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Challenging Factors of Farmer-to-Consumer Direct Marketing: An Empirical Analysis of German Livestock Owners

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Abstract

Farmer-to-consumer direct marketing provides an alternative marketing strategy for farmers, ensuring their income while also meeting consumers' increasing demand for local food. This study evaluates the challenging factors of this marketing channel from the farmers' viewpoint. A CAPI survey was carried out among 121 German livestock owners. The results of a cluster analysis demonstrate that the location of the farm represents the most challenging requirement for the interviewed farmers. The cluster analysis additionally reveals that most of the livestock owners see problems with the implementation of requirements concerning the personal challenges of direct farm marketing (especially hygiene regulations, self-motivation and customer contact).

Keywords: farmer-to-consumer direct marketing, local farm products, German livestock owners

Introduction

In recent years the importance of alternative marketing channels for food, different from those of conventional retailing systems, has been increasing. The drivers of this trend, on the one hand, have been farmers seeking more profitable markets due to their dissatisfaction with the prices for agricultural products (Vecchio, 2009). Strong competition among suppliers of agricultural products on domestic and global markets has led to overproduction, resulting in market saturation and sometimes collapsing prices. Although German producer prices have declined, retail prices for food have stayed the same (German Farmers' Association, 2015; Federal Statistical Office, 2016). German livestock producers' economic situation has become more and more difficult. Dairy farmers, for example, have to face high milk price volatility (Jongeneel *et al*., 2010). And German pig farmers are facing increasing production risks due to low pig producer prices. For example, in 1998 there were still 187.000 pig farmers in Germany whereas in 2015 there were only 25.000 (German Farmers' Association, 2015).

Consumers, on the other hand, are increasingly demanding food that is locally produced (Ekanem *et al*., 2016). Additionally, consumers hope to support local farmers and food production by purchasing authentic products with a defined regional background (Feagan and Morris, 2009). Local food products are often associated with high quality, traditional, and environmentally friendly production methods (Kneafsey *et al*., 2013). Furthermore, many consumers have lost their trust in conventional food products and food production (Houghton *et al.,* 2008) and are seeking greater transparency (Rudolph and Meise, 2010).

Against this background one-third of German farmers participated in diversification strategies in 2013 to stabilize their income and secure the existence of their farms (Federal Statistical Office, 2015). Farmer-to-consumer direct marketing represents one option for vertical diversification, in which farmers sell their products directly to consumers (Bruch and Ernst, 2010). The 'middle-man' functions of food exchange, transportation, storage and processing are thereby eliminated (Cottingham *et al*., 1994). Shortening the food supply chain in this manner allows farmers to achieve a greater share of the consumer's food budget (Darby *et al*., 2008; Busch & Spiller 2015).

However, today only 15% of German farmers engage in some form of farmer-to-consumer direct marketing, in most cases with very low intensities (Federal Statistical Office, 2015). Adopting farmer-to-consumer direct marketing requires multiple personal skills as well as the compliance with business and external demands (Wirthgen and Maurer, 2000; Heer, 2007; Kuhnert and Wirthgen, 2008; STMELF Bayern, 2011; Kneafsey *et al*., 2013). So far, the need to comply with these requirements may be one reason for many farmers' reluctance to sell their commodities directly. The interest in the expansion of marketing forms that provide immediate contact between consumers and producers is nevertheless rising due to the significant market potential, especially for high-quality and traditional foods (Vecchio, 2009).
It is the goal of this study to detect the most challenging requirements of direct farm marketing from livestock farmers' viewpoint. Due to the high heterogeneity on the farm level, in a second step, different groups with varying attitudes towards the challenges of direct farm marketing are identified. For this purpose, a sample consisting of German livestock owners was surveyed. The results allow some recommendations to overcome the challenges of this specific type of marketing.

Relevance of direct marketing from farmers' viewpoint

Farmer-to-consumer direct sales have increased considerably all over the world but differ in their regional extent. direct farm marketing is rare for European countries. Direct farm sales vary across the EU Member States. In Northern Europe the level of engagement in direct marketing activities is rather low, whereas it is far more common in Mediterranean countries and in some new Member States (Gorton *et al*., 2014). Less than 0.2% of the farms in the UK, France and Germany generated more than half of the value of their output by selling directly to consumers in 2007, for instance. In Germany 15% of the farmers generated part of their income by undertaking direct marketing in 2013 (Federal Statistical Office, 2015). Recke *et al*. (2004) found that 94% (n=200) of directly selling farmers sell their products directly from farm outlets. Other short marketing channels are weekly markets (34%), other direct farmers (34%), local restaurants (32%) and the grocery retail segment (31%).
According to a survey carried out by an online panel for the agricultural sector, initiated by the German trade magazine *Agrarmanager*, 69% of German farmers consider local food to have the most potential for farms in the future (Agrarheute, 2016). Although the direct marketing of food is certainly a niche market, there are several reasons for farmers to start making direct sales. The dissatisfaction with decreasing farm commodity prices is growing. The direct marketing of farm products overall provides a strategy to achieve higher shares of the food dollar (Busch and Spiller 2015).
Govindasamy *et al*. (1999) and Detre *et al*. (2011), among others, proved the stabilizing effect of performing direct marketing options for the farm income compared with farms using conventional marketing channels. Farmers receive only a fraction of the retail price by selling farm products to retailers. When they sell directly to consumers, farmers have the opportunity to add value through on-farm processing while also providing consumers with high-quality products. This yields a higher profit margin and resistance to price fluctuations (Uematsu and Mishra, 2011). Farmers profit from the independence of conventional food retailing systems and a better scope of action besides the economic benefits. As a result farmers who rely on direct food sales are more likely to depend on farming as their principal source of income (Low and Vogel, 2011). Especially small and medium-scaled farms take direct marketing options to face

the strong competition within the food supply chain (Low and Vogel, 2011; Ahearn and Sterns, 2013).
Consumer interest in local food systems with short distances between the place of production and the place of consumption has increased in the past years. The growth of local food systems in Europe arose from the demand for organic, local, and traditional food (Vecchio, 2009). Several studies have revealed consumers' willingness to pay a premium for locally produced food (e.g. Carpio and Isengildina-Massa, 2009; Adams and Salois, 2010; Grebitus *et al*., 2013).

Requirements for successful farmer-to-consumer direct marketing

The adoption of successful direct farm marketing depends on the compliance with several requirements. Constraints are likely to result in a low level of farmers' participation in direct sales. The requirements listed in manuals for prospective direct farm marketers are numerous. This study restricts the requirements to findings from German guidelines due to the country-specific conditions of direct marketing. Most guides use four categories of important requirements. Besides legal regulations, the focus on a set of personal, business and external demands consistently becomes apparent (Wirthgen and Maurer, 2000; Heer, 2007; Kuhnert and Wirthgen, 2008; STMELF Bayern, 2011). The particular requirements of each category are mentioned below with regard to their influence on farmers' decision to adopt direct marketing.

Legal regulations
Farmers starting direct farm marketing face a multitude of regulatory frameworks. The laws and provisions concerning direct marketing activities mainly serve the purposes of registration, licensing and determining standards. Trade regulations necessitate the registration of direct sales as industrial activities depending on their type and scope (STMELF Bayern, 2011). Industrial activities often impose proportionately higher costs on small-scale businesses than on large ones, for example with regard to taxation law (Kneafsey *et al*., 2013). Structural alterations call for planning and building permission due to the building law, for instance to provide a production shed or sales room (Wirthgen and Maurer, 2000). Farmers who sell directly at roadside stands or arrange billboards also need a license observing the rules of traffic regulations. The hygiene rules are multifaceted and highly complex. The EU has primarily designed hygiene regulations for agro-industrial processes (Kneafsey *et al*., 2013). Despite the flexible arrangement of hygiene rules for small production capacities, direct selling farmers often face difficulties in meeting the tightened restrictions and financing appropriate facilities. Some surveys conducted with farmers engaged in direct marketing have revealed health and food safety regulations to be the most challenging regulation for direct marketing (e.g. Recke *et al*., 2004). The latest modifications to the European labelling guidelines (Regulation (EU) No. 1169/2011 on the provision of food information to consumers) for food also affect direct marketing, since new nutrition facts and declarations of origin on packaged food have become obligatory (BMEL, 2015). The legal regulations basically pose challenges for farmers engaged in direct marketing because of the ongoing tightening of restrictions causing amendment uncertainty, increased labour input, additional costs and bureaucratic efforts.

Personal requirements
The personal requirements for direct marketing include farmers' characteristics and skills (Kuhnert and Wirthgen, 2008). Interpersonal skills, especially the pleasure of being in contact with consumers and the ability to communicate, affect business success by achieving customer

satisfaction and loyalty (Kirwan, 2006; Choo and Petrick, 2014). The support of family members and farm employees in direct marketing operations is similarly indispensable for efficient consumer relationship management and high customer satisfaction (Lülfs-Baden *et al*. 2008). Based on the family support, it is important, that the farm successors understand and support this part of the selling process of farm products. Direct marketing requires a set of skills different from that of agricultural operations (Uva, 2002). Organizing ability, creativity and negotiating skill as well as knowledge of the production methods and the marketing of food comprise the expertise of potential direct marketers (Kuhnert and Wirthgen, 2008; Nefzger and Well, 2016). To meet these requirements, the farmer`s self motivation is a very important factor when starting direct marketing. Corsi *et al*. (2009) found that more educated and skilled farmers are more likely to engage in new marketing channels. Park *et al*. (2014) confirmed that increasing management skills, like personal management, increase the probability that farmers will participate in direct-to-consumer marketing due to greater know-how regarding the control of input costs. Their findings also showed that beginning farmers are more likely to adopt direct sales.

Business requirements

The business requirements concern the circumstances of agricultural operations as well as the tasks on the management level. The farm location is seen as a crucial success factor considering the distance between the farm and the potential consumers. Detre *et al*. (2011) revealed that farmers who are involved in direct-to-consumer marketing are typically located in regions with access to a large metropolitan customer base.

The provision of a diversified product range plays an important role in attracting customers. Thus, farm specialization negatively affects the likelihood of farmers to adopt direct farm marketing (Corsi *et al*., 2014; Adanacioglu, 2016), whereas organic production (Aguglia *et al*., 2009; Detre *et al*., 2011) and a small farm size (Monson *et al*., 2008) favour the uptake. Working hours increase with the start of direct farm marketing. Free working capacities therefore have to be examined. In most cases the previous staff management needs reorganization due to the recruitment of personnel for excess work. In addition to the additional work capacity, the time flexibility of the farmers also plays an important role. The building up of a new business segment always requires capital investment. Farmers need to be willing to invest when starting to sell directly to consumers. Although starting little by little reduces the financial risks, scheduling a financing plan is a condition precedent to gain an insight into the future financial development and to prevent financial shortage (Kuhnert and Wirthgen, 2008). Business requirements mainly cause obstacles to farmers taking up direct marketing due to rising efforts from both the financial and the temporal point of view.

The conditions of the farms' environment represent the external requirements. The market and competitive environment are of particular importance for farmers' success in direct marketing. The implementation of direct sales therefore needs a previous analysis of the existent competitors, directly sold products, including standards, as well as potential market niches and marketing research (Wirthgen and Maurer, 2000). The accessibility of potential customers relates to the quality of the infrastructure. The analysis of the infrastructure considers the transport connection, the risk potential and the state of streets. The basic infrastructure of direct farm marketing also integrates reliable internet access for setting up contact with consumers and using innovative marketing methods. The use of the Internet for commerce increases the probability that farmers will engage in direct sales (Park *et al*., 2011). The distance between producers and consumers consequently becomes less important (Nefzger and Well, 2016). Analysing the market and competition environment requires additional effort and know-how from potential direct marketing farmers. Outsourcing these tasks to a consulting service involves additional costs. To conclude, the necessary willingness to accept additional work, expenditures and unfavourable marketing conditions may deter many farmers from direct marketing.

Objective

Relatively little research exists to date analysing producers' characteristics and attitudes regarding farmer-to-consumer direct marketing. Some studies mentioned above, however, have dealt with the factors that influence farmers' decision to start direct marketing. The focus of these studies is thus directed to a range of demographic, socioeconomic, psychological/attitudinal, market and farm-specific features promoting farmers' participation in selling their products through direct marketing channels.

There is a considerable lack of information in the scientific literature concerning the opposite point of view: which factors preclude farmers from participating in direct farm marketing? The objective of this study is to contribute to closing this gap by detecting the most challenging requirements of direct farm marketing.

In this context Challenging factors are even barriers, to start a new business. Ajzen (1991) explained, that perceived barriers and perceived abilities both influence the theory of planned behaviour. This approach may help to explain why this type of marketing has not previously been contemplated by every farmer. The results of this study are of special interest for consulting services, policy makers and farmers themselves, firstly to provide approaches to simplifying the adoption of direct marketing for farmers and secondly to encourage the distribution of local food.

Methodology

The data collection for the present study took place in February 2016 via an online survey (CAPI). A private market research company recruited 121 subjects. The sample exclusively comprised German livestock owners in leading positions based on the questionnaire set-up. The researchers selected the sample of the study to show an approximate image of German agriculture considering exclusively dairy and cattle farms on the one hand and pig and poultry farms on the other hand.

The questionnaire dealt with four different topics besides a section on demographic and farm-specific features. The researchers asked a set of questions concerning public relations, animal welfare, the social claims of agriculture and direct farm marketing. This study only considers the direct farm marketing part.

The first questions concerning the subject area of direct farm marketing aimed to analyse the attitude of livestock owners towards selling farm products directly to customers. The respondents stated whether they participated in direct sales already and if so which products they offered. The questionnaire meanwhile asked non-direct farm marketers whether the uptake of direct marketing was conceivable for them and which products they would sell. The following question addressed all the subjects again and asked for their favoured type of direct marketing channel. Possible answers were on-farm sales, market stands, delivery to retailers or gastronomy and online sales. Multiple answers were possible. The respondents additionally could make free statements. Finally, the key question focused on the aspects that would create challenges for direct marketing from the respondents' viewpoint. In total the questionnaire inquired into thirteen items (see figure 1) based on the requirements of successful farmer-to-consumer direct marketing mentioned earlier.

Afterwards they analysed and evaluated the collected data using the statistical software IBM SPSS, version 24. First they conducted a descriptive analysis to analyse the farmers in this

survey. The second step of the analysis involved exploratory factor analysis to reduce the complexity of the requested items (figure 1). The study used principal component analysis as the extraction method of the variables. Variables with factor loadings below 0.5 were removed from the rotated component matrix to obtain an optimal factor solution. The variable "Location" loaded oppositely on different factors. To receive clear factors with facilitated interpretability the variable were excluded from the final factor solution.
Afterwards the researchers conducted a cluster analysis with the objective of determining several types within the sample of livestock owners with varying attitudes towards the challenges of direct farm marketing. Therefore, the three formed factors served as variables for a comparison of the livestock owners. The cluster method adopted was Ward's method with the squared Euclidean distance as an interval measure. The decision on the ideal number of clusters was based on a dendrogram. For validation of the cluster solution and characterization of clusters has been carried out an analysis of variance (ANOVA) and a comparison of factor means. They also undertook a comparison of means for the item location. The F-values for the comparison of factor means are clearly higher than 1, indicating significant differences between the clusters ($p \leq 0.001$).

Results

The total sample includes 121 livestock farmers. Dairy and cattle farmers constitute 76% of the sample, while pig and poultry farmers represent 24%. This is nearly consistent with the actual dominance of forage-producing farms (81%) relative to finishing operations (19%) in Germany (Statista, 2016b). The majority of respondents (62.8%) keep dairy cattle. Another 29.8% of the respondents keep fattening bulls. Just below one-quarter of the sample keeps fattening pigs, and 13.2% of the examined farms have poultry. Furthermore have been performed socioeconomic and farm-specific features prompted in the survey with the statistical data of German farm managers and agriculture in 2013 to assess the approximations' quality (Federal Statistical Office, 2013). There are some noticeable distinctions of the sample's composition in reference to all German farmers. The sample includes livestock owners from twelve different states. The farms of newly formed German states are overrepresented whereas other states are underrepresented in the sample with regard to the actual geographical allocation of German farms. Likewise, the farm managers of the sample are more highly educated than the basic population of German farm managers, showing up in higher percentages of postgraduate training and agricultural degrees. The overrepresentation of farms operated as the main occupation is also conspicuous in the sample. There is a small amount of small farms in the sample considering the size of agricultural production land, although more than 90% of German farms are smaller than 100 ha. The sample, for the mentioned reasons, represents German farmers who are more professionally involved in livestock farming than German livestock owners on average.
From the 121 farmers 21 perform direct marketing. This is tantamount to 17% of the sample and slightly exceeds the share of direct marketers in Germany by 2.4% (Federal Statistical Office, 2015). Although current data concerning German farmer-to-consumer direct marketing activities are rare, a north–south divide is apparent, with traditionally more direct marketing farms in the southern states of Germany (Recke *et al*., 2004). The present study finds the same, with twice as many direct farm marketers stemming from southern states (27%) compared with northern ones (14%). Furthermore, one-third of direct farm marketers come from newly formed states, mainly Saxony (24%). Half of the organic farming operations of the sample participate in direct farm marketing. Recke *et al*. (2004) in comparison assumed that no more than 15 to 20% of German direct marketers practice organic farming. The share of the sample farmers' direct farm marketers

who farm on a small and medium scale (with production land up to 500 ha) amounts to almost 86%. The sales of the sample's direct marketers predominantly involve animal products, especially eggs, beef and pork. The product offering also contains vegetables, fruits and beverages.

A total of 19% of the subjects who previously did not sell directly to consumers could imagine taking up direct marketing. Prospective starters are particularly from southern states (43%), whereas the interest in farmer-to-consumer direct marketing is lower in other regions of Germany. Small and medium-sized farms with production land up to 500 ha represent 96% of the subjects interested in engaging in direct farm marketing. Milk would be the main product offered (38%), followed by beef (23%), pork (15%) and eggs (9%).

Almost half of the respondents prefer on-farm sales as a possible direct marketing channel. Other marketing types are of minor interest to the respondents, such as delivery to gastronomy (4%), market stalls, online shops (2.9%) and delivery to the food retailing market (2%). A total of 4% of the respondents refer to milk vendors as a possible type for direct sales, choosing the answer "other types". About 30% of the respondents cannot imagine adopting any of the mentioned selling types.

The key question in the direct farm marketing part of the questionnaire dealt with thirteen potential challenges (see figure 1) encountered in the course of farmer-to-consumer direct marketing implementation. Figure 1 illustrates the cumulated percentage of affirmative answers (4: "This is true" and 5: "This is absolutely true") for each potential challenge. The illustration also includes the mean values and standard deviations of the item answers.

Question:
Which of the following items do you perceive to be a particular challenge regarding direct farm marketing?

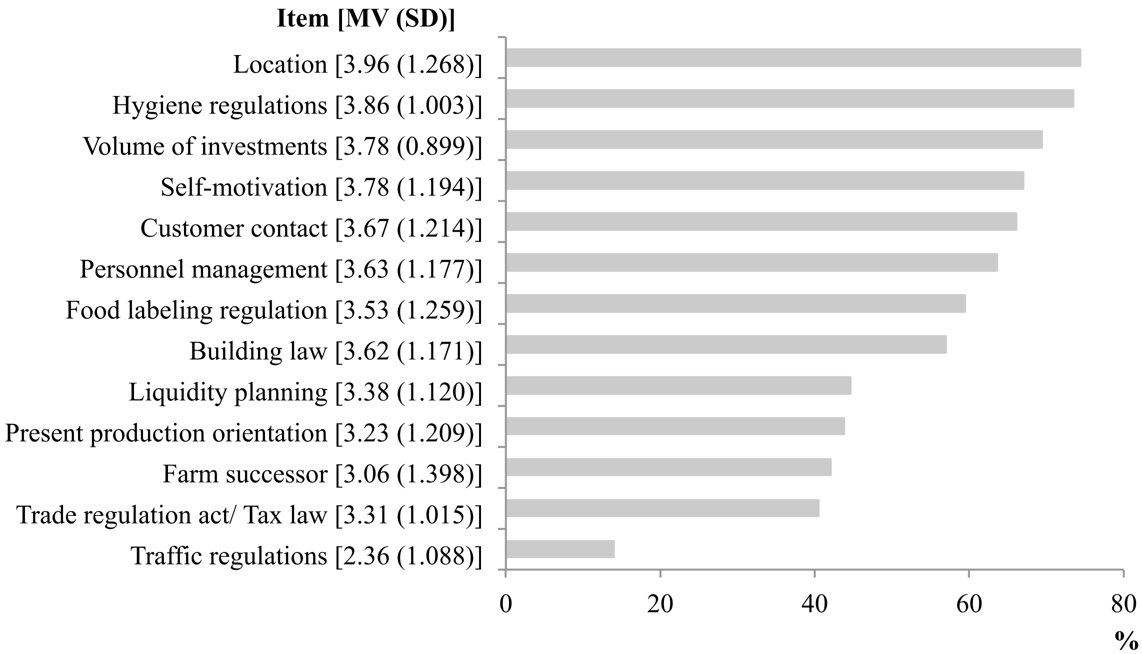

Figure 1. Share of Affirmative Answers for the Items (in %)
Source. Authors' calculation
The ratings are on a scale ranging from 1 = "This is not the case at all" to 5 = "This is absolutely true"; affirmative answers include reply options 4 and 5; MV = mean value; SD = standard deviation.

The majority of the respondents consider eight out of the thirteen items to be challenges with percentage shares over 50%. The respondents assume location to be the most challenging requirement of direct farm marketing (74%), closely followed by hygiene regulations (73%) and volume of investment (69%). The mean values are also the highest for these three items. Moreover, self-motivation, customer contact and personnel management represent challenges for more than 60% of the respondents. Only 14% of the subject group in contrast perceives traffic regulations as an obstacle to performing direct farm marketing.
The second step involves the results from the factor analysis. The Kaiser–Meyer–Olkin value is 0.824, so the results can be referred to as "meritorious" (Kaiser, 1974). Bartlett's test of sphericity is highly significant and shows a high correlation between variables (Backhaus *et al*., 2016). The reliability analysis subsequently validated the generated factors regarding their internal consistency. The factor solution comprises three factors with three values for Cronbach's alpha. Factor one are "acceptable" due to having a Cronbach's alpha value higher than 0.7 (George and Mallery, 2016). The second factor, with an alpha value of 0.625, is "questionable" accordingly and the third factor, with an alpha value of 0.537, is "poor". One reason for the low Cronbach's alpha values of the second and third factors may be the low number of items loading on both factors (Backhaus *et al*., 2016). Table 1 shows the items and corresponding factor loadings for the resulting factors).

Table 1. Results of the Factor Analysis.

Factors and items	Factor loadings
Personal challenges (Cronbach's alpha = 0.741)	
Personnel management	0.683
Customer contact	0.681
Self-motivation	0.653
Hygiene regulations	0.588
Farm successor	0.580
Food labelling regulation	0.559
Legal challenges (Cronbach's alpha = 0.625)	
Traffic regulations	0.795
Trade regulation act/tax law	0.564
Building law	0.545
Liquidity planning	0.507
Business challenges (Cronbach's alpha = 0.537)	
Volume of investment	0.728
Present production orientation	0.696
Liquidity planning	0.512
KMO (Kaiser–Meyer–Olkin) = 0.824; explained total variance = 50.815%	
Bartlett test of sphericity = 287.080; significance = 0.000	

Source. Authors' calculation

The first factor contains six items concerning social interaction, personal competences and circumstances as well as regulations with practical relevance for direct farm marketing. Thus, the authors named this factor "personal challenges". The second factor consists of four items regarding regulations and liquidity planning. As a result it is labelled as "legal challenges". The third factor includes three items relating to business management, so it is named "business challenges". Liquidity planning loads on this factor in addition to the second one.
Table 2 shows an abstract of the results of the cluster analysis.

Table 2. Selected Results of the Cluster Analysis.

	Cluster			
Factors	**Cluster 1** Customer-unfriendly (N = 65) Mean value (SD)	**Cluster 2** Bureaucracy disliking (N = 31) Mean value (SD)	**Cluster 3** Experienced (N = 25) Mean value (SD)	**F-values**
Factor 1: Personal challenges	0.51 (0.565)	- 0.16 (0.999)	- 1.13 (0.910)	41.82**
Factor 2: Legal challenges	- 0.25 (0.829)	0.89 (0.853)	- 0.44 (0.933)	22.69**
Factor 3: Business challenges	- 0.12 (0.774)	0.84 (0.879)	- 0.72 (0.974)	24.95**
Location	4.20 (1.003)	3.97 (1.378)	3.32 (1.547)	4.615*
Favour direct farm marketing	26.9%	10.7%	30.0%	

Source. Authors' calculation

SD = standard deviation
* = significant at the ≤ 0.05% level
** = highly significant at the ≤ 0.001% level
The ratings from the statement location are on a scale ranging from 1 = "This is not the case at all" to 5 = "This is absolutely true"; affirmative answers include reply options 4 and 5; MV = mean value; SD = standard deviation.

Cluster one is the biggest cluster and includes 65 livestock owners. The farm sizes in cluster 1 are between 50 and 100 ha (53%). Most farmers in this cluster fall into the age group between 35 and 54 years (60%), and 27% favour direct farm marketing. It is characterized by a positive mean value for the personal challenges factor, whereas the mean values for the legal challenges factor and business challenges factor are negative. Moreover, cluster one rates the location as the greatest challenge compared with the other clusters. The term "customer-unfriendly" could describe this cluster. Cluster two is the second-largest cluster, containing a total of 31 subjects. The age of most farmers lies between 35 and 54 (42%). Most farm sizes are between 101 and 500 ha (39%), and only 11% favour direct farm marketing. The legal challenges factor as well as the business challenges factor show high positive mean values. This cluster could therefore be characterized as "bureaucracy disliking". In the third cluster the most farm sizes are between 101 and 500 ha (52%), and 30% favour direct farm marketing. The third cluster contains 25 subjects and has a remarkably high negative mean value for the personal challenges factor. The mean values of the legal and business challenges factors are also negative. This implies that the members of this cluster rate the prompted items less as challenges, especially the ones included in the personal challenges factor, in contrast to the respondents of the first and second clusters. This extends to location due to a lower mean value than the two other clusters. Thus, the researchers named cluster 3 "experienced".
Cross tables were generated finally to identify socioeconomic and farm-specific differences between the resulting clusters. None of the executed cross tables shows significant differences concerning the socioeconomic or farm-specific features of the interviewed livestock owners (see Appendix 1.) The distinction of the clusters is consequently based solely on attitudinal factors.

Discussion

The results of the present study initially show that about one farmer in three has positive attitudes towards direct farm marketing when adding previous direct marketers and prospective direct marketers together. The extent to which the conditions at the time when the survey was conducted play a role in this tendency is uncertain, since the results of the questionnaire only provide an evaluation of the current situation. However, the farmers' dissatisfaction with low farm commodity prices in February 2016, especially for milk (Statista, 2016a), finds a visible expression in the appearance of milk as the item most frequently mentioned by potential direct farm marketers as a product appropriate for direct sales as well as the mentioning of milk vending machines as a possible marketing channel. This confirms the observations made in the past that farmers' interest in direct marketing increases when the farm prices for agricultural products are low (Cottingham et al., 1994; Vecchio, 2009). Nevertheless, direct farm marketing does not come into question for almost two-thirds of the surveyed livestock owners.
The mean values and percentages of affirmative answers to the question regarding the particular challenges of direct farm marketing show the outstanding importance of the farms' location as the major challenge for the respondents. It is worth mentioning that farms in the newly formed German states are overrepresented in this study. Location is an important factor in starting farmer-to-consumer direct marketing especially for farmers in the eastern part of Germany

because of the very rural area and often-long distances to the next town. Burt and Wolfley (2009) indicated that besides other factors the location influences the choice of the direct selling type. On-farm stores are hence the preferred direct marketing channel of most respondents, explaining the great concern about location found in this study. Access and proximity to a sufficient customer base as well as good traffic connections are crucial for selling on-farm (Kuhnert and Wirthgen, 2008; Detre *et al*., 2011). An unfavourable farm location is a reason for not even considering direct sales, since farmers have little impact on these factors. However, there are other ways for famers to directly sell their products, for example online shops, farmers markets, supply for gastronomy or food retailing. The second important point of farmers, to start direct marketing are hygiene regulations. Previous studies have confirmed that hygiene regulations are one of the most deterring factors for starting direct farm marketing. Both Kuhnert and Wirthgen's (1997) and Recke *et al*.'s (2004) surveys ascertained that hygiene regulations pose the biggest challenge amongst all the legal regulations of direct farm marketing.

According to the surveyed livestock owners, the study highlights the relevance of the personal challenges, especially hygiene regulations, self-motivation and customer contact. On a first view one would expect, that hygiene and food labelling requirements belong to the legal regulations factor. This might be the case because of the practical consequence of hygiene and food labelling regulations in contrast to the other regulations of direct farm marketing. Direct farm marketers have to take responsibility for ensuring the safety of their products and therefore need a high degree of diligence to meet uniform standards every day. Hygiene is perceived as a matter of attitude. The degree of hygiene is largely determined by individual motivation, so that hygiene is is grouped with personal items. Kneafsey (2012) pointed out the high costs of meeting hygiene regulations as another reason for the considerable relevance of the hygiene regulation for direct marketers.

It is possible to consider business challenges as difficult for direct farm marketing to the extent that the mean values of the volume of investment rated them as the third-biggest challenge. This suggests that there is a relation to the unfavourable economic situation of many farmers at the time when the livestock owners participated in the interviews for this study. Especially the low level of willingness of pig and dairy farmers to invest in March 2016 (German Farmers' Association, 2016) confirms the finding of the volume of investment as a particular challenge for direct farm marketing, since the sample of this study mainly consists of dairy and pig farmers.

At least the building law, trade regulation/tax law and traffic regulations as well as the liquidity planning of the legal challenges factor are not so important like hygiene and food labelling regulations of the personal challenges. As distinct from hygiene and food regulations, the regulations of the legal challenges factor involve third parties. These are often in the form of authorities or consulting services when obtaining approval or making plans. Traffic regulations do not pose a challenge in the results of this study, which Recke *et al*. (2004) similarly found. They mentioned traffic regulations as the second to last problem posing a challenge to farmers' direct selling.

The cluster analysis showed the possibility of differentiating farmers' perceptions regarding the challenges of direct marketing. More than half of the respondents perceive personal challenges to be the biggest deterrent from engaging in farmer-to-consumer direct marketing. This group, showing a reserved attitude, especially agrees with the items hygiene regulations (μ = 4.08), self-motivation (μ = 4.08), customer contact (μ = 4.08) and personnel management (μ = 4.03) as challenges. The first cluster comprises a proportionally high percentage of direct farm marketers and farmers interested in direct farm marketing (27% in total). Emphasizing these items reveals the insufficient skills of many farmers concerning communication and methodological

competencies for selling farm products directly. This might be related to the fact, that customer communication is not a major factor in agricultural education.
One out of four respondents belongs to the bureaucracy-disliking cluster. This group rated business tasks and regulations as the principal challenges of selling farm products directly. They have the highest level of agreement with the barriers volume of investment (μ = 4.45), building law (μ = 4.45) and liquidity planning (μ = 4.29) as particular challenges regarding direct marketing. The proportion of respondents currently participating or interested in the adoption of direct sales is small (11%). This suggests that the participants of this group have rarely come into contact with direct farm marketing in the past, so they show a lack of knowledge concerning the tasks and regulations of this marketing type.
The smallest cluster of experienced respondents has the largest proportion of current direct marketers and those imagining an uptake within all the clusters (30%). The members of this group see no big challenges in the items enquired after in this study, as they only score volume of investment (μ = 3.40) and location (3.32) on average with mean values above 3 (= "true in some cases"). They may therefore have already gained experiences of farmer-to-consumer direct marketing and tend to be familiar with the relevant requirements, so this group is the ideal target group for providing advice to start with direct marketing.

Conclusion

The results of this study give deeper insight into the particular challenges of direct farm marketing from farmers' viewpoint. It should be taken into account, that the results are only valid for German agriculture. This study exclusively considers selected requirements for successful direct farm marketing. To obtain more information about this part of marketing, future research regarding the challenges and barriers of this marketing type should include a higher number of farmers and a wider range of further requirements, for example the amount of work and the external requirements (e.g. market and competitive environment, infrastructure). The results are interesting for agricultural economic advisors and on the other hand for farmers who decide to commence farmer-to-consumer direct marketing.
Successful farmer-to-consumer direct marketing requires compliance with numerous market and legal conditions and therefore is characterized by increasing professionalism. The results of the present study show that the majority of livestock farmers do not entertain the idea of participating in direct farm marketing as an alternative way of generating income. From farmers' viewpoint the most challenging requirement of direct farm marketing is the location of the farm. Personal challenges, especially hygiene regulations, self-motivation and customer contact, as well as the volume of investment, present the interviewed livestock owners with further serious problems. To overcome the personal requirements that cause difficulties for most farmers, extension services need to offer training in communication and customer orientation so that farmers are prepared for dealing with customers. Corresponding seminars or farm-based consulting could also improve the deficiencies in farmers' knowledge regarding the legal regulations and business tasks of selling farm products directly.
Although the sample size of this study is small, recommendations can be derived on the basis of the findings to break down the barriers of direct farm marketing for farmers who are already participating and those who are interested in taking up direct sales. Despite an unfavourable farm location, farmers can realize direct sales through innovative distribution channels. The distance between producers and consumers of food is reducing due to the Internet and social media, so direct farm marketing channels are no longer confined to on-farm sales. New distribution channels for direct marketers include for example food assemblies, community-supported

agriculture, pop-up stores and food vending machines (Nefzger and Well, 2016). The survey results revealed that the conditions for farmers engaged in farmer-to-consumer direct marketing need to be further improved.

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Appendix 1. Results of the cross tables

	Cluster (N)			Value of Pearson's chi-square test	Asymptotic significance
	Cluster 1	Cluster 2	Cluster 3		
Socioeconomic feature					
Gender				2.573[1]	0.276
Male	61	26	23		
Female	4	5	2		
Age				4.673[1]	0.586
< 35 years	5	2	3		
35 - 54 years	39	13	14		
55 - 64 years	16	12	7		
> 64 years	5	4	1		
Region				4.788	0.571
North	10	6	4		
South	22	11	9		
East	17	10	10		
West	16	4	2		
Qualification				11.025[1]	0.200
Agricultural apprenticeship	6	5	0		
Postgraduate training	39	15	19		
Agricultural degree	17	11	6		
Farm specific features					
Main operation orientation				2.221	0.329
Forage producing operation	46	25	21		
Finishing operation	19	6	4		
Occupation type				0.203[1]	0.903
Main occupation	61	29	24		
Secondary occupation	3	2	1		
Operating type				2.353[1]	0.671
Conventional Farming	58	29	22		
Organic farming	7	2	3		
Size of production land				14.420[1]	0.071
< 50 ha	4	1	4		
50 - 100 ha	34	11	8		
101 - 500 ha	18	12	13		
501 - 1,000 ha	6	4	0		
> 1,000 ha	3	3	0		
Direct farm marketing					
Do you participate in direct farm marketing yet?				1.713	0.425
Yes	13	3	5		
No	52	28	20		
Could you imagine taking up direct farm marketing?				3.392	0.183
Yes	14	3	6		
No	38	25	14		

[1] Results of chi-square tests are not valid because more than 20 % of cells show an expected frequency lower than 5

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Wurzeln der **Fakultät für Agrarwissenschaften** reichen in das 19. Jahrhundert zurück. Mit Ausgang des Wintersemesters 1951/52 wurde sie als siebente Fakultät an der Georgia-Augusta-Universität durch Ausgliederung bereits existierender landwirtschaftlicher Disziplinen aus der Mathematisch-Naturwissenschaftlichen Fakultät etabliert.

1969/70 wurde durch Zusammenschluss mehrerer bis dahin selbständiger Institute das **Institut für Agrarökonomie** gegründet. Im Jahr 2006 wurden das Institut für Agrarökonomie und das Institut für Rurale Entwicklung zum heutigen **Department für Agrarökonomie und Rurale Entwicklung** zusammengeführt.

Das Department für Agrarökonomie und Rurale Entwicklung besteht aus insgesamt neun Lehrstühlen zu den folgenden Themenschwerpunkten:

- Agrarpolitik
- Betriebswirtschaftslehre des Agribusiness
- Internationale Agrarökonomie
- Landwirtschaftliche Betriebslehre
- Landwirtschaftliche Marktlehre
- Marketing für Lebensmittel und Agrarprodukte
- Soziologie Ländlicher Räume
- Umwelt- und Ressourcenökonomik
- Welternährung und rurale Entwicklung

In der Lehre ist das Department für Agrarökonomie und Rurale Entwicklung führend für die Studienrichtung Wirtschafts- und Sozialwissenschaften des Landbaus sowie maßgeblich eingebunden in die Studienrichtungen Agribusiness und Ressourcenmanagement. Das Forschungsspektrum des Departments ist breit gefächert. Schwerpunkte liegen sowohl in der Grundlagenforschung als auch in angewandten Forschungsbereichen. Das Department bildet heute eine schlagkräftige Einheit mit international beachteten Forschungsleistungen.

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