

Farmers facing change: The role of informal knowledge and social learning

Mit Veränderungen erfolgreich umgehen: Die Rolle informellen Wissens und sozialer Lernprozesse in der Landwirtschaft

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Summary

Farmers need to keep up with rapid changes, driven by developments in the broader context (e.g. climate, policy, lifestyles) as well as within the family. To successfully adapt and actively shape change, i.e. to be resilient, learning is crucial. Based on interviews and workshops in Salzburg, this paper focuses on farmers' knowledge sources and learning processes. Results show that informal knowledge and learning is key to adapt by creating new pathways in farming. Informal networks are used to gain skills, enabling farmers to engage in cooperations and to facilitate group processes. Yet, the current formal agricultural knowledge system does not adequately address these emerging knowledge needs. Thus, fostering social learning processes in informal learning settings and facilitating exchange between different groups could strengthen the resilience of farms.

Keywords: informal knowledge, resilience, networks, exchange

Zusammenfassung

Immer schnellere Veränderungen, sowohl im familiären als auch im landwirtschaftlichen Kontext, stellen hohe Anforderungen an die Anpassungs- und Wandlungsfähigkeit von LandwirtInnen. Um erfolgreich mit Veränderungen umzugehen, also resilient zu sein, bedarf es unterschiedlicher Formen des Wissens und Lernens. Interviews und Workshops in Salzburg gaben Einblicke in Wissensquellen und Lernprozesse von LandwirtInnen. Ergebnisse

Erschienen im *Jahrbuch der Österreichischen Gesellschaft für Agrarökonomie*, Band 25: 169-178, Jahr 2016. On-line verfügbar: <http://oega.boku.ac.at>.

zeigen, dass informelles Wissen und Lernprozesse in Netzwerken besonders für die Entwicklung neuer Zugänge und gemeinsamer Projekte entscheidend waren. Formelle Aus- und Weiterbildungen, basierend auf einem top-down Wissenstransfer, greifen hierbei oftmals zu kurz. Um die Resilienz der Betriebe zu stärken, sollten deshalb soziale Lernprozesse in informellen Netzwerken stärker gefördert und Möglichkeiten des Erfahrungsaustausches forciert werden.

Schlagnworte: Informelles Wissen, Resilienz, Netzwerke, Austausch

1. Introduction: Learning at the heart of resilience thinking

Farmers have to deal with changing dynamics and unpredictable events e.g. in the context of markets, policies and consumer demands, fostered by a growing global connectivity (DARNHOFER, 2014, 461f). Along with (sudden) events in the family (e.g. illness of a family member or conflicts), these changing dynamics challenge the persistence of family farms.

To explore how systems (e.g. a farm) successfully persist over the long term, the conceptual framework of resilience thinking is helpful. Building on the notion of 'social-ecological resilience' (FOLKE et al., 2010) a resilient system combines three aspects: persistence, adaptability and transformability. Thus, it needs to buffer shocks while maintaining its everyday functions; to adapt through ongoing renewal and adjustments within current conditions, and it needs the capacity to undergo radical change, i.e. to transform by creating a fundamentally new system. Applied to farming systems resilience is a useful concept to understand the dynamics of farms and linked learning processes (MILESTAD et al., 2012, 373). Indeed, as DAVOUDI et al. (2013, 311) argued, learning is central to resilience, as it is the dimension that links the three aspects.

Learning is linked to both formal and informal knowledge. Formal knowledge is gained through learning in formal educational institutions (organized and controlled by a formal curriculum), while informal knowledge is often used as an umbrella term for several types of knowledge gained outside of formal learning settings, usually considered as having a more personal nature: e.g. local, practice-based, experiential, tacit, endogenous, traditional, etc. (RAYMOND et al., 2010, 1769).

Statistics about the professional education of Austrian farm managers show that 54.5% have knowledge gained predominantly from practical experience in farming; 21.0% have a formal basic education in agriculture and forestry (vocational training or medium-level agricultural school); and 24.5% have a comprehensive professional education (e.g. higher-level agricultural school, master craftsman's diploma, university) (STATISTIK AUSTRIA, 2015, 34f). These statistics indicate that practice-based informal knowledge is a widespread source to gain capacities to manage a farm. Yet such statistics do not explain which types of knowledge or skills are important to establish a resilient farm, capable to deal with unexpected events and turbulences. Despite the role of informal knowledge, the current agricultural knowledge system presents a hierarchy of knowledge that underlines modernisation. Indeed, informal, context-specific farmers' knowledge has been increasingly displaced by standardised scientific/expert knowledge (MORGAN and MURDOCH, 2000, 171; FONTE, 2008, 211ff), which focuses on 'objective' sciences, technological and engineering knowledge. The latter is in danger to result in disciplinary isolated knowledge (CURRY and KIRWAN, 2014, 346f), which does not adequately address the complex relations in social-ecological systems. This paper aims to analyse farmers' formal and informal knowledge sources and knowledge networks with a focus on informal learning processes – and their contribution to strengthen farmers' capacities to deal with change.

2. Data collection and analysis

The data was collected in two regions (Flachgau, Lungau) in the province of Salzburg, from October 2013 till February 2014. The data is drawn from 30 qualitative interviews with farmers (12 men, 7 women and 11 couples), which were selected through snow-balling to cover a high diversity of farm types (full- and part-time, specialised and diversified, organic and conventional) and of farming activities.

The interviews were recorded, transcribed in full, and coded with support of the QDA-software 'f4-analyse'. The analysis is based on the qualitative content analysis using 'Grounded Theory Coding Practices' (CHARMAZ, 2014, 109ff). In this iterative, qualitative approach, initial coding (inductive, close to the data) and later focused coding

(analytical sifting and synthesizing) were used. Both initial and focused coding are non-linear flexible processes, where ideas and codes emerge, are compared, adapted, merged or rewrote, as ongoing process throughout the analysis (CHARMAZ, 2014, 143).

To reflect on interview results, two workshops were organised, where 12 and 15 regional stakeholders participated. Some of the participants were also farmers but attended the workshops in their role as representative of farmers' initiatives, (organic) associations or political unions. Participants also included representatives of regional small and medium-sized enterprises and interest groups around 'agriculture and tourism' and 'peasant farming'. The discussions in the workshops and the results of interactive elements were recorded in writing.

3. Results

The results are grouped in two sub-sections focusing on (1) farmers' formal knowledge sources and (2) the perceived knowledge needs that foster farmers' engagement in informal learning settings.

3.1 Knowledge sources provided by knowledge institutes

Farmers in this study perceived an increase of well-trained farmers with formal education. Especially among the younger farmers, who take part in the broad initial education in vocational agricultural schools. They also pointed out the extensive offer of courses and possibilities for formal further training. This is seen as a strength regarding the adaptability in farming, in terms of development in production methods (e.g. milk production, nutrient management on the fields) and technical progress.

The information provided by the Chamber of Agriculture and its advisory service is used to keep up with changes in production regulations and documentation. The advisory service provides information sheets and publishes guidelines on its newspaper and website, on how new regulations will be implemented and controlled, and gives information around the access to direct payments.

Organic farmers mentioned 'BioAustria', the largest organic farmers' association in Austria, and their local organic working groups as frequently used information source, as well as provider of formal trainings.

The educational institute of the Chamber of Agriculture (LFI) offers a further training, where agricultural advisers maintain working groups (Arbeitskreise) of ten to twenty farmers of a particular farming branch e.g. dairy production, pig production or crop farming. The aim of such working groups is to strengthen the competitiveness in farming by identifying economic performance indicators and optimizing production methods (e.g. reduce of costs, increase of work efficiency). Farmers who participate in these working groups stated that it is helpful to share, compare and discuss economic data:

„I'm participating in the dairy production working group, where there is quite a good network - that is very good. Also where you deepening on the topic a bit more, sharing the economic data and indicators among each other: that is already a great thing. (...) I actually take out the most from there and I mean you need to choose which course to attend. At the moment I'm also doing a training for 'holiday on farm'. That's the reason why I'm a bit lazy regarding the training offers in organic farming, to be honest." (MartinH, organic, full-time farmer)

The above quote points to the farmers' need to set priorities, as it is not possible to engage in several trainings on top of the work on the farm. Especially as some formal trainings are mandatory, as their certificates are required to obtain farm investment support. As these results show, farmers rely on information produced by formal institutions and offered training opportunities. Nevertheless, a shift in farmers' activities to address new circumstances indicated also a shift in their knowledge needs.

3.2 Knowledge needs in a complex, dynamic world

Farmers in this study manage multifunctional farms that integrate diverse income sources. They are also engaged in networks, which bundle interests and resources to be more effective in the face of on-going change in markets, regulations or regarding changing agendas within their families. Thus, information on production practices, on administrative procedures and on production economics is important and needed, but it is not enough.

Farmers identified a range of skills needed to manage a multifunctional farm without developing a burnout (e.g. self-management, coordinating different labour tasks, and effective communication within the family).

In some cases, farmers' initiatives emerged from these networks, where traditional knowledge was used, revalued and transformed into 'retro-innovations' (see MARSDEN and SMITH, 2005, 450). Farmers started projects around traditional production methods (e.g. organic-hay-milk-cheese) or old varieties (e.g. the traditional mountain rye 'Tauernroggen'). Thus, farmers successfully combined old knowledge, traditional methods and regional resources with new technologies, ways of processing and creative ideas for marketing. However, farmers pointed towards difficulties within these long-term open-ended processes, including the engagement of different actors and the time intensive coordination. Such challenges are visible in a farmer's experience, involved in a network promoting the establishment of an 'organic village':

"For this [the process to find partners to implement ideas] you need a lot of patience. When there is an event [to meet] somewhere, you have to make a suggestion again - whenever suitable. At one time in this way, and at another time trying a different angle. Yes, when they [other regional actors] respond to it, then they respond. When they do not respond, you have to wait again. But never ever proceed hastily, because then there will be a wall." (Gregor], organic, full-time farmer)

Farmers' engagement in joint initiatives and cooperations with actors from tourism or regional development increasingly need skills to manage processes of social learning, including trust building, conflict resolution and moderation tools.

As these examples show, a shift of knowledge needs goes along with strategies used by farmers to maintain their room for manoeuvre. Such an indication of shifting knowledge-needs in farming was also recognized by participants in the stakeholder workshops (see table 1). The participants selected types of knowledge and skills that are seen as important for the successful development of rural regions, but which are currently missing.

Most of the knowledge types that were ranked as important are not addressed by the top-down knowledge transfer approach characterizing formal learning setting. Farmers therefore have to hone such skills through ongoing experiences made in social processes and through mutual reflection, encouraged through personal exchange in informal networks.

Tab. 1: Knowledge that workshop participants felt is important and missing

Rank	Type of knowledge and skill
1	Creativity , e.g. for new business models, new forms of cooperation
1	Knowledge on how to build and maintain a cooperation (build trust, structure communication processes, find compromises)
2	Ability to handle conflicts (recognize an emerging problem, talk about it, identify constructive solutions)
2	Production methods in organic farming
3	Experiential knowledge (in production methods, in cooperation, ...)
4	Farm management and farm economics , strategic planning of a project or for the farm
5	Direct marketing and advertising
6	Brokerage of experts (What kind of experts are there that could help me with my issue? Is there a specific individual that you can recommend?)
7	Ability to apply for funds , subsidies, direct payments
8	Production methods in conventional farming
9	Draft contracts (e.g. for cooperation: which legal structures, tax implications)

Participants in the stakeholder workshops (n=27) were presented with a poster that listed the above 11 options. Using 'sticky dots', they were asked to indicate which knowledge they think is important (Lungau 5 / Flachgau 4 dots per person, max. 2 dots per issue), and which is missing in their region (Lungau 5 / Flachgau 4 dots per person, max. 2 dots per issue). The rank (1 = most important and missing) is derived from the total number of sticky dots from both workshops. Source: OWN INVESTIGATION, 2014

These networks have been valued as platforms to talk openly about their own, local experiences as well as about mistakes they made, without being laughed at. Thus, they established a learning environment that encourages social innovations.

Other informal knowledge sources, like work experiences or travelling were also mentioned, especially to explore the diversity in farming approaches and to gain knowledge, inspiration and orientation regarding one's preferred way of farming. A farm woman stated that she learned a lot during her experiences in the frame of 'farm assistance':

"Because every farmer has - and this is fascinating - everyone somehow has many good ideas. And indeed you pick up all of them. (...) And everyone has his own way to do it, this is great. And you can then identify: Yes, ok that works well. Or: This is not working as it should, or I cannot implement this now." (LuisieE, conventional, part-time farmer)

Farmers who undertake work experiences elsewhere or travelled abroad stated, that afterwards they had a more comprehensive picture of farming than the one resulting from their formal agricultural education. It made them aware of the diversity of opportunities in farming. For example, a farming couple decided to engage in organic grassland-based milk production with reduced concentrate in the diet of the dairy cows, inspired by a two-month work experience in New Zealand, exploring such production systems. To develop and adapt their production method they engaged in on-farm experimentation and trial-and-error learning, to fine-tune grazing management (timing, intensity) and breeding decisions.

In general, farmers referred a lot to knowledge gained through own experiments. They used experiments to explore alternative methods in caring for livestock (e.g. homeopathy, herbal medicine), production practices (e.g. composting, organic poultry production) and to explore new marketing possibilities (e.g. offering convenience food-products). Experiments were also perceived as important, e.g. to adapt or fine-tune 'standardised' recommendations or to pre-test them on a small scale, checking their suitability to local conditions. Nevertheless, a range of experiments were forced due to limited information provided on non-standard practices.

4. Discussion and Conclusion

While this study shows that farmers need and value formal training and information on production practices and economics, it also points towards the limitations of the current transfer-of-knowledge approach. Standardised, disciplinary knowledge does not sufficiently address the complexity of relations farmers have to handle.

While some knowledge institutions have recognized farmers' changing knowledge needs, they are restricted by administrative processes and inertia that slow down change and the flexible shaping of curricula or training offers. This is visible e.g. in the long-term process of shifting the teaching system in agricultural vocational schools from a content-based to a competence-based approach (see FORSTNER-EBHART et al., 2014).

However, given the examples of farmers' informal learning processes, the question arises, whether such learning in multi-actor networks is

generally transferable in formal learning settings. The knowledge needed to deal with on-going change is individual, context specific, emerging, i.e. created and transformed through interaction and social learning processes. The exchange of experiences as well as of results of 'creative' experiments or the open reflection on what works and what does not, needs a trustful learning environment. Farmers found such a supportive environment in their loose networks of peers and their established initiatives.

Thus, a promising way to address farmers' emergent knowledge needs is seen in fostering informal learning processes. This implies recognition of farmers' informal knowledge as equally important as scientific knowledge, thus replacing the current hierarchy. Such an encounter on a level playing field would build on MORGAN and MURDOCH (2000, 171) who pointed towards "the value of combining local, tacit knowledge with codified, standardised knowledge in ways which empower farmers to manage their resources in more sustainably innovative ways". Indeed, innovation in farming is more than technological progress. Innovation can be social or based on traditional practices, as recognised by the 'European Innovation Partnership (EIP) on Agriculture', implemented to promote interactive multi-actor approaches to agricultural development e.g. by supporting networks linking farming practice and science (EC, 2012, 8).

Knowledge institutions should rethink their approaches to better meet changing knowledge needs. While many informal learning processes are not transferrable into formal settings, they should be valued and fostered as ways to gain, assess and spread knowledge, needed to strengthen the resilience of farms. Facilitating exchanges (e.g. through mutual visits of initiatives, field trips) between different informal groups, can foster the flow of informal knowledge beyond boundaries of families or networks.

Acknowledgement

I am grateful to Ika Darnhofer for her helpful comments and suggestions to the manuscript of this paper. The research took place in the framework of the RETHINK-project, funded by BMLFUW (No. 100939), see: www.wiso.boku.ac.at/en/afo/forschung/rethink

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