network could not deliver consumer-packed to the supermarkets, and the middleman/processor who could, was not able to declare from what farm each piece of meat came. UB had no control over the whole value chain. Thus, the label could not communicate with end

consumers in the way the network would have liked. In addition, not all meat slaughtered was marketed with the UB label, since the demand for this meat was still lower than the supply. The surplus meat from the UB farmers was marketed through one of the supermarkets' own organic brands (in the same region). Thus, meat from the same farm or even animal could be in the supermarket shelf under two different brands, carrying two different prices. UB could not influence what animals and what meat cuts were marketed with their brand. Even as the cooperative grew, costs for marketing and internal/external communication were high and so members had to continue to work on a voluntary basis, but with a larger workload. As a consequence, some of the interviewees mentioned that the internal communication could be improved.

*How growth influenced the farmers in the local organic food networks*

The interviewed farmers thought that the way the products were marketed by Adamah was successful and promising. At the same time, they stated that they did not have much influence on Adamah, and generally did not see it as a network, but more as a distributor and middleman. Interviewed producers stated that due to the strong growth of Adamah, producers that could provide larger quantities became more important in the network and could therefore stay better in contact with end consumers, through Adamah's boxes. Some diversified and/or small-scale producers dropped out of this marketing channel because their products were not needed any more. They had to find new connections with consumers. Farmers that delivered to Adamah had a high diversity of marketing channels, and most of the producers only delivered a relatively small share of their produce to Adamah. Therefore, they could react flexibly if Adamah did not buy their products and could fall back on other trade partners or on direct marketing. Nevertheless, 16 of 18 interviewed producers wanted to deliver a higher quantity to Adamah.

All farmers interviewed in this study were generally happy with UB and their choice to become members there. It gave them a market access, a better price for their products, and a context and network that they were proud of. Pride came from the fact that the animals were transported short distances to the nearest slaughterhouse in the region, and that the meat quality was high. They also liked the idea that they knew where their meat was sold. As long as the regional characteristics and high quality standards of the cooperative were safeguarded, no farmer saw any problem with continued growth of the network. For some of the farmers, UB was a small part of their business since they were mainly dairy producers. For the others, however, UB played an important role, and in some cases had been the reason for the farmer to invest in continued organic beef production. Of the interviewed farmers, 40-100% of meat was sold through UB. No farmer mentioned problems to deliver to UB. However, about half of the interviewees said that they were trying to build up their own market channels parallel to UB by selling meat boxes to consumers directly. As the network grew, internal communication suffered, some farmers expressed. And even if it grew, UB was still a small player on the market and had troubles to make itself visible, they thought.

*Resilience of farms in the local organic food networks*

Resilience is not a concept that is frequently used in the Swedish or German language. Thus, the concept needs to be deconstructed in order to be able to discuss it in an interview situation. In this study, resilience was deconstructed into 12 aspects, and the farmers were asked to make an assessment of the situation on their farms in respect to these aspects. In table 2 the aggregated answers are presented. The self-assessment is a snapshot of the situation on the farm from the farmers' perspectives. It can also be seen as a method to encourage critical self-reflection regarding resilience of the farms.

Table 2. Farm resilience self-assessment, results from Swedish and Austrian case (n=28 (UB=10, Adamah=18); arithmetic means of 6-point Likert scale ratings).

| Aspect related to resilience | Five years ago | | Currently | | In five years | |
|---|---|---|---|---|---|---|
| | UB | Adamah | UB | Adamah | UB | Adamah |
| Trends in agriculture | 3.5 | 3.6 | 4.2 | 4.2 | 3.8 | 4.3 |
| Introduction of small changes | 4.0 | 4.1 | 4.1 | 4.1 | 3.9 | 3.8 |
| Trying new things | 4.0 | 4.0 | 4.0 | 4.0 | 3.8 | 3.7 |
| On-farm biodiversity | 3.5 | 3.6 | 4.4 | 4.0 | 4.4 | 4.1 |
| Social diversity | 3.8 | 3.7 | 4.2 | 3.9 | 4.3 | 3.6 |
| Economic diversity | 3.2 | 3.8 | 4.0 | 4.3 | 4.2 | 4.3 |
| Further education | 3.4 | 3.5 | 3.7 | 3.4 | 3.5 | 3.4 |
| Information sources | 4.1 | 3.6 | 4.3 | 4.3 | 4.2 | 4.2 |
| Experiential knowledge | 3.9 | 4.3 | 4.2 | 4.7 | 4.2 | 4.7 |
| Closed cycles | 4.1 | 3.7 | 4.4 | 3.9 | 4.6 | 4.2 |
| Redundant resources | 2.6 | 2.8 | 2.8 | 2.8 | 3.2 | 2.7 |
| (Energy) resources from farm | 3.0 | 2.5 | 3.3 | 2.8 | 3.6 | 3.2 |

The Adamah and UB farmers generally gave themselves high estimates. These farmers hoped to be able to be more responsive to new trends in agriculture, to increase on-farm biodiversity, to increasingly close nutrient cycles on their farms and to produce more of their own (energy) resources on the farm in the coming five years. In the cases of economic diversity, availability of redundant resources, closed farm (nutrient) cycles and the use of resources from the farm UB farmers hoped to be able to improve these aspects in the coming five years. This may show that they were keen on decreasing their dependence on external resources and to increase their number of market channels. In both the Adamah and UB cases, farmers gave themselves the lowest estimates when it came to their access to redundant resources and their capacity to produce their own resources on the farms. These are important aspects of resilience since they increase farmers' room for manoeuvre in case of fast change or crisis. The aspect of economic diversity is the one most closely related to choice of market channel. In both cases, farmers had increased their diversity of market channels, which may be reflected in their participation in the local organic food networks. The farmers seemed to be satisfied with the amount of different market channels and did not intend to increase them much in the near future.

**Discussion & conclusion**

The viability of local organic food networks depends on the flexibility and ongoing adaptation of both the networks themselves and the farms within them. The main challenge is how local organic food systems – incorporating more and larger farms – can come together with a larger number of consumers in a manner that encourages closer relationships and shared responsibility (Mount, 2012). It is the interaction between producers and consumers that produce many of the qualities and legitimacy in local food systems. Thus, scaling-up is not simply a matter of increased volume, since interaction may not be safeguarded in such systems (Mount, 2012).

In this study, growth led to changes and restructuring of the networks, potentially influencing resilience of farms and the relationship with consumers. However, from the resilience self-assessment, it is not possible to assess how the participation in the local organic food network influenced farm resilience. In later stages of this research process, the aim is to further the resilience analysis to this end. Still, we can say something about how growth of the local organic networks influenced the networks and the farmers in the networks. We can also draw conclusion as to how the networks can grow in the future.

UB has dealt with growth by selling through both local (the meat boxes) and conventional (the retailers) markets. This hybrid development has been noted in other studies of local food networks as well (e.g.

Sonnino & Marsden, 2006; Bloom & Hinrichs, 2010). Since UB appears in the same market space as conventional products, it has to compete with the benefits these products offer consumers, namely variety, low prices and convenience (Mount, 2012). In addition, interaction with consumers is not possible at all times, which may negatively influence legitimacy, and later profit to farmers in UB (Mount, 2012). There are a number of continued growth routes UB could follow, while staying within the limits of growth it had put on itself (i.e. sourcing, processing and selling meat within a particular region). UB could enrol more farms and thus provide more meat; it could enrol larger farms; it could offer a larger range of meat products – fresh cuts, frozen, processed, sausages; and it could offer additional products from the farms in the network, such as milk or vegetables. A dilemma might occur if UB decided to go into more processed meats, such as sausages, sandwich spreads etc. For such products, more ingredients are needed, and some might not be found within the region. At the same time, such a development might give UB a more solid economic base, especially if the processing facility was UB-owned (cf. Bloom & Hinrichs, 2010). Another, more practical limit to growth for UB is the workload of members. Since UB wants to be a regional player, it can never become as influential as supermarkets' own brands or national/international brands. Thus, economy for employees and marketing will be constrained and voluntary work will be necessary. Another constraint to growth is the interaction with end-consumers. To date, UB organises this interaction through demonstrations in supermarkets. However, as the number of supermarkets selling UB products grows, it puts higher demands on UB farmers to be present in the supermarkets.

Adamah has managed growth by entering cooperation with larger vegetable farms and importers that can deliver larger quantities. By doing this, the smaller farms have been left without knowing if Adamah wanted their products next year or not. At the same time, most interviewed farmers wanted to continue to deliver to Adamah, and would also be able to deliver more. Thus, size of the network and localised food system was not a contradiction to the farmers. Most producers in the Adamah food network use hybrid market channels: direct sales and conventional outlets such as retailers. For the farmers, there were pro's and con's with both strategies. They value the independence and flexibility, as well as the close relation to consumers in local food systems, but also the possibility to sell higher quantities at once and therefore the reduced effort for storage and logistics that go along with marketing through conventional channels. This comes at a price, however, since a significant portion of the added value for farmers in local organic food networks comes through the elimination of profit-taking intermediaries (Renting et al., 2003; Sonnino & Marsden, 2006). Adamah represents a local alternative that is large enough to be able to buy more from each farmer, and still offer a better price than retailers do. Adamah is currently at the crossroads. One possible way forward is to continue to develop cooperation with larger producers, and leave the smaller ones behind. Logistics, communication and organisation would be less complex and consumers' demands for organic produce can be satisfied. However, this route may deteriorate legitimacy of the network since consumers tend to expect that small, local farmers are supported in the Adamah network. The other possible growth route is to source larger volumes from many small farms. This would demand a new organisation, way of communication and logistics within the network. However, it may help Adamah to maintain an alternative identity within a context of hybridity (Mount, 2012).

The two networks are different but show a number of commonalities. Both networks are good examples of the hybrid nature of many local food systems. Furthermore, as the networks grow they both face challenges regarding communication with and participation of the producers, and the active involvement of consumers is low. A number of questions emerge from this preliminary analysis. How can meaningful communication within the networks be safeguarded and be made feasible as they grow? How is legitimacy and transparency for consumers and participating farmers ensured? How can growing local organic food networks build flexible decision-making in a context of change and uncertainty (cf. Mount, 2012)? And how can both consumers and producers feel they are part of the network and thus develop shared responsibilities?

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