

Public trust in crop and livestock farmers in Switzerland

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ABSTRACT

A lack of public trust in farmers can impede having a food production system that is functional and socially acceptable. It can also lead to stricter and unfounded regulations on farming practices limiting the farmers and even impacting the viability and sustainability of farms. Therefore, we examine public image of farmers and the agriculture sector through a survey with 481 participants from the German-speaking part of Switzerland. More specifically, consumers' trust in crop and livestock production farmers are determined, along with perceived knowledge and affect towards farmers. Other individual and behavioral factors are identified to build trust in farmers. The results reveal that the public has a simplistic and traditional view of agriculture and farmers as they do not spontaneously associate them with new farming practices or technologies. However, crop farmers are more trusted than livestock production farmers as concerns related to transparency of farmers, care for the environment and animal welfare emerged. Trust in crop and livestock farmers is influenced by affect towards farmers, perceived knowledge, and political orientations, whereas behavioral factors (i.e., meat consumption) only influence trust in livestock production farmers. Building trust in farmers could need to be on the system-level and not solely on the farmer-level. Overall, our results provide suggestions on how to build and maintain public trust in both crop and livestock farmers through not only farmers' initiatives but also agricultural policies.

1. Introduction

Consumers' knowledge about agriculture and farming does not match that of the other actors of the food supply chain such as farmers. Their knowledge is rather limited and they cannot evaluate accurately the quality and safety of the food nor monitor the food production processes (Frewer et al., 2005; Gross and Roosen, 2021; Pfeiffer et al., 2021; Regan and Kenny, 2022). Therefore, they rely on the key actors involved in this sector to do their duties. Among the various food chain actors involved (e.g., food retailers, manufacturers, inspectors, etc.), farmers seem to be the most trusted and most important stakeholder for the public (Bayer and Köhl, 2024).

However, literature depicts a lack of trust in farmers in instances where concerns for the environment and animal welfare emerge or due to situational factors such as the negative media coverage of farming practices (Gross and Roosen, 2021; Pfeiffer et al., 2021), which can impede having a food production system that is functional and socially acceptable. In fact, a negative public perception of farming can be consequential on people's consumption decisions as well as on public

debates which can turn into political initiatives introducing stricter regulations to farmers impacting the latter in terms of their farms viability (i.e., market access, profitability, etc.) (Dumbrell et al., 2024). Trust in farmers is also key for public acceptance of new agri-related innovations and technologies (Siegrist and Hartmann, 2020). A review by Gupta et al. (2011) on the most frequent socio-psychological determinants of public acceptance of technologies, including agri-related innovations, revealed that public trust is most relevant for the acceptance of certain food-related technologies (e.g., gene modification). Furthermore, ensuring public trust in farmers can have implications for social sustainability of farms. A recent study on farmers' perceptions of social aspects needed to achieve social sustainability at their farms revealed that having public appreciation and positive interaction with consumers is one of the most important social aspects to farmers (Saleh and Ehlers, 2023). This finding indicates the need to ensure good farmer-consumer relations and positive public image of farmers. It also probes on the need for an increase of trust in farmers specifically in the Swiss context.

Despite this importance of public trust, there exist few studies which

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examined public trust in farmers and its determinants (Bayer and Kühl, 2024; Gross and Roosen, 2021; Regan and Kenny, 2022; Wallace et al., 2005). However, there have not yet been studies which explicitly compare public image of farmers and their trust in farmers between crop and livestock production. Arguably, these two main production types entail handling distinct or additional challenges such as animal welfare, or confronting issues such as environmental impacts of their farming activities in different ways. The public could perceive one production type more negatively than the other depending on their perceptions and concerns, for example whether their concerns are higher for animal welfare than for pesticide use (Alonso et al., 2020; Ammann et al., 2023; Dumbrell et al., 2024). This could have implications on their overall perceptions of farming and more specifically on their trust levels in farmers.

In addition, it is unclear which and how cognitive and emotional processes and other individual factors and behaviors could be relevant to build trust in farmers. Therefore, in the present study, we aim to determine public image of agriculture in general and farmers specifically. We also compare public trust in crop versus livestock production farmers and explore factors that influence their trust levels.

2. Theoretical background

2.1. Trust: definitions and dimensions

Generally, trust is recognized as important, however, there is no universally accepted definition for it (Poortinga and Pidgeon, 2003; Robbins, 2016). Conceptually, it can be individual (i.e., the extent one is willing to be vulnerable and depend on others (Frost et al., 1978)) or organizational trust (i.e., a collective trust in another group that the group will not behave opportunistically and will be honest in actions and commitment, (Cummings and Bromily, 1996; Earle, 2010)). Based on Siegrist (2019), different types of trust exist from general trust (i.e., overall trust one has in others regardless of context and specific relationships), to social trust (i.e., trust within a specific social context or group, involving institutions, systems and individuals) and confidence (i.e., ones' beliefs about the ability of others or institutions). As we examine trust in farmers as a specific social group and not trust in organizations or systems, we rely on the definition of social trust as *"the willingness to rely on those who have the responsibility for making decisions and taking actions related to the management of technology, the environment, medicine, or other realms of public health and safety"* (Siegrist et al., 2000, p. 354).

Measuring social trust is complex as there are different facets of trust which the public consider from care, reliability, benevolence, competence to honesty and transparency (Hobbs, 2015; Poortinga and Pidgeon, 2006). All these facets are indeed paramount and could be relied on to measure social trust; however, their importance is weighted differently relative to the field or role of the person being trusted (Poortinga and Pidgeon, 2006). For example, in the food sector, for trusting manufacturers, their perceived competence is key aspect for building social trust in them while for trusting farmers, transparency is highlighted the most (de Jonge et al., 2008; Macready et al., 2020; Yee et al., 2005). Transparency involves sharing information and operating in such a way that others can easily see what activities are executed (Ezezika and Oh, 2012; Regan and Kenny, 2022). A lack of transparency can lead to increased suspicion and doubt especially when the issue in question (e.g., animal welfare in terms of animal husbandry, cow-calf separation, etc.) is already controversial (Ezezika and Oh, 2012).

In addition, trust is related to what is the individual or group being trusted to do (Robbins, 2016). Following this aspect, the question arises what are the people entrusting farmers to do? Over the past decades, there have been many food scares (e.g., bovine spongiform encephalopathy (BSE), farm animals fed with antibiotics and hormones, etc.) which increased public concern with food safety, quality and animal welfare (El Benni et al., 2019; Henson and Northen, 2000), and arguably

widened the social gap between farmers and the public. Concerns regarding environmental threats further made the public skeptical about farmers and their practices. In fact, 67% of European citizens in 2022 indicated that farmers need to change the way they farm (e.g., the use of pesticides) to address climate change threats, even at the cost of reducing production and competitiveness (European Commission, 2022). Thus, there are three critical recurrent concerns for people with food production. These issues are related to care for animal welfare at farms (Alonso et al., 2020; Ammann et al., 2024; Ammann et al., 2023; Frewer et al., 2005; Gross and Roosen, 2021), minimizing the impact of farming on the environment (e.g., concerns related to CO₂ emissions, pesticide use) (Koch et al., 2017; Saleh et al., 2024) and the need to have healthy food of good quality (Alsubhi et al., 2023; Petrescu et al., 2020).

These concerns could be consequential on public perceptions of the agriculture systems and farming practices, as well as trust in farmers. To measure trust in farmers, it is thus important to consider how people perceive farmers in relation to caring for the mentioned issues in specific and how transparent they perceive them to be with their farming practices. It is also relevant to assess if there is a difference between public trust in farmers given the type of production relevant to their concerns. It is thus worthwhile to examine the public image of agriculture and their perceptions of and trust in farmers in both crop and livestock production.

2.2. Determinants of trust

2.2.1. The role of psychological factors

Decision-making theory postulates that under specific circumstances (i.e., dealing with complex issues, lack of time, motivation, or attention), people do not rely on cognitive or analytical evaluations to make their decisions or base their attitudes on (Slovic et al., 2002, 2004). Instead, they rely on heuristics, which are mental shortcuts applied to judge and evaluate the issue in question (Tversky and Kahneman, 1975). Trust and affect (i.e., emotions) are both established as heuristics shaping public attitudes and perceptions (Siegrist and Hartmann, 2020). For instance, when people are less familiar with an issue, they employ their trust or mistrust in systems, organization or people to make their decisions. In the food sector, public knowledge is rather limited (Frewer et al., 2005; Gross and Roosen, 2021; Regan and Kenny, 2022), making their level of trust in farmers, as a heuristic, relevant for their decision-making.

However, the relationship between knowledge and trust levels in farmers is unclear. On the one hand, people who have some experience or knowledge in the farming sector have a high trust in farmers and are even more accepting of certain farming practices (Boogaard et al., 2010). The literature further shows that personal contact with farmers as well as work experience in agriculture, which increases ones knowledge about food production practices, can have a positive effect on an individual's image of agriculture (Helmle, 2010; Sharp and Tucker, 2009). On the other hand, studies found that fact-based knowledge does not necessarily impact public preferences and support for agricultural policies (Mittenzwei et al., 2016), nor that more knowledge exchange generates more trust (Rittenhofer and Povlsen, 2015; Zagata and Lostak, 2012). In addition, knowledge about food production could not be needed if trust is already high (Thorsoe, 2014). Therefore, it is unclear what role the cognitive processes (i.e., knowledge) play in building and maintaining trust in farmers.

Arguably it could be easier, faster and thus more efficient for people to rely on their affective reactions (i.e., emotions) than knowledge and analytical evaluations (Finucane et al., 2000; Gigerenzer and Gaissmaier, 2011) of the pros and cons of farming practices to base their perceptions and thus their trust in farmers. In fact, affect has been established as an important heuristic explaining public perceptions and reactions to food production and food technologies (Bearth et al., 2024; Finucane et al., 2000; Fischer and Frewer, 2009; Siegrist and Hartmann, 2020). The affect heuristic postulates that a positive feeling tends to be associated with a positive perception or attitude and vice versa

(Finucane et al., 2000). In other terms, public trust in farmers could relate to the images and feelings (either positive or negative) people associate with farmers and the farming practices. Therefore, it is worthwhile examining whether and how affect influences trust in farmers. Overall, determining if trust in farmers is affect-based or cognitive-based could be promising to better understand how to address any negative or lack of trust in farmers.

2.2.2. The role of individual and behavioral factors

Other individual and behavioral factors exist which could impact trust in farmers. Public concerns for the environmental and animal welfare might have negative implication on public trust in farmers. In fact, these concerns can reduce people consumption of animal source food products (Malek and Uemberger, 2021; Malek et al., 2018). This behavior can subsequently influence trust in farmers, since trust is linked to the purchasing behavior of especially meat products (Bayer and Kühn, 2024).

Another behavioral factor that could relate to public trust in farmers is the contact with farmers through on-farm purchasing; that is, if people purchase their food products (whether crops or animal sourced products) at farms and how they interact with farmers (Dumbrell et al., 2024; Regan and Kenny, 2022). Individuals that interact with farmers and gather information about the agricultural industry directly from them are less concerned about issues related to animal welfare, food safety and chemical use (Regan and Kenny, 2022). Subsequently, this exchange with farmers on agricultural topics seem to impact their perceptions of farmers and trust in them positively. Therefore, the purchasing behavior as well as the individual's experience in the agriculture sector could be relevant to the trust in farmers in both crop and animal production.

Furthermore, a lower trust in farmers could be expected if consumers are detached from farmers through living in cities. (Church et al., 2020; Kupsala et al., 2015; Witt et al., 2007). It is possible that the urban residents do not have a realistic image of farming and its challenges which impacts negatively their perceptions of farmers and hence their trust in the latter. In addition, consumers who have a left-wing political orientation tend to be skeptical of certain farming activities (such as pesticide use), as they were found to support initiative banning synthetic pesticide use in agriculture (Huber and Finger, 2019). Such orientation and preference could impede public trust in farmers, especially since liberals and democrats tend to favor stricter food safety regulation in food production than conservatives (Lusk, 2012). It is thus worthwhile examining which and how such individual and behavioral factors relate and influence trust levels in farmers and compare them between farmers of different production types (crop vs. animal production).

2.3. Aims

Fig. 1, gives an overview of the conceptual framework the present study is based on. The overall aim of the study is to draw a picture on the public image and trust in farmers. More specifically, the first objective is to determine public trust in farmers engaged in crop versus animal

production in terms of responsibility as farmers (i.e., what they are supposed to do as farmers in terms of specific concerns (i.e., food quality, animal welfare, environmental care) that the public has and transparency. The second objective is to find out which and to what extent perceived knowledge and affect impact trust levels, along with other individual (i.e., experience in agriculture, living residence) and behavioral factors (i.e., purchasing behavior, consumption behavior). Overall, the present study helps in identifying ways to build and maintain trust in farmers, whether in crop or animal production, to ensure public support for farmers and acceptance of farming practices and ultimately contribute to the social sustainability of farms.

3. Methods

3.1. Survey sample

An online survey was conducted in Switzerland in March 2024 via a consumer panel provided by a professional panel provider. Quota sampling was applied to gender (50% men) and age (33% each for the groups 18–35, 36–54, and 55–75 years) parameters to ensure a balanced distribution. To limit the participation bias, respondents were not informed about the topic of the survey in the invitation to participate, and there were 525 respondents to the survey. To ensure data quality, 44 respondents were excluded due to their participation duration being too short (less than half the median); assuming that including their responses may have biased the results. The final sample comprised 481 respondents (51.1% women; mean [M] age = 47 years, standard deviation [SD] = 16 years, range = 21–76 years). The respondents' self-reported education level ranged from mandatory school, basic apprenticeship, prevocational school, or apprenticeship (50.9%) to high school or technical and vocational training (28.1%) to university (21.0%). In addition, 48.2% indicated that they resided in villages and rural areas, 28.3% in sub-urban areas, and 23.5% in urban areas. The share of participants living in urban areas is lower than that of the Swiss population (84.8%) (Swiss Federal Statistical Office, 2021). Finally, 17.5% indicated they have practical experience in agriculture themselves, 79.8% have a family member or know someone (i.e., a friend, a neighbor) who works in agriculture, and 24.9% do not know anyone in the agriculture sector nor have themselves any experience in the sector.

3.2. Survey design

The online survey had eight distinct parts. The results associated with the second part onwards were not related to this study and are presented in another publications (Ammann et al., 2025; Ammann et al., 2025). In the beginning of the survey, respondents were informed that the study was approved by the (blinded for review) ethical committee (application EK-AGS-2024-N01) and they gave their written informed consent for participation. Their sociodemographic information was assessed, along with their consumption and purchasing behaviors. The respondents were then asked about their perceptions and feelings

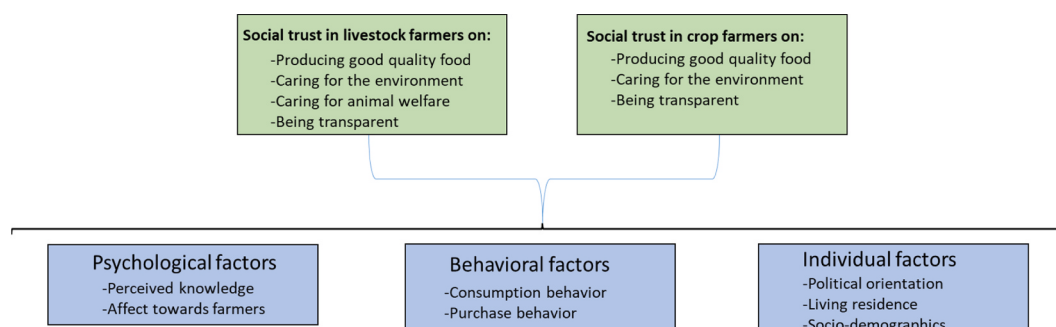


Fig. 1. Conceptual framework.

regarding agriculture in general and Swiss farmers in specific. Their trust in farmers in crop and animal production, their perceived knowledge levels, their connections to farmers and their support for financial payments to farmers were subsequently measured.

3.3. Survey materials

After selecting their age, gender and education level, the respondents indicated their political orientation on a scale ranging from 0 (left wing) to 100 (right wing). Then, they indicated their living residence on a 5-point Likert scale ranging from 1 = very rural to 5 = very urban.

The respondents were then presented with questions regarding their consumption behavior of meat and dairy products. More specifically, we asked how often they consume meat and meat products. For this question, a 7-point Likert scale was used ranging from 1 = several times a day to 7 = never. Subsequently, we asked them about their purchasing behavior. They answered how often they buy their food products from farms or farm markets, from supermarkets, or online platforms. For this question, a 6-point Likert scale was used ranging from 1 = never to 6 = several times a week.

The respondents subsequently indicated their associations with agriculture by writing down the first words that come to their mind when they think of “agriculture” in general. To understand whether their associations were positive or negative, they reported their feelings regarding their associations on a scale ranging from 0 = very negative to 100 = very positive. Similarly, they then indicated their associations and feelings regarding “Swiss farmers” in specific.

Subsequently, to capture their perceptions of farmers engaged in crop versus animal production, we asked them about their trust levels using three items. More specifically, we asked how much trust they have in crop farmers (i.e., fruit and vegetable growers) and then in livestock farmers (i.e., milk and meat producers) to produce good food for the Swiss population, to care for the environment, and to being transparent with their farming practices. For the animal production farmers, we added one more item related to trust in the farmers to care for animal welfare. Respondents indicated their trust levels on a slider scale ranging from 0 = no trust at all to 100 = completely trustworthy. Respondents also rated their knowledge levels of crop and animal production on a slider scale ranging from 0 = I know very little about it to 100 = I know a lot about it.

Additionally, the survey was used to collect information on the respondents' perceptions of the states' financial support for agriculture. They indicated their thoughts on how it should change in the future using a slider scale from 0 = support should be less, 50 = it should remain the same to 100 = support should increase. At the end of the first part, they selected if they have practical experience working in the agricultural sector themselves or not, or have a family member or knows someone who works in agriculture or not.

3.4. Data analysis

We analyzed the associations with the term “agriculture” and “Swiss farmers”. Meaningful associations were defined as responses that contained a clear semantic content (i.e., not random strings, emojis-only, or single letters), and were sufficiently specific to be interpreted without additional context, and were relevant to the topic in questions (i.e., they expressed a concept, attribute, evaluation, practice, actor, or outcome plausibly related to agriculture or farmers). Responses that were off-topic, unintelligible, or too ambiguous to interpret confidently were not considered meaningful. A total of 443 and 429 meaningful associations were found for the two terms respectively. These associations were assigned to the 17 and 13 categories listed in [Tables 1 and 2](#). The associations with the terms “agriculture” and “Swiss farmers” were coded independently by the two authors, and the inter-rater reliability (Cohen's kappa) for each was $\kappa = .95$. When disagreements occurred, we revisited the original response received in German and checked

Table 1

Frequencies and examples of main categories of respondent associations with “agriculture”.

Main category (examples of associations)	Frequency of association (Percent)	Affect [M (SD)]
Farming (e.g., farms, food production, farmers, tractor, farming, green meadows, etc.)	96 (20.0%)	72.18 (21.31)
Dairy farming (e.g., cows, dairy, etc.)	71 (14.8%)	78.37 (20.51)
Food products and quality (e.g., quality, good products, Swiss farmers produce higher quality than foreign farmers, milk, vegetables, milk and cheese, etc.)	47 (9.8%)	82.94 (17.48)
Politics and Subsidies (e.g., subsidies, Swiss peoples' party (Schweizerische Volkspartei, SVP), direct payments, subsidized, far too many subsidies, money subsidy, big lobby, etc.)	42 (8.7%)	37.88 (24.06)
Difficulties for farmers (e.g., lots of work, too little support from government, poor people, strikes, hardly exist anymore, hard job, agriculture doesn't have it easy, farmers are always complaining of lack of subsidies, etc.)	31 (6.4%)	39.84 (27.20)
Tradition and culture (e.g., tradition, farmer tradition, homeland, landscape, pasture and hay smell, protecting the countryside, farming family, no large facilities, my father, meadow, pasture, etc.)	24 (5.0%)	82.00 (22.93)
Organic (e.g., organic, IP-Suisse, Green, Bio, organic Suisse, etc.)	22 (4.6%)	77.68 (19.53)
Sustainability (e.g., local, domestic, regional, biodiversity, sustainable and environment friendly, healthy world, etc.)	17 (3.5%)	68.65 (31.47)
Animal welfare (e.g., exploitation of animals, animal husbandry, animal suffering, animal-friendly husbandry, too little done for animal husbandry, etc.)	13 (2.7%)	55.85 (31.11)
Economic impact of farming (e.g., expensive, high costs, farmers rich economy, etc.)	12 (2.5%)	32.42 (23.77)
Importance (e.g., necessary, important, vital for life, we need you, food target, etc.)	12 (2.5%)	78.58 (19.61)
Food security (e.g., country supply, self-sufficiency, food supply, food security, etc.)	10 (2.1%)	83.60 (17.93)
Nature (e.g., nature)	10 (2.1%)	83.90 (16.88)
Animals (e.g., animals, etc.)	9 (1.9%)	77.44 (17.26)
Landscapes (e.g., fields, land use, landscape, etc.)	8 (1.7%)	84.63 (7.96)
Animals (e.g., animals, etc.)	9 (1.9%)	77.61 (20.27)
Health (e.g., health, healthy)	7 (1.5%)	89.29 (14.71)
Positive (e.g., good, versatile, etc.)	5 (1.0%)	82.80 (7.09)
Pesticides and manure (e.g., too much pesticides, manure, the stench of manure, liquid manure)	4 (0.8%)	22.50 (19.33)
Mountain farms (e.g., mountain farming, etc.)	3 (0.6%)	44.67 (21.55)
Harmony (e.g., harmony, peaceful area, etc.)	3 (0.6%)	63.00 (22.52)
Negative (e.g., fraud, when it comes to milk and meat production, consumers are fooled into believing the best)	2 (0.4%)	12.50 (10.61)
Total	448	68.38 (27.63)

Note. 33 (6.9%) associations with unclear meanings were coded as non-applicable and are excluded from the table. Affect towards farmers: green = positive, red = negative, black = neutral.

Table 2

Frequencies and examples of main categories of respondent associations with “Swiss farmers”.

Main category (examples of associations)	Frequency of association (Percent)	Affect [M (SD)]
Hardwork (e.g., hardworking, long presence times, a lot of work, strenuous work, little time, strict work, working hours, hard life, always at work, a tough job, hard physical work, long working hours, you work hard and don't earn very well, etc.)	132 (27.4%)	51.56 (23.90)
Positive recognition and admiration (e.g., Trustworthy, engine of society, down-to-earth, responsible, respect, reliable, competent, food producer, friendly, important, grateful, very important work, committed, underestimated, honest workers, we can be proud they exist, etc.)	79 (16.4%)	81.61 (17.12)
Difficulties for farmers (e.g., expensive production, dying out, low wages, lack of appreciations, too little support, price dumping, they earn too little money, struggle to survive, disappear, difficulty, etc.)	47 (9.8%)	30.43 (21.49)
Politics and Subsidies (e.g., subsidies, recipients of subsidies, the federal government pushes far too much money over, SVP, politically more to the right, old-fashioned SVP voters, Right-SVVP, etc.)	35 (7.3%)	30.31 (20.95)
Negative (e.g., rich, inefficient, whining, rubber boots, rip-off from the big companies, many are dissatisfied, etc.)	31 (6.4%)	29.94 (19.80)
Farms (e.g., farm, animals, tractor, green yard, CEO of a farm, cattle, mountain farms, etc.)	30 (6.2%)	72.90 (19.09)
Traditional (e.g., conservative, tradition, out of fashion, countryside, image not so contemporary, etc.)	20 (4.2%)	54.35 (22.39)
Food products (e.g., meat, eggs, milk, etc.)	14 (2.9%)	80.64 (25.22)
Dairy farming (e.g., dairy, cows, etc.)	12 (2.5%)	75.17 (17.66)
Nature (e.g., close to nature, nature, etc.)	8 (1.7%)	78.25 (14.15)
Local (e.g., local supply, there are some in our village, my friend, my father, etc.)	7 (1.5%)	86.43 (19.37)
Sustainability (e.g., sustainable, environmentally-conscious, protect the environment, etc.)	5 (1.0%)	87.80 (12.93)
Rural (e.g., rural, rural people, rural area, etc.)	4 (0.8%)	78.25 (12.18)
Animal welfare (e.g., animal welfare, some animal husbandry could be fairer, should care about animal welfare, etc.)	5 (1.0%)	43.80 (33.39)
Total	429	56.95(28.64)

Note. 52 (10.2%) associations with unclear meanings were coded as non-applicable and are excluded from the table. Affect towards farmers: green = positive, red = negative, black = neutral.

translation. Each author independently checked the categories and proposed the best-fitting category. Then we discussed the rationale for each option until reaching consensus, prioritizing the category that captured the dominant meaning of the association. If the associations contained multiple meanings (e.g., two distinct ideas) or remained unclear even after discussion, the association was coded as “non-

applicable” and excluded from analysis to minimize misinterpretation.

T-tests were relied on to assess the differences in trust levels and perceived knowledge regarding crop versus animal production. Moreover, Pearson's correlations were used to examine the relationships between these variables among others to identify the relationship between perceived knowledge, trust and affect towards farmers in both crop and livestock production farmers and to identify potential issues with multicollinearity for the subsequent regression analysis. Multiple linear regression analyses were conducted to examine which factors (i.e., age, gender, education, residence, political orientation, meat consumption, purchasing from farms and farm market, experience in agriculture, perceived knowledge, affect towards farmers) influence the respondents' trust in farmers in crop versus animal production. We conducted standard diagnostic checks (multicollinearity, residual plots, normality, etc.) to assess the adequacy of the regression models. These diagnostics did not indicate major violations that would affect the interpretation of the results (see [Appendix A](#)). Although trust is measured on a bounded 0–100 scale, there is no evidence of substantial mass at the limits (see [Appendix B](#)), making the OLS models fitting for the purposes of this study.

All statistical analyses were performed using SPSS version 26.0 for data analysis and visualization ([IBM Corp, 2017](#)). The data is available on Zenodo ([Ammann et al., 2024](#)).

4. Survey results

4.1. Frequency and affective evaluations of the associations with “agriculture” and “Swiss farmers”

Participants wrote down the first thing that came to their mind when thinking about agriculture. The most prevalent ($n > 30$) categories of associations with agriculture were “farming”, “dairy farming” and “food products and quality” followed by “politics and subsidies”, “tradition and culture” and “challenges and difficulties” (cf. [Table 1](#)).

The affective ratings for the most prevalent associations are positive, specifically for “farming”, “dairy farming”, “food products and quality”, and “tradition and culture” (cf. [Table 1](#)). Whilst for “Difficulties for farmers” and “politics and subsidies”, the affective ratings are negative. There were some important associations ($n < 25$) with “organic”, “sustainability” and “animal welfare” and “economic impact of farming” depicting respondents' concerns with (environmental, social and economic) sustainability of the agriculture sector. Other, fewer associations were in relation to the “importance” of the sector and role in ensuring “food security”. Only a minority of respondents (< 10) associated “agriculture” with “pesticides and manure”, “positive” and “negative” attributes, as well as “landscapes”, “harmony”, “mountain farms” and “health”. Overall, the affective ratings of the associations in relation to the term “agriculture” were positive ($M = 68.38$, $SD = 27.63$).

Next, participants wrote down the first thing that came to their mind when thinking about Swiss farmers. The most prevalent ($n > 30$) categories of associations with Swiss farmers were “hardwork”, “positive recognition and admiration” and “challenges and difficulties” followed by “politics and subsidies”, “negative” attributes and “farms” (cf. [Table 2](#)).

The affective ratings for the most prevalent associations are positive for “positive recognition and admiration” and “farms”. Whilst for “difficulties for farmers” and “politics and subsidies” they are negative. They are neutral for associations related to “hardwork” and “tradition” (cf. [Table 2](#)). Only a minority of respondents (< 10) associated “Swiss farmers” with “nature”, “local”, “sustainability” “rural” and “animal welfare”. Overall, the affective ratings of the associations in relation to the term “Swiss farmers” were close to neutral ($M = 56.95$, $SD = 28.64$). Overall, the affective responses were significantly more positive for associations with “agriculture” ($M = 68.38$; $SD = 27.63$) than with “Swiss farmers” ($M = 56.95$; $SD = 28.64$), ($t = 8.63$, $df = 480$, $p < .001$).

4.2. Trust in farmers by production type

Table 3 shows the items measuring trust levels and their means and standard deviations. Due to the high and significant Pearson's correlations between the trust items ($r > .60$, $p < .001$), we built the trust scale with three items for trust in farmers in crop production (Cronbach's alpha $\alpha = 0.83$) and with four items for that in animal production (Cronbach's alpha $\alpha = 0.94$).

The trust in farmers in crop production ($M = 69.00$; $SD = 16.56$) is significantly higher than that in farmers engaged in animal production ($M = 62.50$; $SD = 21.67$), ($t = 9.86$, $df = 480$, $p < .001$).

4.3. Trust in farmers of crop versus animal production

Table 4 shows the Pearson correlations between the dependent variable "trust in farmers" of crop versus animal production and the following independent variables: perceived knowledge and affect towards farmers. The perceived knowledge and affect towards farmers exhibited significant positive and high correlations with the respondents' trust in farmers in both crop and animal production. Affect towards farmers had a significant positive correlation with the perceived knowledge of crop production but not with that of animal production.

Table 5 shows the summary statistics of all independent and dependent variables included in the regression models.

Table 6 presents the results of the multiple linear regression analyses conducted using the data on the participants' trust in farmers in crop versus animal production. The standardized regression coefficients, and confidence intervals are shown in Table 6. The two models were found to be statistically significant for the trust in farmers in "crop production" ($F [10,420] = 16.84$, $p < .001$) and "animal production" ($F [10,420] = 21.62$, $p < .001$). The models explain between 27% (crop production) and 32% (animal production) of the variances in the trust in farmers.

The perceived knowledge and affect towards farmers were the most important predictor and exhibited a statistically significant and positive relationship with the dependent variables.

The political orientation of the respondents was found to have a significant and positive relationship with the trust in both models. The meat consumption variables had a positive and significant relationship with the trust in farmers in animal production but not in that in crop animals. The purchasing behavior from farms or farm markets and the respondent's experience in agriculture had no significant relationship with trust in both models. Lastly, no significant relationships were detected between the sociodemographic variables and the dependent variable in both models, except for education levels which had a significant negative influence on trust in crop farmers.

5. Discussion

The aim of the study was to understand public image of farmers and

Table 3
Public trust in farmers in crop vs. animal production.

	Crop production M(SD)	Animal production M(SD)	t-statistic, df = 480
1.Trust in farmers producing good food	77.30 (16.49)	67.00 (22.57)	11.99***
2.Trust in farmers caring for animal welfare	NA	64.20 (23.34)	NA
3.Trust in farmers caring for the environment	65.72 (20.97)	59.87 (24.10)	7.53***
4.Trust in farmers' transparency	63.98 (20.04)	58.93 (23.65)	6.04***
Total	69.00 (16.56)	62.50 (21.67)	9.86***

*** $p < .001$.
N = 481.

Table 4

Pearson's correlations between trust, perceived knowledge and affect towards farmers in both crop and animal production.

Variables	Crop production			Animal production		
	1	2	3	1	2	3
1. Trust in farmers (specific)	-			-		
2. Perceived knowledge (specific)	.34**	-		.27**	-	
3. Affect towards farmers	.41**	.16**	-	.41**	.04	-

** $p < .01$.

N = 431.

(specific) = indicates that the scales are measured specifically to animal versus crop production.

Trust in farmers: 0 = not trustworthy at all, 100 = completely trustworthy; Perceived knowledge: 0 = no knowledge at all, 100 = completely knowledgeable; Affect towards farmers: 0 = completely negative, 100 = 100 completely positive.

Table 5

Summary statistics of the dependent and independent variables of the two regression models.

Variable	Mean (SD)
Trust in crop production	69.26 (16.51)
Trust in animal production	62.42 (21.12)
Age	47 (16)
Gender	Female: 51.5% (222) Male: 48.5% (209)
Education levels	Low: 52.2% (225) Medium: 27.6% (119) High: 20.2% (87)
Residence	Rural: 49.4% (213) Sub-urban: 27.4% (118) Urban: 23.2% (100)
Experience in agriculture	With experience: 75.6% (326) No experience: 24.4% (105)
Purchasing from farm markets	every two weeks or once every week or many times per week: 54.5% (235) never or rarely or one time per month: 45.5% (196)
Meat consumption	Never 3.5% (15) Rarely 3.0% (13) 1-3 times per months 7.0% (30) 1-3 times per week 36.9% (159) 4-6 times per week 32.5% (140) Daily 15.1% (65) Several times a day 2.1% (9)
Political Orientation	51.83 (19.56)
Affect towards farmers	56.34 (28.86)
Perceived knowledge about farming practices (specific to crop production)	52.90 (21.70)
Perceived knowledge about farming practices (specific to animal production)	54.70 (21.53)

N = 431.

Trust in farmers: 0 = not trustworthy at all, 100 = completely trustworthy; Perceived knowledge: 0 = no knowledge at all, 100 = completely knowledgeable; Affect towards farmers: 0 = completely negative, 100 = completely positive; Political orientation: 0 = very left, 100 = very right.

the agriculture sector in Switzerland and evaluate trust levels in crop and livestock farmers. Overall, the results show that the public have a simplistic and traditional view of agriculture and farmers, as there had not been spontaneous associations in relation to new farming practices or technologies adopted at farms for example. Agriculture was perceived more positively than farmers, showing that people could value and place confidence in the food production system as whole more positively than individuals involved in the production, consistent with the notion of systemic trust (Thorsøe and Kjeldsen, 2015). In Switzerland, the democratic structure, public institutions and regulatory bodies and standards are highly trusted (OECD., 2024) which may in turn contribute to these favorable perceptions of agriculture system and indirectly shape

Table 6

Regression analysis of the dependent variable “trust in farmers” in crop versus animal production.

Predictors	Trust in farmers			
	crop production		animal production	
	standardised Beta β	95% CI	standardised Beta β	95% CI
Constant	43.38***	[34.51, 52.24]	5.51	[-5.45, 16.48]
Age	-0.01	[-0.09, 0.08]	0.06	[-0.02, 0.19]
Gender	-0.01	[-3.01, 2.60]	0.01	[-3.05, 3.89]
Education	-0.09*	[-3.60, -0.11]	-0.07	[-3.97, 0.31]
Residence	-0.01	[-3.20, 2.30]	0.06	[-0.07, 2.53]
Political orientation	0.18***	[0.09, 0.23]	0.18***	[0.10, 0.28]
Meat consumption	-0.00	[-1.25, 1.15]	0.20***	[2.08, 5.02]
Purchasing from farm markets	0.04	[-0.60, 1.60]	-0.05	[-0.54, 2.18]
Experience in agriculture	-0.05	[-5.39, 1.29]	-0.01	[-4.64, 3.60]
Perceived knowledge about farming practices (specific)	0.27***	[0.14, 0.27]	0.23***	[0.14, 0.31]
Affect towards farmers	0.34***	[0.15, 0.24]	0.37***	[0.21, 0.33]
F (10; 420)	16.84***		21.62***	
Adjusted R ²	0.27		0.32	

N = 431.

*** $p < .001$, * $p < .05$.

(specific) = indicates that the scales are measured specifically to animal versus crop production.

Trust in farmers: 0 = not trustworthy at all, 100 = completely trustworthy; Perceived knowledge: 0 = no knowledge at all, 100 = completely knowledgeable; Affect towards farmers: 0 = completely negative, 100 = completely positive; Experience in agriculture: 0 = No experience, 1 = With experience; Purchasing from farm markets: 0 = never or rarely or one time per month, 1 = every two weeks or once every week or many times per week; Meat consumption: 1 = never, 7 = many times per day; Political orientation: 0 = very left, 100 = very right; Residence: 1 = rural, 2 = suburban, 3 = urban; Education: 1 = basic, 2 = advanced, 3 = high; Gender: 0 = female, 1 = male.

how farmers are perceived. For example, the amounts of subsidies to farmers seem to have negative implications on public perceptions of farmers, although this could be related to political aspects (i.e., right-wing farmers parties) than regulatory ones. Nonetheless, farmers seem recognized not only for their hard physical work conditions but also for their trustworthiness.

Interestingly, we found that farmers in crop production are better trusted than those engaged in livestock production. This finding is surprising given the fact that there has been several controversies, public initiative and political debates to ban pesticide use in the past five years in Switzerland (Huber and Finger, 2019; Kaiser, 2023), which steered the public against crop farmers. It seems that public's trust may be steered by concerns particularly salient in livestock production, especially perceived transparency, care for animal welfare (El Benni et al., 2024; Frewer et al., 2005; Gross and Roosen, 2021) and the environmental impact of production (Malek et al., 2018). These issues are often ethically and emotionally charged (Bayer and Kühn, 2024) and the diverse issues with livestock production from animal husbandry to milk production (i.e., cow-calf separation) and environmental footprint, which likely attracts stronger public attentions and shape their views and hence make it difficult for people to build trust in livestock farmers. In addition, livestock farming can generate more visible or locally experienced externalities (e.g., odor, manure management, perceived pollution risks) (Eijrond et al., 2022), and it often operates in a more

contested regulatory and market environment (e.g., animal welfare requirements, veterinary controls, import competition, certification schemes) (European Parliamentary Research Service, 2021), potentially making trust particularly sensitive to transparency issues and compliance signals (Kühl et al., 2023). In line with this interpretation, the absence of a relationship between perceived knowledge and affect towards farmers engaged in livestock production further implies the presence of both cognitive and emotional considerations related to livestock production.

Taken together, these interpretations imply that trust-building strategies might need to be at the sector level instead of farmer-level solely. In fact, our results indicate that shopping directly at farms, where consumers and farmers can interact and exchange on farming practices does not necessarily increase trust in contrast to previous findings (Dumbrell et al., 2024; Regan and Kenny, 2022). A plausible explanation is that individuals who already trust farmers may be more likely to shop at farms, whereas those with lower trust may avoid farm markets. This suggests that the relationship between trust and farm-shopping behavior warrants further investigation, including whether direct purchasing primarily reflects personal or relational trust in farmers built through interaction (Bayer and Kühn, 2024), or whether it coexists with systemic trust. It has been argued that systemic trust, which is an impersonal form of trust grounded in confidence in the food system as a whole, is the predominant form of trust in the food production due to the involvement of many actors in the sector (Thorsøe and Kjeldsen, 2015). Therefore, policy and supply-chain governance should reflect these sector-level trust drivers of farmers, rather than relying solely on farmer-consumer interactions and individual efforts of communications on the one hand or relying on uniform approaches across crop and livestock systems on the other hand. Feasibility constraints matter. Not all farmers can viably sell products directly or engage in frequent individualized conversations with consumers. In Switzerland, institutional arrangements can underpin systemic trust through clearer and more credible disclosure (e.g., robust labelling, assurance schemes, and accessible reporting on animal welfare and environmental performance), enabling consumers to assess farming practices even when direct farm contact is limited. For livestock farming in particular, communication that makes farmers' ethical reasoning and shared values visible (e.g., concerns for animal welfare and environmental stewardship) may help address both rational and emotional public concerns, especially among groups that prioritize stricter regulation or are more skeptical of livestock production (Thorsøe et al., 2016; Weary and Keyserlingk, 2017).

5.1. Limitations and future research

The present study has some limitations. First, trust in farmers caring for animal welfare was not defined or specified in the survey. It is unclear which aspects of animal welfare participants considered, especially since animal welfare is an issue on-farm (animal husbandry, animal care, etc.) and off-farm (transportation of animals, slaughter houses, etc.) (Dumbrell et al., 2024). Future studies should examine public perceptions of both on-farm and off-farm animal welfare concerns and its relation to their trust in livestock farms. Second, knowledge was measured subjectively as participants self-rate their knowledge level, which can create inaccuracy in responses. There was also no specification on the knowledge type as we measured knowledge in farming practices in general. It is worthwhile to identify what type of knowledge related to farming practices the public is interested in and then develop and test an objective measure of knowledge levels and their influence on trust levels. Thirdly, it is unclear if people's interactions with farmers at farm shops is with entrepreneurial or more traditional farmers or even with organic farmers. Qualitative studies could be needed to examine with whom the public interacts at farm shops and determine what is discussed there, which could imply what and how public concerns could be addressed. Lastly, it is also important to note that a large share of the respondents surveyed indicated largely knowing someone working in

agriculture (80%) which can consequently make their shopping behavior irrelevant for their trust in farmers as they already know them. Therefore, a representative sample might be needed to better assess what builds and impedes public trust in farmers. It is also worthwhile conducting this research in other contexts with similar and different farming systems and regulatory environments to better understand how trust in farmers is shaped.

6. Conclusion

The present study examined public image of and trust in agriculture and farmers in crop and livestock production in Switzerland. The public has a traditional image of farmers that is neither positive nor negative and hence is prone to being ruined. Perceived knowledge and affect towards farmers are relevant for public trust in farmers both in crop and livestock production. Overall, building trust in farmers might not be addressed by individual efforts of farmers at farm markets, rather through a transparent agricultural system which enables the public to

assess farming practices and food products when contact with farmers is limited. Highlighting farmers shared values and ethical considerations is also needed to build and maintain trust, especially in livestock production farmers.

CRediT authorship contribution statement

Rita Saleh: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft. **Jeanine Ammann:** Conceptualization, Methodology, Resources, Writing – review & editing.

Declaration of competing interest

The authors declare that there were no competing interests. The study was funded internally by Agroscope.

Appendix A

Table A1
Model fit and residual diagnostics for OLS regressions predicting trust (N = 431).

Diagnostic	Trust in animal production	Trust in crop production
R ²	.34	.29
Adjusted R ²	.32	.27
F(df1, df2)	21.45 (10, 420)	16.81 (10, 420)
p (F test)	< .001	< .001
SE of estimate	17.39	14.12
Standardized residual range	−3.52 to 2.52	−3.50 to 2.60
Cases with Std. residual > 3	3	4

Multicollinearity diagnostics (VIF and tolerance) for OLS regressions.

Model	Tolerance (min–max)	VIF (min–max)	Max condition index
AnimalTrust	.84–.98	1.02–1.19	21.73
CropTrust	.83–.96	1.04–1.21	21.56

Appendix B

Concentration at the bounds (0 and 100) for trust in animal and crop production variables (N = 481).

	N	Min	Max	n at 0	% at 0	n at 100	% at 100
Trust in animal production	481	0	100	2	0.42	4	0.83
Trust in crop production	481	12.67	100	0	0.00	9	1.87

Data availability

Data is now available on zenodo

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