



Establishing ethical organic poultry production: a question of successful cooperation management?

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Abstract

In reaction to growing critics regarding ecological and ethical aspects of intensive animal husbandry, different initiatives of ethical poultry production try to establish alternative food supply chains on the market. To be able to stabilise these niche innovations parallel to the mainstream regime, new forms of cooperation along the value added chain and with the consumers play an important role. Based on a case study of integrated egg and meat production from a dual-purpose breed by small multifunctional farms in Northeast of Germany, the paper exemplifies the challenges for the different partners of the food supply chain and cooperation management. Empirical data were obtained via nine qualitative interviews with actors along the value chain and via participatory observation of workshops and meetings. The research was embedded in a transdisciplinary project, where different measures to meet the existing challenges were taken and evaluated. Analysing the existing cooperation reveals possibilities for improving cooperation management by e.g. clarifying the goals of the cooperation, including the points of sale as part of the food supply chain and communication of the ethical and sustainability qualities of the product to the consumers. However, the analysis also shows the limits of cooperation in an environment dominated by the paradigm of specialisation, economies of scale and cost reduction, which is also characteristic for parts of the organic sector. The paper discusses if the challenges of establishing this radical niche innovation can be met without a fundamental change of framework conditions as e.g. regulation on animal husbandry.

Keywords Ethical poultry production · Cooperation management · Alternative food supply chains · Dual-purpose breeds · Specialisation · Intensification · Niche innovations

"That people in a specialised society tear things apart to an extent that they are completely taken out of their context...., there's, in my opinion, the chance to fight against it. We live in a world of specialists. We know always more about less".
(director of an organic marketing association responsible for a dual-purpose breed initiative)

Introduction

The last decades have shown an immense intensification in mainstream animal husbandry resulting in a significant increase in economic performance. Following 'a productivist' logic, breeding efforts as well as animal keeping were mainly directed at an optimisation of output (e.g. of milk, eggs, meat) per animal and time period, compromising other aims, such as animal health, fertility and longevity (FAO 2013).

Besides its economic success, this type of animal husbandry has been confronted with growing critics regarding its environmental consequences (e.g. pollution of water, soil and air) and ethical aspects regarding health and the quality of life of the animals (Brümmer et al. 2017; Jochemsen 2013). The main issues, which are discussed from an ethical point of view, are animal health and welfare, animal integrity, breeding technologies and the loss of biodiversity.

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Going along with public debates and media reports, a rise of initiatives, which aim at ethical poultry production in alternative food supply chains can be observed since the mid 2000s (Brümmer et al. 2017). In particular, farmers and farmer organisations of the organic sector show a high engagement since consumers expect them to be concerned about animal welfare (Hughner et al. 2007). However, these initiatives are faced with multiple problems of establishing new practices of poultry production as well as coping with the mechanisms of the dominant market structures and consumer habits. To be able to deal with these challenges, the initiatives often experiment with new modes of cooperation along the food supply chain and alternative marketing structures. These endeavours can be seen in line with a broad variety of niche innovations, which aim at a shift from the mainstream ‘productivist regime’ to a regime built around the principles of sustainable production (Brunori et al. 2013).

This article highlights the challenges of establishing ethical poultry production from a cooperation management perspective based on a case study of integrated egg and meat production using a dual-purpose breed and run by small multifunctional farms in Northeast Germany. Central research questions are: What are the characteristics of ethical poultry production and their implications for cooperation along the food supply chain? What are the potentials and limits of cooperation in dealing with the challenges of establishing this type of niche innovation successfully on the market?

The article is structured as follows. The next section gives a brief overview about the state of research on modern poultry production and the rise of alternative niche innovations. In the third section, the applied methods are described. “Results” introduces different initiatives of ethical poultry production first. The next subsection exemplifies the challenges of establishing a dual-purpose breed initiative in Northeast Germany, analysing cooperation between the partners of the alternative food supply chain. “Results” is completed by describing different measures, which have been taken in this initiative to deal with existing challenges. The discussion draws on the challenges of establishing organic ethical poultry production as a radical niche innovation and the potentials and limits of improved cooperation management. It also deals with possible strategical developments in ethical poultry production.

Characteristics of modern poultry production and the rise of alternative niche innovations

Characteristics of modern poultry production

Productivity in animal husbandry has increased enormously in early-industrialized countries during the second half of the twentieth century as a result of efficient breeding programs, improved understanding of animal nutrition and disease control, and better designed housing systems (Olsson et al. 2006). For example, between the early 1960s and the late 1990s the time needed to produce a slaughterweight broiler fell from 80 to 40 days, and the required feed consumption halved (Christensen 1998). There has been a differentiation in hybrid breeds which are optimised for egg production and others which are specialised on meat production, leading to specialised intensive farming systems (van Bueren et al. 2014; FAO 2013). Today, laying hens of hybrid breeds produce up to 300 eggs/year and broiler chickens reach the desired weight of 1.8–2 kg after 4–5 weeks (Leenstra et al. 2010). In 2015, 40–50 million laying hens and 80–100 million meat-producing broilers have been reared in Germany, most of them in production sites with more than 50,000 animals (BMEL 2016).

Going along with the possibility to provide large quantities of cheap meat, consumption habits have changed. In Germany, the average consumer consumed 12 kg of chicken meat per year in 2016, compared to 7.3 kg in 1991 (BMEL 2018). Certain parts, such as the chicken breast, are preferred, while other parts can only be marketed overseas or not at all.

This growth in productivity has contributed to global food security but there have also been drawbacks regarding animal welfare and loss of biodiversity. Leg problems of broilers and problems which are connected to the high density of animal keeping reduce animal welfare (Olsson et al. 2006). Additionally, modern production systems often prevent animals to perform natural behaviours, such as e.g. foraging and dust bathing in the case of poultry (Knierim et al. 2006). In Germany, rearing 40–50 million laying hens per year goes along with 40–50 million male chicklets being killed (Brümmer et al. 2017; Statistisches Bundesamt 2017).

Finally, the loss of genetic diversity due to the concentration on few very productive breeds is discussed very critically (Olsson et al. 2006). Since modern breeding is resource intensive, it cannot be done by single farmers themselves but is carried out by a few international companies worldwide (van Mierlo et al. 2012; FAO 2013). Currently, there are only three large breeding companies, which maintain large populations of specialised lines to

supply the world market with parent stock (Tixier-Boichard et al. 2012). Consequently, the number of varieties that are cultivated in poultry production has decreased drastically during the last 60 years (ibid.).

Critical aspects of animal production have been the subject of public debate in Europe, which resulted also in changes to animal protection legislation at both the national and the EU level (Olsson et al. 2006). For example, Germany introduced a ban of keeping laying hens individually in battery cages in the year 2010, the EU followed in the year 2012 (van Mierlo et al. 2012; BMEL 2016). Public debate, regulation and the introduction of new labels have shifted consumer preferences in Germany away from eggs, which are produced by keeping laying hens in groups in cages (only 3%) towards barn systems¹ (63%), free range systems² (25%) and organic systems³ (9%) (Becker 2013; Leenstra et al. 2014).

The rise of alternative food supply chains

In reaction to the negative impact of intensive conventional farming, the organic movement began to grow in the 1980s.⁴ It is based on principles and values as the principle of health, ecology, fairness and care (Luttikholt 2007). In its early stage organic agriculture is described as a 'second order' innovation since it challenged the conventional paradigm whose concept of productivity depends on a high level of external inputs. The innovation trajectory that organic farming introduced was based on replacing chemical inputs with organic inputs, mostly produced and reproduced on the farm (Knickel et al. 2009).

Regarding poultry production, the regulations of organic agriculture contain standards, which determine the number of animals per stable unit and the density of poultry keeping. Slow growing varieties are preferred and a minimum life span is defined. There are also restrictions regarding the amount and frequency of providing medicine. Despite these regulations, studies have shown that organic farms are also

confronted with severe problems of animal health (Sutherland et al. 2013; Kijlstra and Eijck 2006).

Since the late 1990s, there has been a lively debate about whether organic farming is subject to 'conventionalisation', implying that it becomes a slightly modified version of modern conventional agriculture (Hall and Moggy 2001; Darnhofer et al. 2010). Regarding egg production, in Germany a steady increase can be observed throughout the last decades, fueled also by consumer demand (13% growth in the year 2015, oekolandbau.de 2017). This development leads to an increase in the number of animals, which are kept on the same farm; 50 percent of the organic laying hens in Germany are already reared on farms with more than 10,000 animals (Statistisches Bundesamt 2017, p. 41). Similar to conventional farming, organic poultry breeders mainly rely on hybrid breeds and have adapted the practice of killing the male chicklets of laying lines (Rautenschlein 2016). Only recently (2015) some of the bigger organic associations started an initiative of breeding varieties, which are adapted to organic poultry keeping (Nölting et al. 2017).

While there are some signs of 'conventionalisation' in organic poultry production, there have always been attempts to confront existing challenges and ethical problems. E.g., in recent years, the number of farms, which have installed mobile stables, has increased. This type of poultry breeding has the advantage that herds have a maximum size of 1000 animals and that there is a periodical change of the area the poultry is grazing on, avoiding oversupply of the soil with phosphorus (Skřivan et al. 2015). Additionally, since 2008 different initiatives of the organic sector try to establish alternatives to the practice of killing male chicklets (Bruijnis et al. 2015).

The rise of these alternative niches can be seen as part of wider fundamental structural changes in the agriculture and food sector, which have been qualified as a shift from a 'productivist' to a 'post-productivist' era or to a regime built around the principles of sustainable production (Knickel et al. 2004, 2009; Brunori et al. 2013). In system innovation and transition theory these alternative approaches in niches, which respond to a range of environmental and social concerns, are considered as sources of innovation, which allow radical practices to develop on the margins of the mainstream agriculture regime (Kemp et al. 1998; Smith 2006; Schot and Geels 2008). Horlings and Marsden (2014) stress that the new approaches react to disconnection between producers and consumers and disembodiedness of the products from the places where they were produced. Depending on the character of the innovation and its compatibility with the dominant regime, the development of niches is limited by external constraints, actors, rules and artifacts (Ingram et al. 2015). To be able to overcome these barriers, experiments with new solutions are often carried out in collaborative networks between heterogeneous actors,

¹ The hens are kept in houses with nest boxes and perches; the floor is covered with litter material. There is a maximum of 9 hens per m² usable area (Leenstra et al. 2014, p. 1).

² Free-range systems: inside identical to barn systems, but access to a pasture of 4 m² per hen is provided (Leenstra et al. 2014, p. 1).

³ Organic systems are a specific form of free-range systems, according to the requirements of organic production (EC 2008). Inside no more than 6 non beak-trimmed hens per m² usable area are kept. Poultry has to be provided the possibility of moving outside for at least one-third of its lifetime in an area with vegetation and shelter. Besides, the animals receive feed according to organic standards (Leenstra et al. 2014, p. 1; Demeter 2016).

⁴ Biodynamic farming started already in the 1920s and organic farming in the 1940s. However, only in the 1980s a broader public became interested in organic farming (Darnhofer et al. 2010).

Table 1 Interviews carried out along the food supply chain for the joint situation analysis

Sector	Type of interview partner
Agricultural production	National manager of the organic agricultural organisation Regional coordinator of the organic agricultural organisation Farmer who is part of the regional poultry project
Trade (bundling products and delivery to point of sale)	National manager of the organic marketing organisation (located in the region) Coordinator of the regional poultry project at the organic marketing organisation Director of the regional wholesale trader Responsible person for the poultry project at the regional wholesale trader Person responsible for marketing at the regional wholesale trader
Retail trade	Director of a regional organic supermarket chain

with exchange of information and learning processes taking place (Knickel et al. 2009; Moschitz et al. 2015). Ponte (2009) points out that conventions play a role in the governance of value chains regarding the translation of quality criteria in distribution of rewards and labour between the involved actors. While price and external objective standards (as homogeneous product quality) are important in global value chains dominated by big leading firms, ‘domestic’ and ‘civic’ conventions gain importance in other market segments with categories as proximity, trust and impact on society and the environment. Ethics is seen to be a possible driver of change in the way performance is assessed within food supply chains, subsequently leading to improvements in their sustainability (Kirwan et al. 2017). These theoretical concepts will be considered in analysing cooperation of actors in an alternative food supply chain of ethical poultry production.

Methods

The case study on ethical poultry production is embedded in a transdisciplinary research project. The data for this paper is derived out of the transdisciplinary process (covering the period from beginning of 2015 to end of 2017) as well as from specific data collection aimed at deepening the empirical insights regarding cooperation aspects of innovation processes. The transdisciplinary approach involved a joint situation analysis of the case studies at the beginning of the project based on literature research and one workshop with the respective case study actors and interviews with actors along the value added chain (see Table 1) (König et al. 2016).

The semi-structured interviews of approximately 1–1.5 h included questions regarding the development and the aim of the innovation, the choice of cooperating actors and the structure of the actor constellation, challenges in

the innovation process and of cooperation management as well as supportive or hindering framework conditions for successful establishment of the innovation. The interviews were transcribed and analysed with qualitative content analysis, using categories of cooperation management literature as sensitising concepts (Nölting and Schäfer 2016).

In the time period between 2016 and 2017 the coordinators of the case study on ethical poultry production regularly reported about challenges and difficulties of the innovation process and cooperation between the partners (minimum two management meetings per year). In 2017, strategical meetings were intensified in preparation of extending meat marketing to an organic supermarket chain and preparing supportive marketing and information measures. All workshops and meetings were documented; the minutes were analysed with content analysis. Table 2 gives an overview about the different workshops and meetings, which were part of participatory observation.

In addition to the analysis and accompanying observation in the central case study, in 2016 two interviews with protagonists of other initiatives of ethical poultry production were carried out in order to compare the regional case study with regard to the role of cooperation management in the development of ethical poultry production (Nölting et al. 2017).

Results

In the first subsection initiatives of ethical poultry production will be compared. In the second subsection a case study of a dual-purpose breed initiative will be analysed in more depth, focusing on the challenges for the different partners of the food supply chain and measures which were taken to overcome these challenges.

Table 2 Overview of transdisciplinary workshops as sources for empirical data collection

Date	Type of transdisciplinary workshop
Situation analysis: beginning till end of 2015	
6th of March 2015	Kick Off Meeting with actors from ethical poultry production along the food supply chain (18 participants)
8th and 9th of July 2015	Strategy Workshop: joint situation analysis (transdisciplinary research team)
June 2015–December 2015	Interviews with actors along the food value chain
15th of December 2015	Status Quo Workshop (transdisciplinary research team)
Transdisciplinary development and test of innovation management tools (ongoing)	
19th of April 2016/ 19th of September 2016, 17th of March 2017/ 7th of Nov. 2017	Management-Meetings with coordinators of the organic agriculture and marketing association
5th and 6th of December 2016	Reflection Workshop on inter- and transdisciplinary cooperation (transdisciplinary research team)
21st of April 2017	Exploration of options for poultry meat marketing with the purchasing manager of the organic supermarket chain
7th of August 2017	Strategic meeting with the director of the organic marketing association regarding supportive analyses and marketing measures

Characteristics of alternative poultry production in Germany

Since beginning of the 2000s public debates and media reports about the practice of killing millions of male chicklets increased (Vanhonacker and Verbeke 2009; Heng et al. 2013). The organic sector reacted with different initiatives, which tried to establish alternatives to these unethical practices (Bruijnjs et al. 2015). Two types of initiatives can be differentiated in Germany: (a) those who make efforts to raise the male ‘brothers’ of the laying hens and (b) those who engage in cultivating dual-purpose breeds (Nölting et al. 2017; Brümmer et al. 2017; Leenstra et al. 2014).

Regarding the first type, two of the bigger organic associations have founded an initiative, which engages in raising the male chicklets of the egg producing hybrid breed. These male animals are characterised by lower meat production compared to the meat producing hybrid breeds. The meat can mainly be used for processed food (as e.g. nutrition for babies, sausages). The initiative compensates financial losses by higher prices for the eggs (4 cent/egg) (Leenstra et al. 2014). The surplus is partly also used for a breeding program to establish dual-purpose breeds in the long run. Regarding the character of the innovation, this initiative (for now) continues with rearing hybrid breeds and uses established marketing channels. The main challenge consists in finding ways to market the meat of the ‘brother cockerel’ and to communicate the higher prices for the eggs as an ethical surplus.

The second type—establishing a dual-purpose breed—is confronted with challenges along the whole food supply chain. Its characteristics are described in the next section.

Analysing cooperation in a dual-purpose breed initiative in Northeast Germany

This paper wants to analyse the challenges of the second type—the establishment of a dual-purpose breed initiative—in more detail, focusing on the potentials and limits of cooperation. The analysis refers to an initiative, which aims at establishing integrative egg and meat marketing for products from a dual-purpose breed by small multifunctional organic farms in Northeast Germany.

Case study introduction

The project was initiated in the year 2011 by organic farmers, an organic agriculture and market association, and a regional wholesale trader. Currently, it includes five farmers and produces around 750,000 eggs, 4700 laying hens and 4600 broilers per year.⁵ Poultry is kept mainly in mobile stables in small groups of maximum 1000 animals, assuring animal health and preventing environmental damage for the soil. In the first weeks, the eggs have a smaller size due to the low body weight and slow growth (Damme 2015). Because of the small number of animals, there is no continuous meat production but the poultry is slaughtered six times per year by two slaughtering companies (contractors). The animals (hens and broilers) are sold as entire animals either fresh or frozen by the regional organic wholesale trader. Trading partners are specialised organic stores and some restaurants in the region. The dual-purpose breed ‘Les Bleues’ is known for its good meat quality but it shows special characteristics regarding the colour and consistency of the cockerel meat,

⁵ Numbers of the year 2017.

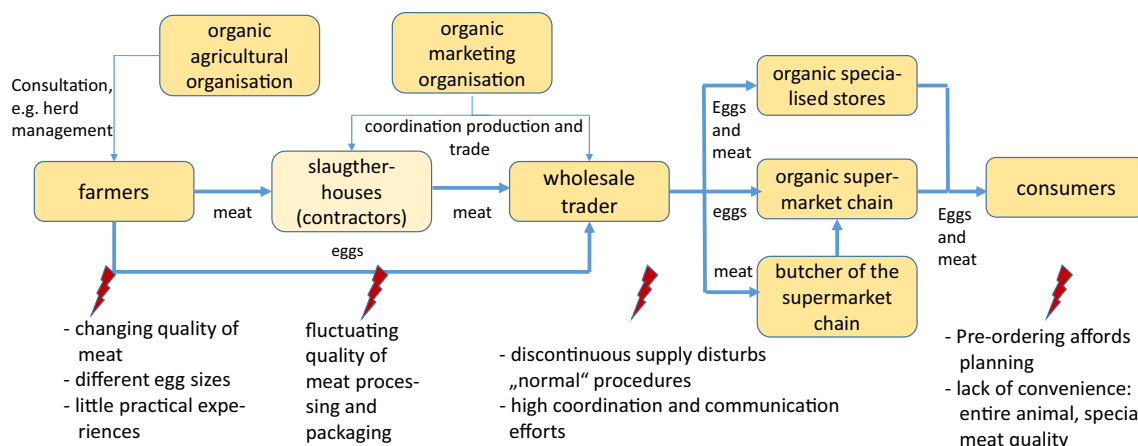


Fig. 1 Challenges of ethical poultry production along the food supply chain

which has to be cooked for a longer period of time to be tasty (Brümmer et al. 2017).

Cooperation with the scientific project ginkoo started in 2015 resulting in support for the initiative (financing of coordinative personnel) as well as scientific analysis and advice.

Challenges for food chain partners

Most farmers in the co-operative arrangement have started from scratch with keeping poultry, with the aim to establish a new source of income. Since the breed ‘Les Bleues’ is rather new on the market, the farmers had to gain experiences with raising the poultry (e.g. type of fodder, herd management). So far, reliable performance data (as egg production/ year) was not available which made calculation of prices difficult. Due to a lack of practical experience and expert knowledge on dual purpose breeds, decisions often had to be taken on an insecure knowledge base (König et al. 2017).

The organic agriculture and marketing organisation and the regional organic wholesale trader play an important role as intermediaries between the farmers and the consumers. The organic agriculture and marketing organisation is responsible to support the farmers and to coordinate the production process until the animals are slaughtered. The organic wholesale trader is responsible for marketing the eggs and the meat to the specialised organic stores and supermarkets. Eggs of normal size are marketed in packs of four, which differentiates the product from other egg producers. Approximately one-fourth of the eggs have a smaller size (“S-eggs”). Since there have been problems of marketing them, they are now sold in packs of six to a lower price per egg and with a special explanation to the consumers. At present, demand for the eggs is high and cannot always be satisfied. The provision with fresh meat is announced to the organic stores approximately 1 month before slaughtering. Delivery to the stores depends on

orders by consumers. The wholesale trader [#2] points out that this procedure of pre-ordering is “*beyond the normal*” and that it is very time intensive. “*At the moment we still have to inform the store owners by phone about the possibility of ordering chicken—costs us at least half a day*”. Poultry, which cannot be sold fresh is stored as frozen meat and offered to those stores which have cooling capacity. Various options of processing the meat as e.g. sausage or soup have been tested as well as the option of offering parts (as e.g. chicken breast or wings). So far, these attempts have not led to viable options.

The specialised organic stores and supermarkets have to deal with the challenge of discontinuous supply with meat and the provision of entire animals only. The director of the marketing association (1) comments on this point “*We notice that this discontinuity of the production is something the specialised organic stores already do not understand and all the more the consumers*”. However, interviews with shop owners showed, that discontinuity of supply is also viewed as a sign for special credibility that the involved farmers are really small. The stores are responsible to communicate the possibility of ordering fresh poultry to the consumers and collect the orders. Further on, the special product quality (e.g. need for longer preparation time) and the high prices afford intensive communication.

The consumers are confronted with a discontinuous supply with fresh meat and the necessity to order which makes long term planning necessary. Since they cannot purchase parts (e.g. chicken breast), competences to be able to prepare an entire animal are necessary. Since the meat has special characteristics, they have to inform themselves about modes of preparation. Preparation of an entire animal is only adequate for a group of persons or affords competences in conserving parts of the animal properly.

The challenges along the food supply chain are illustrated in Fig. 1.

The nature of cooperation in the ethical poultry chain

The analysis of cooperation is organised according to categories derived from cooperation management literature (Nölting and Schäfer 2016).

Innovation goal

Core cooperation partners have a high intrinsic motivation to establish ethical poultry production and aim for being pioneers in this field, as the director of the organic supermarket chain [#11] points out *“Of course it is also important for our image to trade with this kind of product, since we want to belong to those—I call it avant-garde—who are part of defining this kind of thing and offer it before the others do.”* The partners have chosen a holistic approach with far reaching demands regarding ethical animal husbandry and the prevention of ecological damage. Support of small mixed farms, the regional scope of the project and marketing exclusively to the specialised organic trade are additional goals of the cooperation. The director of the marketing association [#1] explains *“We don’t want specialised chicken farms as they are more and more common also in organic farming, but mixed farms who use poultry breeding as one branch of their income.”* Interviews in the beginning of the research project showed, however, that there was no clear shared picture of the cooperation goals in the group and the core messages for the consumers.

Actors

The project started with three core partners: the farmers, the organic agriculture and marketing association and the regional wholesale trader. It was difficult to find regional slaughtering capacities for the comparably small quantities. Two slaughterhouses, who are also processing conventional meat, are involved as contractors. Since they are not committed partners of the initiative, problems of fluctuating quality (e.g. concerning packaging of the meat) occur. The director of the regional wholesale trader [#2] stresses the importance of appropriate partners *“It would be great to have a small or medium butcher instead of those huge structures. One who gets inspired by this topic and who is innovative.”* Analysis of the cooperation showed that the fact that the points of sale—organic stores and supermarkets—were only loosely attached to the project led to a lack of communication with the consumers. In the beginning of the research project, trading was focused on rather small organic stores. Since not enough meat could be marketed via these partners, a new partnership with an organic supermarket chain with approximately 40 outlets was initiated. This cooperation resulted in new challenges since there are certain procedures and

standards of meat processing and marketing which have to be met. In comparison to the small stores, the communication chain is also much more complex. Responsibility for ordering eggs is completely separated from the meat supply chain both at the retail and at the wholesale level.

Distribution of costs and benefits

So far, the project is not able to cover its full costs, because the output of eggs and meat is significantly below specialised conventional and organic poultry production that is based on hybrid breeds and economies of scale. While it is possible to reach a premium price for the eggs, marketing of the very expensive meat remains a challenge. The deficits are covered by the organic marketing association and the regional wholesale trader. One of the initiators [#2] points out *“So far a cost-covering calculation is not possible. But that’s o.k. for us. We are organic people; we are not only driven by economic motives but also by ecological ones.”* The farmers only have minor monetary benefits. In the year 2017, one of the farmers left the project since he was not content with the achieved profits. As mentioned above, it is difficult for the farmers to calculate the ‘real’ production costs since they are still in the process of gaining experience and optimising management of the dual-purpose breed (König et al. 2017). Besides monetary benefits, image gains are an important point. By now, the initiative is quite well known due to media reports, which contributes to a better image of the marketing association, the wholesale trader and the organic shops and supermarkets.

Before the transdisciplinary research project started, operative steering of the cooperation and knowledge management was taking place at a rather low level, e.g. there were no regular meetings between the core partners. Agreements between the core partners are based on long-term relationships and trust. However, the lack of a written agreement at the beginning of the project led to repeated misunderstandings regarding the responsibility for certain tasks as e.g. providing marketing material for the organic stores. In addition, there are some difficulties regarding coordination along the food supply chain, e.g. the farmers sometimes fail to align data for slaughtering and the number of chicken to be marketed. The joint discussions within the transdisciplinary project supported the actors from the case study in strategic planning and development as well as adaptation of processes.

However, since the project is motivated mainly by idealistic motives and does not result in profits yet, priority for taking strategic actions sometimes still is not very high on the daily agenda, also due to lack of personal resources. For example, the regional wholesale trader provided discontinuous marketing capacities for the project, which made cooperation for the development of a marketing strategy and

its implementation difficult. There are additional financial resources for personnel during the period of the research project. How coordination management will be financed when the project has ended, is not yet clear.

Measures for improved cooperation management and innovative marketing models

Based on the analysis of the challenges of the partners along the food supply chain, several measures were taken in the realm of the transdisciplinary project during the last 3 years.⁶ Beyond improved cooperation and knowledge management, some innovative marketing strategies have been developed and tested or are still in preparation (see Table 3).

The measures aimed at improvement of cooperation management have shown some success, resulting in a better coordination of the partners along the value added chain and increased efficiency. The steps taken have resulted in a certain increase of fresh broilers being ordered and sold⁷, even if the increase is not sufficient yet. Improved communication between the partners is starting to become routinised. Analyses have shown that integrating new partners in the cooperation—as the organic supermarket chain—affords to readjust procedures and to meet new challenges. This is especially the case with larger market players who have established complex systems of ordering products and assuring quality control based on division of tasks and distributed responsibilities.

It is not possible yet to draw conclusions regarding the measures aiming at better communication to the consumers. To communicate the complex background of the differences of ethical poultry breeding at the point of sale remains a challenge. This led to the idea of innovative models of integrating the consumers as “prosumers” beyond traditional marketing channels. These measures are still in preparation.⁸

⁶ Measures were designed and carried out by the whole research team and the case study partners, not only by the subproject, which focused on cooperation. They were based on additional analyses from the perspectives of knowledge management, acceptance and marketing (König et al. 2017, 2016).

⁷ Marketing of broilers increased from 2044 in 2015, 2945 in 2016 to 4600 in 2017. Marketing of stewing hens increased from 2044 in 2015, 3450 in 2016 to 4700 in 2017.

⁸ In summer 2018 first focus groups were carried out which explored consumer habits and willingness to participate in marketing systems of this type.

Discussion

In the discussion, the challenges of establishing ethical poultry production with a dual-purpose breed are reflected in more abstract terms first. In a second step the role of cooperation and cooperation management to meet the challenges as well as their limits are discussed. In the last section “Conclusions” regarding further development of the niche innovation and supportive governance measures are drawn.

Challenges of establishing ethical poultry production as a radical niche innovation

It could be shown, that establishing ethical poultry production with a dual-purpose breed is a very ambitious endeavour, since it is questioning several paradigms of modern agriculture as well as trends of modern production and consumption in general. The application of modern genetic principles to chickens since the 1950s led to a rapid change in the productivity and efficiency of laying hens on the one side and broiler chickens on the other (Tixier-Boichard et al. 2012; Olsson 2006). This results in a very high degree of specialisation and complete separation of egg and chicken meat production, processing, trade and presentation at the point of sale. Going along with the necessary investments in cost-intensive breeding of this type, a concentration of know how (and market power) in the hands of few companies and an extreme reduction to very few high performing commercial breeding hybrid lines can be observed (Tixier-Boichard et al. 2012). In contrast to other segments of the agri-food-sector which are more diversified (as e.g. wine production), this high level of concentration in production and processing goes along with a dominance of market and industry driven quality conventions as price, promotion and external standards (Ponte 2009).

Unethical practices (as killing of male chicklets, trimming of beaks) linked to this productivist regime were accepted or ignored for several decades. Even organic agriculture, which is based on principles beyond economic performance, has partly adapted to practices, which are critical regarding animal welfare and ethical standards.

Connected to the paradigm of specialisation and cost reduction in industrialised agricultural production systems further standards developed, which are related to the consumption side. These are the standards of homogeneous product quality and ‘all-year-round-availability’ (Gómez and Ricketts 2013). In its current development phase (small scale, still subject to optimisation) egg and meat production from dual-purpose breeds cannot live up to these standards—and will not be able to on the long run. Discontinuity of supply and varying product qualities are characteristics, modern marketing channels and the consumers are no longer

Table 3 Measures to improve cooperation and knowledge management as well as consumer communication

Challenge	Examples for measures taken within the research project	Preliminary result/effects
No explicitly formulated cooperation goals	Agreement on goals and central messages for the consumers linked to a re-launch of the initiatives' homepage	Better understanding within the transdisciplinary team Good basis for communicative measures
Lack of clear division of tasks and responsibilities	Cooperation contract was formulated and signed between the core partners	Cooperation contract defines a frame but is not very relevant for the organisation of daily tasks
Coordination of supply and demand	Documentation and communication of core processes for ordering and slaughtering	Better knowledge management in the coordinating team Better planning of marketing campaigns is possible
Lack of information for the personnel at the points of sale and the consumers	Short information leaflet about the initiative for personnel at the point of sale Launch of a flyer and recipes for the consumers Articles in the consumers' brochure of the organic supermarket chain	In evaluation; first results indicate that marketing of meat has improved
Developing and testing innovative marketing models		
Missing link between egg and meat production	Test with a shelf, which combines the presentation of eggs, frozen broilers and hens as well as processed poultry products in two supermarket outlets	In evaluation
Lack of committed consumers who buy ethical produced chicken meat	Design of different options for closer participation of consumers (e.g. crowd investment, individual "chicken-sponsorships")	In preparation

used to. Products, which are available only irregularly, ‘disturb’ the standardised processes of ordering, delivering and advertising products; they afford extra effort. This is also the case for bigger marketing structures of the organic sector, which are in diverse interactions with institutions of the mainstream agriculture and food regime and—to a certain extent—are subject to similar dynamics and conventions (Hendrickson and James 2005). Several authors stress that dominant trading channels play an important role in imposing certain standards on multiple others within the chain and that the distribution of power often is very unequal (Brunori et al. 2016; Kirwan et al. 2017).

Since in modern poultry breeding egg and meat production are not linked, consumers have got used to the availability of eggs independent from chicken meat and vice versa during the last decades. Achieving an awareness of the existing interdependency in the case of dual-purpose breeds is an ambitious goal since re-integration of egg and meat production does not fit in the productivist logic. A third important trend of modern food consumption is convenience, which encompasses easy availability and preparation of food (Warde 1999; Brunner et al. 2010). The current need of having to order fresh meat from dual-purpose breeds, affords mid-range planning and competences of how to prepare entire hens or broilers. It also does not combine well with the needs of the growing percentage of single households.

The analyses makes clear that establishing dual-purpose breeds on the market is a ‘radical’ innovation since it challenges dominant paradigms and trends of modern food production and consumption and affords change of practices along the whole food supply chain. With its far-reaching claims of dealing with several challenges of animal husbandry it is a systemic approach, which is not compatible with current standards and dynamics of the mainstream agro-food regime but reacts to several of its tensions. Referring to the categorisation of Ingram et al. (2015) of different niche-regime interactions, it could be qualified as the divergent or even oppositional type. Other innovations in this field, which pursue the singular objective of preventing killing of male chicklets, have a rather incremental character and show higher compatibility with the dominant regime. Technological innovations as detecting the gender of the chicklet during its development in the egg could be categorised as ‘compatible’; initiatives, which raise the male chicklet of the (hybrid) laying hen as ‘complementary’ or ‘emergent’ (ibid.).

Potential and limits of cooperation for establishing ethical poultry production

In the analysed case study, cooperation of different partners along the food supply chain was necessary for the initiation of the project. The commitment of the marketing

association and the wholesale trader to market eggs and meat of the dual-purpose breed was the pre-requisite for the farmers to take the risk of starting a new business branch. Common goals and values were crucial in the initiation phase. The food supply chain is partly governed by ethical considerations. The core partners so far are willing to compensate extra costs and efforts for ethical poultry production and benefit from image gains. It is, however, a challenge to extend this commitment to further partners as the slaughtering companies and the organic supermarket chain, which are in closer interaction with the dominant regime. Besides its openness for listing eggs and meat from ethical poultry production, the organic supermarket chain, for example, insists on the ‘customary’ profit margins which endangers successful marketing of the products and does not contribute towards a fair distribution of costs and risks of the innovation.

Besides a common mindset, the complementarity of competences and resources is of great importance for the choice of participating actors. Analyses made clear that concentration and specialisation in the meat-producing sector has increased to such an extent that adequate partners (as e.g. small butchers/ slaughterhouses) for ethical food supply chains are no longer available in some regions.

Since building up an alternative food supply chain is confronted with challenges at every stage of the chain, competent and efficient cooperation management plays a crucial role (Moschitz et al. 2015). In the analysed case study, the necessary resources and competences for cooperation management were underestimated. In the period of the research project, some of the deficits could be met and strategical planning could be improved. To be able to deal with less personal resources after the research project has ended, it is important to establish routines and standards for information exchange (as e.g. documentation sheets), which allow keeping up efficiency also in the case of personal fluctuation.

The measures regarding optimisation of cooperation management taken so far, have led to a better performance of the actors along the value added chain and a higher—and more reliable—quality of the products. Analyses of the ongoing processes made clear that decisions to extend the network towards new partners have to be accompanied by iterative re-adjustment of practices along the food supply chain—a demand, which tends to overstretch capacities of small and medium actors in the very competitive food sector.

Summing up, efficient cooperative networks and professional cooperation management are very important for an improved performance of alternative food supply chains. Especially in the case of a radical innovation, which is confronted with strong pressure from the mainstream regime, it will however only be able to deal with some of the existing barriers, which hamper diffusion and stabilisation of the niche innovation.

Potentials for further development of the analysed niche innovation and supportive regulation

Ethical poultry production is driven by ‘civic’ quality conventions such as the impact on animal welfare and the environment. In the analysed case study, also ‘domestic’ quality conventions with values as proximity and trust play an important role in governing the food supply chain (Ponte 2009). These qualities have also been described with terms as ‘re-territorialisation’ and ‘re-connection’ (between producers and consumers) (Winter 2003; Horlings and Marsden 2014). In the marketing channels, which have been used so far, it has however been difficult to communicate the special qualities to the consumers, maybe because they have not manifested yet in certain ‘assurance schemes’ as labels or brands (Buller and Roe 2018).

Under the current market conditions, the initiative has several strategic options for further development, which make it necessary to reach out to new cooperation partners.

Positioning as high quality premium products

The initiative can try to intensify cooperation with partners who want to distinguish themselves with high quality ethically produced poultry products as certain butchers, restaurants and speciality stores. To be able to serve the needs of these partners—who are willing to pay adequate prices—the quality of the product has to increase and be kept throughout the whole process of raising the animals, slaughtering, packaging, communication to the consumers etc.

Establishing close partnerships with “prosumers”

Raising awareness of consumers in traditional market channels is an ambitious goal since complexity of ethical animal husbandry is high. As shown above, the current ways of marketing the product are in conflict with dominant trends of food consumption. On the other side there is a growing segment of consumers who are interested in products from alternative food supply chains and are willing to commit themselves as ‘prosumers’ to support niche solutions which guarantee certain qualities. Community Supported Agriculture (CSA), crowd-investment or crowd funding are examples for these trends in a small consumer segment (Boddenberg et al. 2017; Pieniżek 2014). In this kind of partnerships, which can be established rather independently from the mainstream regime, it is easier to communicate the civic and domestic qualities of ethical animal husbandry but also to provide information about how to prepare the meat adequately. Because of the direct contact, more official assurance schemes—as a label—are not necessary.

Both options imply that under the current marketing logics and the dominant paradigm of specialisation and increase

of productivity, it will only be possible to establish ethical poultry production for a small consumer segment. Stabilisation of this niche segment on the margin of the mainstream regime seems to be a realistic goal as long as dominant market conditions do not change.

Supportive political regulation will be necessary to be able to establish these forms of production on a larger scale, leaving the current niche and diffuse into the mainstream. The success of shifting consumer preferences from eggs of holding laying hens in cages to barn-, free-range- and organic systems shows that regulation plays an important part in setting standards in the food industry. Due to ongoing critical debates a range of possible measures (as a ban of certain practices) are currently discussed vividly in public and in the food industry and might result in regulation on a national or EU level during the next years. It can also be observed that actors from the dominant regime, such as big retail chains, are trying to position themselves via assurance schemes as labels or brands with animal welfare issues to be able to satisfy segmented niche markets (Buller and Roe 2018). This kind of discursive and regulative practices strengthen the potential of animal welfare as an issue, which influences the governance of food chains and re-connects production and consumption (Kirwan et al. 2017; Buller and Roe 2018). Niche innovations that have been developed in this field, might then be able to take advantage of the tensions in the incumbent regime and exploit opportunities for further diffusion (Smith 2006; Ingram et al. 2015).

Conclusion

The rise of initiatives of ethical poultry production can be seen as part of the establishment of alternative agro-food chains reacting to negative ecological and social consequences of the ‘productivist’ or industrialised agricultural production system. Cooperation between the partners along the food supply chain has been of vital importance to initiate the analysed niche innovation and compensate part of the additional costs, which are linked to establishing an ethical production system and integrated egg and meat marketing. The innovation can be classified as ‘radical’ since it questions several paradigms and trends of modern food production as specialisation, intensification, concentration, continuous product availability and homogeneous quality as well as convenience. The analyses have shown that stabilisation of this innovative niche is a major challenge even if there is a rising segment of consumers who are interested in questions of animal welfare, health and environmental issues. Quality conventions of the productivist regime are inscribed in daily routines of the consumers as well as of the partners of the food supply chain, also in the organic sector. Since the initiative is still in the phase of gaining more experience with

rearing the new breed and managing cooperation along the food supply chain, there is a certain potential for optimisation and increase of efficiency. There are also potentials of marketing strategies which establish direct partnerships with the consumers and which position the products more clearly as high-quality premium products. However, diffusion of the niche innovation into the mainstream will probably only be possible if tensions in the dominant regime result in governance or corporate measures which take up some of the challenges of current animal husbandry.

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