



The Nature of Fear Among Farmers Working with Animal Production

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Abstract

In this article, we investigate the nature of fear among farmers working with animal production with particular focus on the impact of harassment and crimes linked to animal rights activism. The study is based on responses from 3815 animal farmers to a national survey in 2020 in Sweden. Cross-table analysis and logistic regression models underlie the methodology of the study. Findings show that three out of ten of those farmers feel afraid of being victimized by the actions of animal rights activists; the proportion is two-thirds among farmers with previous experience of victimization, and fear of victimization varies across Sweden and by type of activity. Perceived lack of support from the police, exacerbated by geographical isolation, are common determinants of farmers' declared fear, particularly those whose families live on the farms and who have employees. While understanding the factors that affect farmers' safety perceptions is important, the article ends by calling for further research on the ways by which fear of animal activism impacts farmers' personal lives, those of their family and employees, and not least their livelihood.

Keywords Safety perceptions · Animal rights activism · Animal farmers · Logistic regression · GIS

Introduction

Swedish farmers who work with animal production are living under increasing pressure. As awareness of the environmental impact of consuming animal products, recognition of animal rights and interest in veganism increase (CVE, 2020; Pendergrast, 2016), different types of criticism from consumers and government agencies directed at farmers

working with animal production is said to negatively affect farmers and their activities (LRF, 2018).

Although it is important to note that most animal rights advocates are not fear provoking individuals, there have been numerous accounts in Sweden of farmers in fear because they are experiencing tampering, threats, harassment and other criminal acts that are linked to animal rights groups (Bergström, 2019; Leander, 2018; Police, 2020; Radio, 2014), some against themselves, others against family, employees, animals and property. Swedish animal farmers are not alone. Back in early 2010, Carson, LaFree, and Dugan (2012) suggested that despite the fact that attacks by environmental and animal rights groups were often universally nonviolent in the United States, authors had concerns that this situation would change. Internationally, critics have questioned the ethics of keeping animals for food production, while others argue that animal production has become a major source of land, water, and air pollution, and contributes to acid rain, and global warming (Matheny, 2003). Animal production and animal rights activism are economic-political issues and conflicts between animal rights activists and 'agriculturalists' are becoming more common to a number of countries (Carson et al., 2012; Katz & McPherson, 2020; Monaghan, 2013).

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This article is intended to contribute to the scientific understanding of fear of crime among farmers. The analysis is focused on the victims (and the impact of the fear and the anticipation of being a victim) of criminal acts caused by individuals which are reported to be linked to animal rights activism.

In the search for better understanding of this phenomenon, we investigated the magnitude of the problem, with particular focus on the nature of the fear declared by farmers working with animal production in Sweden. Thus, in this exploratory study we investigate farmers' declared fear in relation to their individual and family characteristics, previous victimization, use of crime prevention measures, publicness of the activity and their perceptions about support from the police in these matters.

The focus is on a particular group of farmers: those working with animal production. This restriction is based on several factors. First, animal producers have become more targeted by crime in the past 10 years in Sweden (Ceccato et al., under revision). Second, although it is unclear exactly how many farmers work with animals, the Swedish Board of Agriculture estimates that in 2016 there were around 17,800 agricultural holdings with animal production (The Swedish Board of Agriculture, 2016); about half of all farmers work full-time, and they account for a large share of the economy and community life in small municipalities in Sweden, especially in the southern part of the country. Official statistics on crimes against farmers are scarce in Sweden, in particular for those crimes against farmers working with animal production. Even if they were available, they would be poor indications of victimization because crimes against farmers are highly underreported (Johansson, 2018, 2020).

The article is structured as follows. Section “[Theoretical Background and Research Questions](#)” establishes the theoretical framework for the study and introduces the research questions, then Section “[Study Area](#)” presents Sweden as the study area. Data and methodology are discussed in Section [Research Design](#), followed by results in Section “[Results](#)”, which are discussed in Section “[Discussion of the Results](#)”. Finally, before we conclude the article, we discuss possible responses to farmers' fear along with research recommendations in Section “[Conclusions and Recommendations](#)”.

Theoretical Background and Research Questions

Definitions

The term *animal farmers* is interchangeably used in this article to denominate “farmers working with animal production” and to indicate a selection of agricultural

holdings whose activities are devoted to the production of dairy products, cattle and beef, pig, sheep and goats, eggs, broilers, poultry, rabbits, fur/mink and fish, but not including activities related to equines. Farmers with animal production play an important role in food production, employment, and rural development. Grazing animals contribute to the open landscapes and biodiversity (Lundqvist, Göransson, & Hunter, 2018). To ensure good animal care, there are animal welfare laws and regulations, and each county administrative board in Sweden is responsible for supervision and inspections.

Crime and harassment/threats against animal farmers may take different shapes. Animal farmers may be targeted by criminal acts such as property damage, trespassing, robberies, and other criminal acts are directed against a company's activities but can also be directed personally against the farmer, family members and employees. There may be aggressive demonstrations and actions by animal rights activists, for example at open farm activities, but also threats directed towards farmers and employees as well as the family living on the farm. There are accounts in which children have been threatened (Jansson, 2019). Reports also cite unlawful intrusion, theft, and other minor crimes [see in the UK, for example Pasha-Robinson (2018)]. Other attacks on farmers with animal production have been directed at the animals themselves, in various forms of abuse and injury, these include threats via social media.

Fear is “an emotion, a feeling of alarm or dread caused by awareness of expectation of danger” Warr (2000, p. 453) and is a multifaceted phenomenon (Cates, Donald, & Schnepf, 2003). Fear induced by risk of victimization depends not only on the perceived risk (likely but not serious) but on the perceived seriousness (less likely but serious), yet fear may be triggered by other factors than victimization (Gray, Jackson, & Farrall, 2008; Jackson, 2009; Jackson & Gray, 2010).

Safety is defined by several studies as a subjective feeling related to perceived risk, whereas other studies consider it the opposite of actual risk (safe is something that is non-criminogenic). Worries and anxieties may also be fed by an individual's uncertainty in everyday life (or as suggested by Giddens (1991), a lack of ontological security, a loss of sense of order and continuity in regard to an individual's experiences), such as being unemployed, or caused by a lack of trust in society's institutions (Ceccato, 2018). Worries and anxieties sometimes seem to incorporate what people regard as cultural threats to their dominant constructions of community or to their livelihood.

In this study, fear is a composite term used to indicate an individual's reported levels of actual or perceived risks (for him/herself and/or family and closest circle, including employees and property) of victimization, though fear may

also include other overall anxieties and may be a reflection of individual's factors, such as age and gender of respondent.

Fear in Rural Contexts

Fear is a multidimensional phenomenon (Cates et al., 2003), but older adults, women and people with disabilities are portrayed as being more fearful than the rest of the population (Box, Hale, & Andrews, 1988; Koskela, 1999; Loukaitou-Sideris, 2004; Lytle & Randa, 2015). Individuals may declare feeling fearful for a variety of reasons, some of which may relate to the likelihood of being a victim of crime. International evidence indicates that previous victimization continues to be an important determinant of how people determine their fear levels (Hale, 1996; Hirtenlehner & Farrall, 2014; Otis, 2007; Yates & Ceccato, 2020). It is unclear if and how fear varies by types of crime or by its seriousness (Jackson & Gouseti, 2012). Witnessing other people's victimization (particularly someone close, family or friends) may also affect an individual's level of personal safety (for a review, see e.g. Skogan, 1987). Yet, this finding does not relate to people's fear as it relates to the safety or wellbeing of others (family members, neighbors, employees), often denominated as "altruistic fear" (Heber, 2009).

Most research on fear of crime is based on case studies in urban areas (Ceccato, 2016). In rural areas, fear and overall anxieties are expected to be triggered by particular structural and situational factors typical of these environments. Fear may be a product of long-term unemployment or perception of exclusion from the local economy, combined with structural racism (Chakraborti & Garland, 2011; Crompton, 2008; Palmer, 1996). There is growing evidence that people who do not fit into idealized constructions of rurality are excluded from rural places (for several examples, see Yarwood, 2010). Sandercock (2005) argues that expressions of fear can actually be an expression of fear of others, the fear of the difference. Fear can be a result of new expressions of feelings of *us-them* or *new* and *what-it-has-always-been*, in other words, expressions of power relations that inform how norms (and behaviors, including crime) may be socially constructed and sometimes accepted (Barclay, Donnermeyer, & Jobes, 2004, 2007; Ceccato, 2015b; Scott & Hogg, 2015). An example of this is provided by Little, Panelli, and Kraak (2005) that shows associations of fear and the rural community, in which the stranger always comes from outside. From those who come from the outside, in the absence of prior experience or familiarity with a particular place or context, Valentine (1990) suggested that judgment and perceptions (and therefore fear) are likely to be based on preconceived ideas about similar settings and their occupants. Pleggenhule and Schafer (2018) suggest that many explanations of fear are based on theories of place, opportunity, or social cohesion, that often consider how communities impact

on attitudes and behaviors, for instance, social capital is believed to minimize fear of crime in the assumption that social support leads to safety.

Uncertainty and fear may be experienced by some when negligence and poor management of public services and institutions in rural areas make individuals feel that those groups "are not there for them." Police stations are shut down, or the act of reporting crime feels like "a waste of time," because police or criminal justice actors do not take crime records seriously (Ceccato, 2015a). Poor communication, lack of police response, low conviction rates (Donnermeyer & Barclay, 2005; Smith, 2020) can lead individuals feel left feeling like second-class citizens (Smith, 2020). Therefore it is no surprise that police satisfaction and fear of crime are related and that lower levels of police satisfaction are often associated with higher levels of fear (Lytle & Randa, 2015). When, in such cases, fear leads to investment in farm-related crime prevention measures [e.g. installing surveillance systems and security gadgets, see e.g., Aransiola and Ceccato (2019)], it may be a reaction to an increased risk of victimization or just a sense of "poor police reassurance" (Wakefield & Fleming, 2009). The opposite may also happen, when farmers may feel targeted by authorities (by for example, animal inspectors or even the visits from the police) if they execute unexpected stops or inspection with suspicious inquiries about their farm practices (Harris, Ash, & Fagan, 2020; Silverman & Della-Giustina, 2001).

A number of other conditions are seemingly inherent to the farm environment and have facilitated the execution of crime against farmers, so that they may help explain why farmers who are more of a target also become more fearful. This does not mean the conditions explain fear per se, but rather such conditions indirectly affect safety perceptions through vulnerability. A lack of guardianship (linked to rurality and limited police presence) combined with good accessibility (linked to a target being located relatively close to a larger town and on a good road network) create an increased risk of victimization and a reduced chance that the offenders are caught. This condition may trigger fear among farmers, as they may feel on one hand "exposed/vulnerable" and, at the same time, "left behind." See for instance in-depth discussion about fear in rural contexts in Ceccato (2018).

This vulnerability to crime can also take shape digitally. The use of social media, an internet presence and publicness of activity such as e-commerce for agri-foods (Cristobal-Fransi et al., 2020; Mora-Rivera & García-Mora, 2021) can exacerbate differences between groups and fuel latent conflicts that, without information communication technology (ICT), would not occur otherwise, thus becoming a source of fear. In addition, although these new technologies can enable access to information and can

be crucial for rural development, they also entail risks and may negatively affect individuals' safety.

Fear and Animal Rights Activism Against Farmers

A quarter of farmers declared feeling worried or very worried of becoming a victim of crime, according to the Swedish Agricultural Survey. The same percentage declared feeling worried or anxious about being exposed to crime (in the form of theft and vandalism or attack) from animal rights activists (Johansson, 2018, 2020). For this study, criminal animal rights activism is composed of "individuals and groups who consider violence to be a legitimate means of achieving animal rights policy goals." These behaviors involve arson and vandalism against property but may also include violence directed at people. The use of force is justified by the idea of "extended right to self-defense," which means that activists, on behalf of the animals, exercise the animals' alleged right to protect themselves from violence and abuse. As suggested by Lund and Olsson (2006) those who believe that animal killing is unacceptable and argue for veganism still face the challenge to show how sustainable global food production can be achieved without animals. This uncertainty has opened up for conflicts among animal rights activists and those who defend ethical animal production. In academia, the arguments are divided: on one hand, Cordeiro-Rodrigues (2016) suggest that clandestinely filming and actions to rescue animal are morally justified while Monaghan (2013) exemplify how to explore the response of the criminal justice to the various types of political violence associated with animal rights activism.

"The Swedish pro-violence animal rights movement consists of activist groups that are to varying degrees independent of each other but which organize themselves on the basis of common ideological positions" (CVE, 2020, pp. 3–5). The extent and form of crimes against animal farmers vary by different groups and individuals, but the crimes are often related to violent animal rights activism, which is a global phenomenon, and often linked to a broader transnational movement in which different actors and/organizations carry out similar actions around the world. Using Sweden as a case study, this article makes a direct contribution to this neglected area of research by providing a geographical account of fear expressed by farmers working with animal production.

Research Questions

We surveyed farmers working with animal production in order to cast light on the following research questions:

- How many of the respondents declare feeling in fear of animal activism? Which types of harassment and crime are farmers most exposed to as a result of their work with animal production?
- How does fear of activism relate to overall worry about crime?
- Which factors determine farmers' declared fear? Does fear vary by individual and family characteristics, previous victimization, use of crime prevention measures, publicness of the activity or their perceptions about support from the police?

Study Area

Sweden has 10.2 million inhabitants and one of the largest land areas in Europe. The population density is substantially lower in the north than in the south, where most agricultural holdings are located. 87% of the population live in urban areas, which cover 1.5% of the entire land area. 63% of Swedes live in large urban areas. The capital city Stockholm has a municipal population of about 950,000. The second- and third-largest cities are Gothenburg and Malmö (Statistics Sweden, 2018). Sweden is divided into 21 counties and 290 municipalities, the latter of which are one of the units of analysis for this study (for mapping); 112 of these municipalities are classified as urban areas (total population approximately 7 million), 156 as accessible rural (total population approximately 3 million), and 22 as remote rural (total population approximately 140,000).

Research Design

The Animal Farmers' Survey

A questionnaire was developed including 56 questions in eight parts directed to farmers working with animal production. A first set of background questions (age, location, type of animal production, employees, enterprise, and personal publicity) was followed by questions about crime prevention measures, activism/thefts/harassments, general negative debate about animal production, animal welfare inspections, support from society, general crime victimization and finally a mental well-being scale (Stewart-Brown et al., 2009). A reference group was established, including most of the Swedish animal producing organizations, representatives from The Federation of Swedish Farmers and The Swedish National Council for Crime Prevention (BRÅ), which also provided comments on the questions in the questionnaire.

From Statistics Sweden, we obtained email addresses to the animal producing enterprises from a total of about 9800 addresses in what is called "the Farm Register." The survey

was distributed to these animal farmers using the survey software Netigate (2020) after the questions were approved by the Swedish Ethical Review Authority (Dnr 2020-01323). The survey could also be accessed through a link, and the different animal producing organizations distributed the link to their members. Data collection took place June to September 2020 with four reminders during that period. Analyses of the data were carried out in the statistical software package SPSS (SPSS, 2018). A total of 5,479 farmers (56%) submitted answers, but 17% were excluded because they did not press the final button (“submit your answers”) and therefore did not finish the survey. Figure 1 shows farming companies related to animal production and the geographical distribution of the animal farmers’ survey. The map indicates how well the survey’s response rate matches the geography of animal farmers in Sweden, following a pattern of concentration in the center-south of the country.

For ethical reasons, we decided to exclude the “non-submitted” questionnaires from the analysis, resulting in 3,815 answers, which is equivalent to 39% of the original sample. We have not executed a stratified sample, but we are aware that a large share of meat producers (including producers of cows, pigs, and lambs) answered the questionnaire while

those working with hen, goat, fish, mink and rabbit replied to the survey in lesser extent. Due to the way the survey was delivered, it is not possible for sure to report any reliable response rates by groups. However, we can estimate that at least half of Sweden’s milk producers received the survey with certainty, a third of the pig producers and all mink producers (using direct email addresses). Table 1 estimates the response rate at national level.

Statistical Methods and Data Management

Binary logistic regression was used to further explore the relationships between victimization, type of animal

Table 1 Estimated response rate as a proportion of Sweden’s total number of milk, pig and mink fur producers

Animal production	Count	Received the survey	Response rate (%)	Response rate for Sweden (%)
Milk	3300	1600	34	16
Pig	1100	300	67	18
Mink fur	36	33	36	33

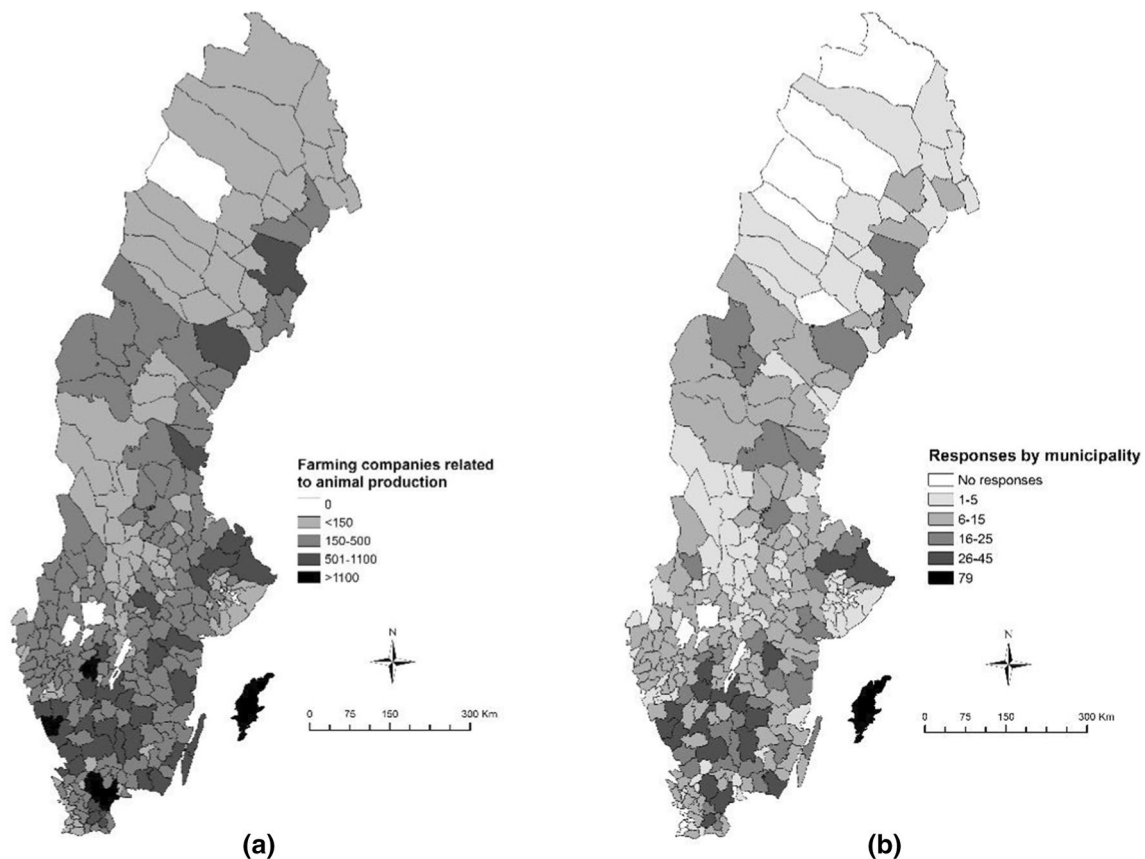


Fig. 1 (a) Farming companies related to animal production and (b) the geographical distribution of the animal farmers’ survey

production, situational factors (such as location and publicness of the activity, policing and crime prevention practices) after controlling for age and gender of respondents. First, two questions that had response options related to fear and worry of crime were identified as dependent variables of two models. One was part of a series of statements regarding activism that respondents were to take a stand on. The statement referred to here is:

Question 1: “Animal rights activism makes me feel afraid.”

The other question was regarding worries about crime in general:

Question 2: “Have you during the past 12 months been worried that you, your family or your business operation would be victimized by crime of some sort?”

Experience of fear was used as the dependent variable (No = 0, Yes = 1). The dependent variable “fear of activism” was based on the responses to the statement “Activism makes me feel afraid”, where the alternatives were based on a Likert-scale. Because of the skewness of the answers, the scale (fully agree, largely agree, neither agree nor disagree, agree only to some extent, or disagree) was recoded into agree or disagree. Of the variables related to respondents’ characteristics, gender, previous victimization and having children in the family are dichotomous variables, while age is a continuous variable. The type of municipality was based on definitions by National Rural Development Agency (Glesbygdsverket), where responses from remote rural municipalities, accessible rural, and urban areas. In order to obtain an indication of the size of the operation, we used the question about whether or not the farm had employees as dichotomous variable. Dichotomous variables were also created for the question about police presence, the company’s public presence and outreach activities through the internet (e.g. Facebook, Instagram) and on whether the farm had implemented crime prevention measures in place (security alarms, CCTV, DNA marking, and Neighborhood watch programs, keeping buildings locked, use of fences, lighting and direct visibility to buildings, and guard dogs). Finally, there are several questions on victimization. First, the question was “Have your business operation ever been exposed to protests, harassments, trespassing, vandalism, release of animals, personal attacks in media or similar due to you being an animal producer?”. The second question was about knowledge of victims of animal rights activism “Do you know anyone working with animal production who has been exposed to these incidents?” while the third question was about overall victimization: “Have you personally or someone else in your family ever been exposed to any form of crime such as e.g. theft, robbery, violence? This is regarding crimes that have not been brought up previously (in the

questionnaire) and is separate from their business operation”. The intention here was to untangle their expressed fear due animal rights activism from overall crime victimization.

The 5% level of significance was considered and in the case of a statistically significant result the probability value (p-value) has been provided. Geographical Information Systems (GIS) were used to illustrate patterns of victimization and fear declared by farmers. Note that these maps are illustrative, since the number of answers may not be representative of the number of animal farmers per municipality. Descriptive statistics were used to characterize the data, and in order to evaluate the hypotheses in contingency tables, the chi-square test was utilized or, in the case of small, expected frequencies, Fisher’s Exact Test. The Pearson correlation coefficient was used to test the independence between variables.

Results

Fear Among Animal Farmers

It is difficult to establish a direct causal link between animal farmers’ safety perceptions and their crime victimization, but our findings show that of a total of 3,059 respondents, as many as 903 farmers working with animal production (29.5%) declared being in fear of falling victim to criminal animal rights activism. This percentage reaches 51.6% among those farmers who have already been victimized, against 24.8% among those who were afraid but have never been a victim ($\chi^2 = 151,489$, $df = 2$, $p < 0.001$). In reality, one in eight farmers declared being victimized because they are animal producers; more specifically, around 610 farmers working with animal production (16.2%) indicated that they had been exposed to protests, harassment, trespassing, vandalism, release of animals, personal attacks in media or the like because they are animal producers.

In Table 2 we illustrate some of the typical problems faced by farmers working with animal production. These excerpts come from an open question on victimization from the survey and are intended to provide an in-depth picture of the types of incidents animal farmers have been exposed. We split these incidents into three groups. Group 1—Face-to-face harassment, trespassing, vandalism and burglary, sabotage, threats, violence, often directed to the animal farm and their property. Group 2—Threats on the internet. Group 3—Governmental inspectors, overall public opinions and role of the police. Note some of these incidents are not related specifically to animal production but they are included here because we believe that any type of unpleasant behavior against them would inevitably affect their levels of fear, which is the focus in this article (for example, being a victim of thefts of diesel, hand-held machines, etc.). Animal

Table 2 Types of harassment and crimes reported against animal farmers

Types	Examples
Face-to-face harassment, trespassing, vandalism & burglary, sabotage, threats, violence	<p>We got phone calls mostly at night. Threats and reports that we are murderers, etc. To all family members ALSO the children!!</p> <p>Burglary, (they) released all the animals during the day when we were not home</p> <p>It happens during the day, discovered in the evening, a perfumed blanket was placed on a newborn calf, so the cow pushed the calf away and stepped on it, so it died...</p> <p>Threats and blackmail against me and family members</p> <p>Sabotage of machines, tractor</p> <p>Intrusion into pig stables where it was filmed ...the films were then spread online. Occurred at night during Christmas</p> <p>Dairy cows and heifers released on three occasions at night from the barn</p> <p>We discovered burglaries afterwards, we have therefore installed alarms</p> <p>Thefts of diesel, hand-held machines etc</p> <p>We had an employee being attacked</p> <p>Demonstrations outside the farm</p>
Threats on the internet	<p>“go vegan” etc. was scrawled on the road ahead. It was done at sunrise to judge from the pictures she uploaded on social media afterwards</p> <p>After “hanging out” on social media by animal rights activists, I discovered that someone had been in the bullpen during the night</p> <p>Intrusion in the evening by animal rights activist, was discovered through movies that were spread online.Tractor theft and GPS theft at night, locked spaces</p> <p>...photos of my animals were published on social media by animal rights activists</p>
Governmental inspectors, overall public opinions and role of the police	<p>Someone, some nearby residents have repeatedly made anonymous reports to the county administrative board with reasons, such as that I drove out feed in the dark, that the animals were without food and water, even though it was not true</p> <p>We have been robbed at night, all sorts of hand tools for about 50,000 and diesel, the police did nothing</p> <p>I have been reported to the county administrative board and reported to the municipality by neighbor, threats from neighbor, feel that neighbor wants me to have no business</p> <p>Repeated reports without grounds to the county administrative board, threat of hissing and smell during harvesting and manure driving</p> <ol style="list-style-type: none"> 1. Cages opened and rabbits were gone, probable activism but not proven. It has happened several times. 2. Early in the morning, we woke up to the dog barking and then there was a person on the farm. The police were contacted but there was no crime to report according to them

rights activists who threatened via chats and in open forums on the internet are illustrated in the second group in Table 2. For example, someone wrote that the farmer should “be put in a cage without food and water and suffer until someone cuts their throat...”. Assaults of this type are often found far away from the farm’s location. For example, threats which were directed to a farm in the Southern Sweden was posted by someone with an account located in the North. The third group is composed of examples of threats by neighbors, overall public opinion against animal productions and unplanned suspicious visits by governmental inspectors to the farms as well as the negligence of the police towards farmers’ claims of crime victimization from animal activists in particular.

Farmers working with animal production answered a question on whether or not they have been worried in the past 12 months that they, or their family or business operation, would be victimized by crime of some sort. As many as 64.5% of farmers working with animal production declared feeling worried about being victimized by crime other than typical acts of animal rights activism ($n = 3,667$). There is a relatively weak but significant correlation between those who answered “in fear of falling victim to animal rights activism” and those that declare that they “have been worried that they, or their family or business operation, would be victimized by crime of some sort in the past 12 months.” (The correlation coefficient was just 0.262 with $p = 0.000$).

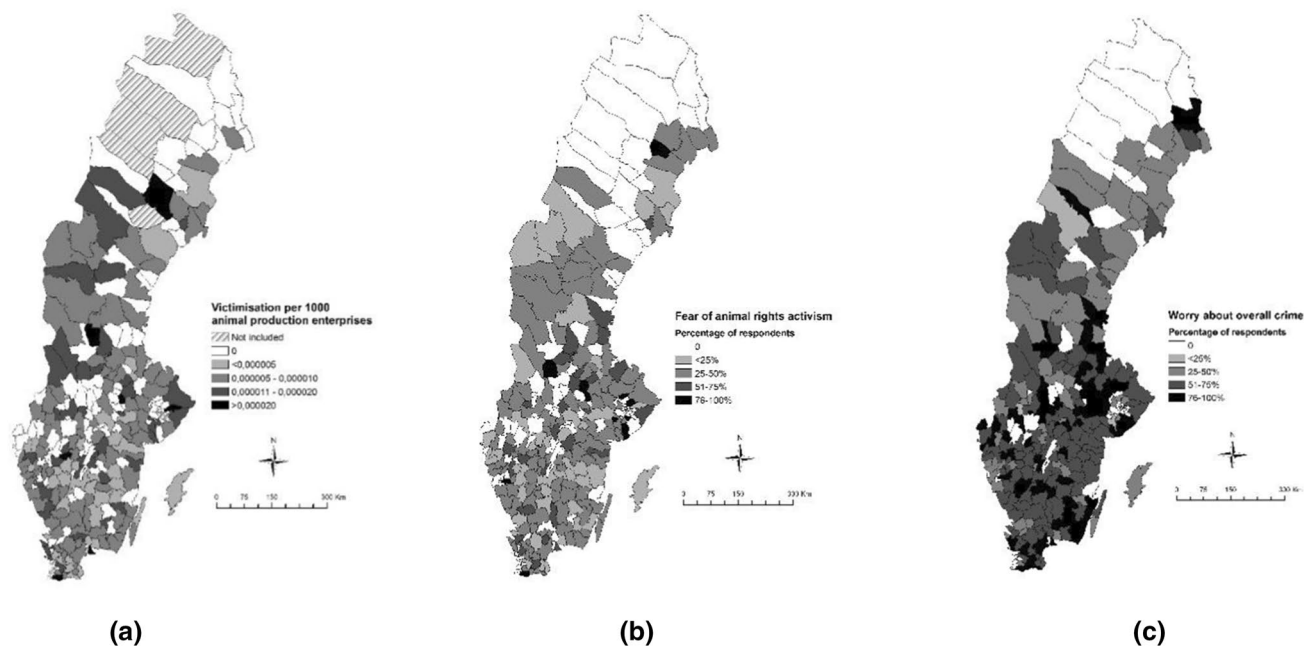


Fig. 2 The geography of victimization against animal farmers, 2020, $n=2791$ answers reported by municipality (out of 3815 animal farmers), (Carson, J. V., LaFree, G., & Dugan, a) rates per 1000 animal production enterprises (Question: *Has your business/farm ever been exposed to any type of protest, harassment, intrusion, graffiti, animal*

release, personal media attack or the like because you are an animal producer?) (b) Fear of falling victim to animal rights activism (c) worried that they, or their family or business operation would be victimized by crime of some sort in the past 12 months. Source: Authors

Similar to the pattern of fear found for the risk of animal activism, the analysis shows that the figure is much higher among those who were previously victimized (85.2%) than among those who were not (59.3%) ($\chi^2 = 173,832$, $df = 1$, $p < 0.001$). Figure 2 illustrates the geography of victimization and declared fear of victimization by animal rights activism, overall worry, and the declared victimization. Note that the current analysis of the geographical distribution of victimization against patterns of fear according to those who answered the survey is important for two reasons. First, the maps show how well the response rate of the survey matches the geographical distribution of the animal farmers’ location (Fig. 1). Thus, the maps are technically important to indicate where we failed to receive answers despite the fact we had animal farmers in those municipalities (a few areas in the center-north of the country). Second, Fig. 2 highlights the overlapping patterns of farmers’ victimization, fear of animal activism and overall fear of crime, which later on is further investigated using confirmatory analysis.

Men tend to be more fearful of animal rights activism than women are. 63.2% of those who answered that animal rights activists make them fearful are men ($\chi^2 = 45,432$, $df = 1$, $p < 0.001$). However, for worry of overall crime, the gender difference was not significant.

For age, a significant difference in declared fear among different groups of farmers working with animals was observed both in terms of fear of activism ($\chi^2 = 60,163$,

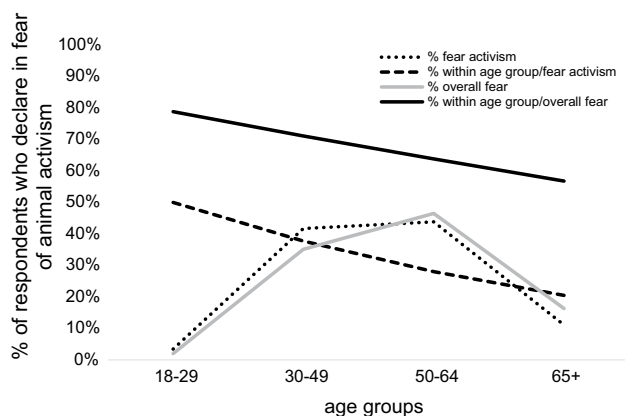


Fig. 3 Fear of activism and overall by age group

$df = 6$, $p < 0.001$) and worry of crime in general ($\chi^2 = 38,533$, $df = 3$, $p < 0.001$). Among those who are in fear, the majority are 30–64 years old. However, half of the younger farmers aged 18–29 years expressed that they felt afraid of being victimized by animal rights activism (Fig. 3). A fifth of the oldest age group (65 years and over) claimed the same. The trend is similar for worry of being victimized by overall crime: 78% of the younger farmers declared being worried about being victimized by crime, while the share of older adults who declared being worried about becoming a victim was 56.8%.

There is some co-variation between fear of activism and victimization by types of animal production. Within the different types of animal farmers, 75% of mink producers ($n = 12$) declared that animal rights activism affects their safety perceptions. This was followed by pig producers (44.4%) and broiler producers (40.6%). The two largest groups of respondents, for cow production (including dairy and beef production) and sheep and goat production, were also the least affected, 29.4% and 26.9% respectively. For overall crime (not related to animal production), all mink farmers stated that they also felt worried about becoming a victim, with three quarters (75.3%) of pig farmers declaring the same. Sheep and goat producers had the lowest share of farmers worried among animal producers (61.1%).

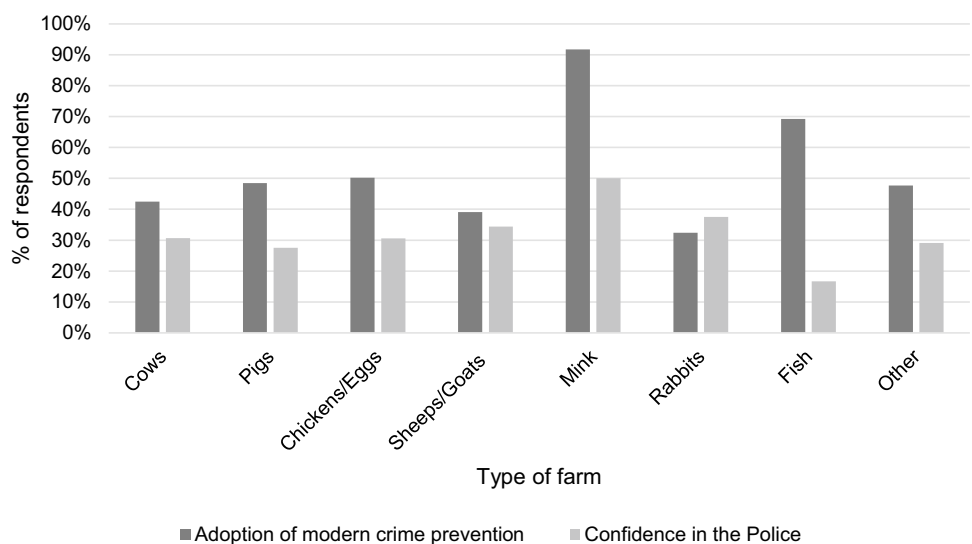
Note that all mink producers declared being victimized at least once in their lives (by being exposed to protests, harassment, trespassing, vandalism, release of animals, and personal attacks in media or similar, specifically because they are animal producers). Farmers related to dairy production (milk production, suckler-cows and other types of cattle production) make up close to half (45.5%) of those have been targeted in this way. Pig farmers are also especially vulnerable to these crimes, as 36.9% of them state that they experienced being targeted for their animal production, while for fish producers that percentage was 38.5%. For chicken and egg production, it was similar to rabbits and other animals, around 25%. The least exposed (to protests, harassment, trespassing, vandalism, release of animals, and personal attacks in media or similar, specifically because they are animal producers) were lamb and goat farmers, around 15%.

Safety perceptions declared by farmers working with animal production are also affected by the size of the operations. 44.3% of farmers who described their farms

as “Large” also stated that they felt afraid of being victimized by animal activists, while for farmers with self-described “Medium” or “Small” operations the share was smaller (36.3% and 26.1% respectively, $\chi^2 = 43,815$, $df = 4$, $p < 0.001$). For overall crime, the pattern of declared safety is similar ($\chi^2 = 64,212$, $df = 2$, $p < 0.001$). “Small” operations seemed to be less worried about becoming a victim of crime (59.3%), compared to “Medium” (73.3%) and “Large” ones (77.7%). In addition, having employees was a significant factor contributing to fear of activism ($\chi^2 = 24,564$, $df = 2$, $p < 0.001$), with 37.3% of farmers with employees being more fearful than those without (27.8%). The share of farmers with employees who were also worried about overall crime was 74.5%, compared to 61.1% of farmers without employees ($\chi^2 = 42,880$, $df = 1$, $p < 0.001$). Those that have children living with them on the property are more fearful than those who do not ($\chi^2 = 27,124$, $df = 1$, $p < 0.001$).

Farmers that are more fearful of being victimized by animal activists (49%) are also more likely to consciously have some sort of crime prevention measure in place than not have such measures (34.5%) ($\chi^2 = 70,693$, $df = 1$, $p < 0.001$). Prevention measures can range from traditional locks to modern gadgets, such as CCTVs. Although most farmers seem to feel that there is a lack of police presence, which affects their safety, this opinion differed significantly between those who fear activism and those who do not ($\chi^2 = 22,098$, $df = 4$, $p < 0.001$). Among those who declare feeling afraid of becoming a victim of animal rights activists, 65.2% lack police presence (they did not agree with the statement “There is a police presence within a distance that makes me feel safe”). Similarly, 62.5% of those who do worry about overall crime victimization also believe there is a lack of police presence, against 50.2% of those who declared not being fearful ($\chi^2 = 57,335$, $df = 2$,

Fig. 4 Adoption of crime prevention and confidence in the police by type of farm in Sweden, 2020. Source: Authors



$p < 0.001$). As Fig. 4 illustrates, both adoption of modern crime prevention measures and confidence in the police vary by type of animal farm. Mink farmers are highly targeted, adopt modern crime prevention measures and show relatively high confidence in the police.

Modeling Fear Among Animal Farmers

Table 3 reports the factors that impact on farmers' declared fear in two logistic regression models. The first one relates to fear of becoming a victim of animal activism, the second fear of becoming a victim of crime unrelated to fear of animal activism. Models were implemented as a function of farmers' individual and family characteristics, previous victimization, their use of crime prevention measures and their perceptions about support by the police.

Farmers who were previously victimized by acts of animal activism were 2.1 times more likely to declare that they feel fearful than those who had never been victims ($p < 0.001$) and 2.2 times more likely to declare that they feel unsafe if they knew someone who had been a victim of animal rights activism ($p < 0.001$). Previous victimization (whether themselves or someone they know) was the factor that most strongly explained the variation of farmers' fear of being victimized by animal rights activism as well as

fear of themselves or their families becoming a victim of crime in the preceding 12 months.

There is a clear and significant sign of altruistic fear. Farmers who live on properties with children run a slightly higher risk (1.4 times) of expressing more fear of victimization by animal rights activism than do those who do not have children ($p < 0.001$), after controlling for a number of factors such as farmers' age and gender.

The model also confirms the descriptive results that the fear of being victimized by animal rights activism was also related to the perception that the police presence is not enough to make them feel safe. Farmers who were previously victimized by acts of animal activism are 1.4 times more likely to declare that they lack the presence of the police ($p < 0.001$). Living in a typical rural municipality increases the odds of farmers declaring themselves more in fear of being victimized by animal rights activism, perhaps because of the remoteness and isolation. Note that this factor is significant at the 10% level only. In addition, both the variables indicating use of crime prevention measures and having a public internet webpage turned out to be non-significant to explain the variation of farmers' fear of being victimized by animal rights activism.

The covariates of the second model (fear of being a victim of crime/their families last 12 months) are not exactly the same as the first model (fear of being victimized by animal

Table 3 Animal farmers' safety perceptions: (1) "Animal rights activism makes me feel afraid" and (2) "Have you during the past 12 months been worried that you, your family or your business operation would be victimized by crime of some sort?"

	(1) Fear of being victimized by animal rights activism				(2) Fear of being a victim of crime/their families past 12 months			
	OR	CI 95%		<i>p</i>	OR	CI 95%		<i>p</i>
<i>Respondent characteristics</i>								
Gender (Male)	0.496	0.398	0.617	0.000	0.740	0.601	0.910	0.004
Age (Older)	.778	.557	1.086	0.141	0.827	0.639	1.069	0.147
Family kids (yes)	1.392	1.128	1.717	0.002	1.101	0.903	1.342	0.343
<i>Previous victimization</i>								
Victim of animal rights activism (yes)	2.140	1.651	2.775	0.000	1.883	1.363	2.603	0.000
Know someone who has been a victim of animal rights activism (yes)	2.227	1.798	2.759	0.000	2.504	2.042	3.070	0.00
Victim of other crimes/their family (yes)	1.668	1.324	2.102	0.000	3.454	2.621	4.552	0.00
<i>Situational factors</i>								
Size (have employees)	1.147	0.920	1.430	0.223	1.253	1.006	1.561	0.044
Type of municipality (rural)	0.605	0.347	1.057	0.078	0.437	0.282	0.678	0.00
Have public internet webpage or social media (yes)	1.012	0.806	1.270	0.920	1.264	1.013	1.578	0.038
<i>Policing & crime prevention (CP)</i>								
Modern CP gadgets (yes)	1.097	0.896	1.344	0.368	1.588	1.318	1.913	0.00
Police presence (disagree)	1.417	1.156	1.737	0.001	1.691	1.409	2.030	0.00
<i>Diagnostics</i>								
Cox & Snell R Square	0.123				0.155			
Nagelkerke R Square	0.173				0.214			

rights activism), indicating that the threats perceived for overall crime are not the same as for the risk of being a target of animal rights activism actions. For instance, there was no sign of altruistic fear for overall fear but there was for being victimized by animal rights activism. However, note that having employees on the property does increase the odds of being more fearful, which can be interpreted as an indication of altruistic fear.

Having a public internet webpage or social media presence increases slightly the chances that a farmer declared a fear of being victimized by overall crime. Being previously victimized increased by a factor of 3.4 the likelihood that a farmer would declare being fearful, while knowing someone who had been victimized increased by 2.5 such a declaration. Similarly, farmers who had a public internet webpage or social media presence were 1.6 times more likely to fear being victimized than farmers who adopted modern crime prevention interventions. However, these findings do not allow us to understand the mechanisms that explain the direction of this relationship. Those who more frequently report being in fear are also those who decide to take precautionary measures after being victimized (second set of columns).

Discussion of the Results

Harassment and criminal acts against farmers who work with animals is an increasing social problem in Sweden and elsewhere (e.g., Carson et al., 2012). Close to three out of ten (29,5%) farmers responding to the survey expressed some level of fear of criminal animal rights activism, greater than it was expected among all types of farmers according to the national survey (Johansson, 2020). Although some would argue that three out of ten farmers is not a high share of respondents who declare being in fear of activism—as well as only 16,2% having been previously victims of crimes against their animal production, we suggest that these figures should be interpreted with care. Firstly, as highlighted by Yarwood (2001), because there is less crime does not mean that crime is not a problem for people living there. Quite the opposite, crime affects not only the over 600 victimized farmers in our survey, but also each of their families; not even accounting for the employees. Secondly, victimization is unequal: among mink producers, for instance, all respondents were victimized. They are also more fearful, which is an important fact because animal rights activists seem to target particular groups more than others, which is relevant for defining crime prevention strategies. Finally, crime and fear also impact the whole community, socially and financially (Jansson, 2019).

The risk of being victimized is not randomly distributed across the country, and neither is farmers' declared fear; they

both vary by type of activity and across the country (Fig. 2). There is an overlap between patterns of victimization and patterns of declared fear, for both animal activism and of overall fear of crime. As initially hypothesized, farmers who had previously been victimized (or knew someone who had been victimized) declare being more fearful than those who had not. This is an indicator that crime against these farmers is a real problem yet greatly underestimated by society, a nuisance that can drastically reduce a farmer's personal safety as well as the safety of people living or working on the farm.

In this study, we have not focused on victimization of the animal farmers by types of incidents but we believe that a better understanding of levels of fear and seriousness of crimes against animal farmers is desirable in future studies. For instance, in one of the few empirical studies, Carson et al. (2012) found that environmental and animal rights terrorist crimes in the United States were mostly composed of property damage rather than violence. It is possible that seriousness of crimes would regulate the expressions of fear as well as the impact on animal farmers' lives.

Signs of altruistic fear, namely, fear for others as distinct from personal fear (Snedker, 2006) can be found in this study in that farmers who declare being more fearful tend more often to have children living on the property and also care for their employees. (Note that gender also turned out to be significant in the model.) They also are aware of other farmers who have been victimized in the preceding 12 months—a finding that confirms previous research—and knowing about others' victimization makes them more fearful. Drakulich (2015) suggests that altruistic fear is rooted in personal experiences of victimization and personal evaluations of the local danger posed by crime, which seems to be the case of these farmers. There are indications that farmers' fear is generated by a multiplicity of acts that are often criminal (from harassment, demonstrations, trespassing, threats, attacks, thefts, burglary, sabotage) although sometimes the incidents are not criminal, such as targeting a farmer with suspicious comments, ungrounded accusations of mistreatment of animals to the county (inspectors), or perceived acts of negligence by the police and other authorities which are supposed to support the farmers. Farmers frustration regarding animal welfare inspections by government agencies has turned into a motion in the annual meeting of Federation of Swedish Farmers in which it was stated the need of knowledge about psychological impact on farmers' health as a consequence of inspections of animal welfare (LRF, 2018).

Findings also show that overall confidence in the police is relatively low. Around a third of those who responded to the survey thought that the “police presence is within a distance that makes them feel safe,” but this figure varies slightly by type of farm or the way the question was asked. As a result, farmers' adoption of crime prevention measures also varies

by type of farm (animals), while mink farmers (who are often the target of attacks) stand out for their investment in protection.

Our results also indicate that the determinants of fear of being victimized by animal rights activism are not exactly the same as for fear of overall crime victimization, which calls for further investigation of mechanisms behind farmers' fear. What is already known is that crimes directed at animal production seem also to have different mechanisms than other types of crime (robbery, theft, and other unrelated crimes), which might explain why farmers' fears also differ by type of crime (Ceccato et al., under revision).

We intentionally asked about farmers' victimization in a general way (that is, including a series of crimes, instead of asking about crime impact on fear one by one) because these crimes often precede each other. For instance, trespassing precedes any other crimes; it could be followed by property damage (opening the barn or cages), or assaulting farmers. There is a great variety of tactics employed by animal activists and it is difficult to assess whether animal farmers would be more scared by observing trespassing than by finding out that the barn was damaged, for instance. We found particular difficult to disentangle fear by different types of incidents and offences in which farmers are victims by animal rights activist. As discussed earlier, farmers' safety perceptions may also be affected by changes in the overall public opinion of their business and their role in the community. Fear may be a result of a loss of legitimacy of their business to society as a whole as veganism reject the practices of killing the animals. As Giddens (1991) suggests, the declared safety perceptions among animal farmers can be an expression of their poor 'ontological security'. This occurs because their current role as farmers cannot be taken for granted and it has changed dramatically compared with what it was in the past. An example is how farmers declare feeling unprotected as authorities from the county administrative board come for unplanned visits to inspect their premises or by farmers' lack of on the police authorities to help them when threaten by animal rights activists.

Conclusions and Recommendations

This exploratory study set out to investigate the nature of fear among farmers working with animal production with particular focus on the impact of harassment and crimes linked to animal rights activism. Chi-square analysis and binary logistic regression were used to assess the relationships between fear and previous victimization as well as the role of the police and crime prevention practices, after controlling for individual and family factors of respondents. Although fear among farmers is determined by conditions that vary by type of farm and geographically across the country, a few

determinants are common and help explain such variation. Namely, previous victimization and perceived lack of trust in the police increase fear levels among farmers.

Note that the determinants that explain the variation of fear among farmers differ for "being afraid of animal activism" and for "overall crime" (robbery, theft, and other unrelated crimes). These findings are important because they have implications for future research and help us advocate for the inclusion of specific safety needs of animal farmers in future policies.

There is no doubt that an increasing awareness about the environmental impact of consuming animal products together with growing veganism are examples of macro-societal and environmental changes that are at the root of actions against farmers working with animal production. However, animal rights activism that is criminal is not carried out by a homogeneous group. There are individuals who peacefully demonstrate and do not commit any crime. Other groups of individuals are prepared to go further and trespass, break into the property, open cages, or reveal clandestinely films of the animals on the internet, and a minority are prepared to threaten and use violence against farmers and their families and employees. In Sweden, this last group is believed to be composed of a few individuals who are also connected with other extremist groups (see for details, CVE, 2020). In the future, any type of crime prevention program needs to consider these internal groupings in order to be successful and must investigate claimed links to international extremism. Similarly, taking distance from one-size-fits-all-solutions, crime prevention policies towards animal farmers should take their specific safety needs into account. This is important because some groups of farmers are more vulnerable to harassment and crime than others but also because their properties vary in size, location, and organization. A national crime program focused on the crime dynamics in an *rural-urban continuum*, instead of the commonly accepted rural-urban duality, is expected to be a better fit to tackle issues of animal rights activism against farmers.

In a methodological note, future research should further investigate the nature of fear of crime among farmers and how they cope with it. In particular, it is necessary to investigate potential differences between 'fear of falling victim to crime', that is a more general phenomenon, and the 'fear of falling victim to a crime by animal rights activists'. This demands a wider discussion about how to improve a measure of fear in relationship to crime for future farm victimization research in Sweden and elsewhere.

Our findings show that fear experienced by farmers can be linked to direct criminal actions of animal rights activists against them and their families and employees (e.g. trespassing and clandestinely filming the animals and spreading images on the internet). Such fear can also result indirectly from changes in norms and rules that

generate conflicts between traditional and new values (Giddens, 1991; von Essen et al., 2014) or that are normalized by routines executed by public authorities, such as subtle visits and inspections to farms to investigate suspicious claims of animal torture. To ensure good animal care, there are animal welfare laws and regulations issued by the Swedish Board of Agriculture, and each county administrative board is responsible for supervision and inspections, but routines and practices could be reassessed specially for inspectors to deal with conflicts and claims. Recommendations for better practices could also involve educational programs tailored to inspectors to improve the communication but also local police force practices to promote a better understanding of the problem and ways to solve them. An ethical discussion of these crimes against farmers in society in general is also fundamental.

In addition, we suggest that, while understanding the factors that affect farmers' safety perceptions is important—as was done in this study—we need further research that can investigate the ways by which fear impacts farmers' personal quality of life (and that of their family members and employees) and not least their livelihood. This is fundamental to guarantee the survival of an economic sector that plays an important role in food production, employment, rural development and sustainability in the countryside.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval This research was approved by the Swedish Ethical Review Authority (Dnr 2020-01323).

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Disclaimer This article contributes to the scientific understanding of fear of crime among farmers. Although most animal rights advocates are not fear provoking individuals, there have been numerous accounts in Sweden of farmers in fear because they are experiencing crimes reported to be associated with animal rights groups. This study is limited to the data and information collected on the animal farmers and victims only (not on offenders or suspects of these crimes).