



Farmers' Voices in European Protests: Diverse Complaints, Emotional Tones, and Policy Responses

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ARTICLE INFO

Keywords:

Farmers' protests

Agricultural policy

Text-analysis

Open-ended survey question

ABSTRACT

The 2024 farmers' protests across Europe signaled widespread dissatisfaction in the agricultural sector. While low farm incomes and restrictive environmental regulations are commonly cited grievances, little is known about underlying motivations and individual farmers' reasons for protesting. This study explores individual farmers' protest motivations in Germany, France, Belgium, and the Netherlands to gain a deeper understanding of the diverse concerns shaping agricultural discontent across Europe. We analyze rich text data from 2232 farmers, collected through surveys using an open-ended question designed to elicit unprompted, top-of-mind protest reasons. By using a combination of hand and AI-assisted coding, we quantify protest reasons across countries, assess the emotional tone of farmers' answers, and explore how this aligns with policy responses. Our findings indicate that farmers' main protest reasons differ across the four countries, with German farmers mainly complaining about bureaucracy, French farmers about financial reasons, Belgian farmers expressing diverse complaints, while Dutch farmers focus mainly on the political environment. The emotional tone of farmers' answers reveals that specific, targeted complaints are more often expressed in an annoyed angry tone, while broader topics seem to trigger aggressive anger. Linking farmers' protest reasons to national and EU policy responses shows that, while some key complaints received adequate policy attention, environmental complaints were disproportionately prioritized by EU policymakers and some Member States. The findings from this study have important implications with the potential to improve the effectiveness of policy responses by contributing to the identification of adequate solutions to ease farmers' grievances.

1. Introduction

With their tractors and eye-catching banners, farmers across the European Union (EU) made it unmistakably clear at the beginning of 2024 that they are more than dissatisfied with the current situation in agriculture. While the initial protest triggers varied from tax policy changes in Germany, to environmental regulations in the Netherlands, and cattle disease outbreaks in France, farmers voiced a shared sense of dissatisfaction. Despite national differences, common themes emerged across the protests: low farm incomes, competition from cheap imports, overly stringent and complex environmental regulations, and a

perceived lack of respect or understanding from politicians and the public (Matthews, 2024a, b; Matthews, 2025; Nature Food, 2024).

The scale and intensity of the protests, often also described as aggressive and full of anger,¹ brought farmers' concerns to a wider audience. Experts and media generalized about farmers' motivations, and policymakers responded rapidly at both national and EU levels. However, policy responses tended to focus on selected issues, such as environmental regulations and bureaucracy, without clear evidence that these reflected farmers' main concerns. This highlights the gap between the broad range of concerns voiced by farmers themselves and the narrower set of grievances that interest groups or populist actors

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¹ This is not unusual, as protests are often driven by strong emotions (Jasper, 2011; Woods et al., 2012).

typically aggregate for strategic reasons (Resnick and Swinnen, 2023; Erjavec et al., 2015). Thus, to fully understand the real, underlying motivations for the protests, it is essential to ask farmers directly about reasons to protest without prompting their answers. In fact, despite the protests' visibility and political impact, empirical evidence capturing real, underlying motivations remains scarce. This paper addresses this gap.

In this paper, we use survey data from 2232 farmers across Germany, France, Belgium, and the Netherlands, and provide the first large-scale, unprimed assessment of farmers' protest reasons. Our approach moves beyond categorizing stated protest reasons: we analyze the emotional tone of farmers' responses, capturing not only what is said but also how it is said. Importantly, we match farmers' articulated protest reasons to policy changes, offering the first empirical alignment between farmers' direct grievances and political responses. Thus, our paper provides several important contributions to the literature.

The main contribution of this paper is to explore, in detail, underlying individual motivations for protesting and whether protest reasons differ across countries by using data from online surveys with farmers in Germany, France, Belgium, and the Netherlands. Until now, discussions of farmers' protest motivations have remained largely at the level of generalization (Matthews, 2024a,b; Finger et al., 2024), or have focused on individual countries based on small samples (Žuk, 2025), or social media data (Mazzocchi et al., 2024). Our study advances the understanding of farmers' protests by offering the first direct and detailed insight based on farmers' own words, providing an evidence-based account of the multiple reasons behind the most significant wave of farmers' protests in recent European history.

The second contribution is methodological. We rely on an open-ended survey question that elicits farmers' unprompted, top-of-mind concerns by asking them to explain their reasons for protesting, resulting in rich, unique text data from 2232 farmers. This approach allows us to uncover farmers' reasoning processes and perceptions. While using open-ended survey questions are quite common in political science and sociology (e.g., Patton, 2023; Scholz et al., 2022), open-ended survey questions are an emerging method in economics (e.g., Andre et al., 2024; Bursztyn et al., 2023; Chopra et al., 2024; Haaland et al., 2024), which have received limited attention in agricultural economics research on understanding farmers' motivations, especially with large, quantitative samples. By quantifying farmers' open-text answers, we are able to identify differences and common themes in grievances across Europe without priming respondents with a predefined set of answers (Haaland et al., 2024; Wekhof and Houde, 2023), thereby providing a direct view into respondents' own thinking (Roberts et al., 2014).

The third contribution is that we move beyond identifying what farmers say to analyzing how they express it by inferring the emotional tone of farmers' responses using artificial intelligence (AI). Leveraging a Large Language Model (LLM) allows us to detect emotional nuances and assess whether specific reasons are voiced with greater emotional intensity (Rathje et al., 2024). This additional methodological step is important, as emotional expressions can shape how policymakers perceive and react to protest demands.

The fourth contribution is that we systematically collate policy responses to the protests at national and EU level and contrast them with farmers' stated protest reasons. This comparison allows us to assess how policymakers responded to the protests and to what extent these responses align with farmers' real concerns. While our analysis offers suggestive rather than definitive evidence, it provides important insights into potential mismatches between farmers' demands and policy measures. Overall, our study offers novel, timely, and policy-relevant insights into a critical and highly topical issue concerning the European agri-food system.

Our findings show that the main reasons for farmers' protests vary across the four countries: German farmers primarily complain about bureaucracy, French farmers emphasize financial pressures, Belgian farmers voice a broad range of grievances, while Dutch farmers' main

focus is on political issues. Analyzing the emotional tone of responses reveals that some themes are expressed with aggressive anger, others evoke a more annoyed frustration, while hardly anyone expresses optimism. When linking farmers' complaints to national and EU policy responses, we find that key complaints, such as bureaucracy and financial strain, received considerable attention. In contrast, we document a tendency that environmental issues were disproportionately prioritized by some policymakers relative to the broader spectrum of farmers' demands.

2. Background

Farmers' protests are not a new phenomenon in Europe, and they have contributed to shaping the Common Agricultural Policy (CAP) since its early days (Keeler, 1996). More recently, in autumn 2019, farmers across large parts of Europe expressed their discontent through protest actions, with a particularly strong movement in the Netherlands (van der Ploeg, 2020). In Germany, farmers also gained attention through blockades and vigils in early 2021 (Heinze et al., 2021). In the following, we describe the development of the 2023/2024 farmers' protest movement.

In Germany, the most recent farmers' protests started on December 18, 2023, following the announcement by the German government five days earlier to cut tax breaks for agricultural diesel and the tax exemption for agricultural machinery. That same day, the president of the German Farmers' Association referred to these tax cuts as a "declaration of war on German agriculture" and a "massive burden"² (DBV, 2023). Two days later, he called on members to join a farmers' protest for agricultural diesel at the Brandenburger Gate in Berlin. This initial large protest action had an impact: on January 4, 2024, the government announced that the phase-out of the agricultural diesel subsidy would be spread over three years, but that the agricultural machinery tax exemption would remain in place. Despite this, farmers were not satisfied, since their demands were only partly addressed. In addition, it emerged that protests revealed a much wider set of complaints far beyond agricultural diesel and machinery tax exemptions (Lakner, 2024). A series of actions, some also questionable, started. For example, on January 4, 2024 the Federal Minister for Economic Affairs was prevented from leaving a ferry by a mob of farmers, prompting police intervention (FAZ, 2024). In addition, protesting farmers blocked several media outlets (Bujdei-Tebeica, 2024), the political Ash Wednesday event organized by the Green party had to be cancelled due to safety reasons, and road blockages involving manure piles, tractors and straw bales led to car accidents that injured several people (Berliner Zeitung, 2024; Taz, 2024). At the same time, a week of action by farmers began, culminating in another large-scale protest in Berlin. The protests gradually subsided over the course of March. On March 22, 2024, the German government's decision to abolish the agricultural diesel subsidy was approved (Wigger, 2024).

In France, discontent began in late summer 2023 with a symbolic protest: rural town entrance signs were flipped upside down under the slogan "We're walking on our heads", interpreted at the time by the media as a general criticism of the way the agricultural sector was treated by public authorities (Bono and Purseigle 2024). Specific protest movements took place, notably in the South-West, where non-unionized livestock farmers started spontaneous demonstrations to raise awareness of their financial difficulties associated with the emergence of the epizootic hemorrhagic disease (EHD). By blocking motorways, they

² To put this in context, according to the federal subsidies report, the planned cuts totaled €925 million; €485 million from ending the vehicle tax exemption and €440 million from abolishing the agricultural diesel privilege (Bundesministerium der Finanzen, 2023). This results in a financial burden of 3.5% of total farm profits (based on 2021/2022 farm profits) or an average of €26.50 per hectare (Brümmer, 2024).

attracted considerable media attention. The movement intensified in late January 2024, when French farmer unions caught up with the initial protests and aligned with protests in Germany. The dominant French farmers' union (FNSEA) then took the lead, and brought wealthy field crop farmers from the North into the movement. At the same time, unions were mobilizing ahead of the January 2025 chamber of agriculture elections: they leveraged the agricultural sector's anger to build their campaign and attract votes (Parlons Climat, 2024). The protests peaked in February, and culminated at the time of the International Agricultural Show in Paris (Feb 24–Mar 3, 2024), heightening political pressure on a crisis-hit government.

In Belgium, farmers carried out a series of increasingly disruptive protests with the goal of drawing attention to their grievances, sparked by uncertainty surrounding nitrogen regulations in Flanders and widespread discontent in Wallonia. The demonstrations started in January 2024 with large tractor convoys and symbolic actions, like dumping manure and hay in front of government buildings (VRT NWS, 2024). Protests took place primarily in Brussels, accompanied by farmers from various European countries, notably influenced by efforts led by Christiane Lambert, the French president of the Committee of Professional Agricultural Organizations (Copa-Cogeca) based in Brussels, who amplified the movement at the EU level, sharply criticizing the Green Deal and Farm to Fork strategy. Belgian farmers also blocked distribution centers, ports, railway crossings, and supermarkets all over the country, with some blockades lasting multiple days. On February 1, 2024, over 1300 tractors from different member states gridlocked Brussels during an EU summit, with farmers hurling eggs, burning tires, and unfurling protest banners (VRT NWS, 2024). Later, on February 26, nearly 900 tractors joined another protest timed with a meeting of EU agriculture ministers, during which farmers lit fires, sprayed manure, and clashed with police, who responded with tear gas and water cannons. The intensity continued on March 26 as protesters set fires, threw flares, and dumped produce near EU buildings, again prompting riot police intervention. A final significant protest occurred on June 4, 2024 at the Atomium, where around 500 tractors and demonstrators gathered, some aligned with far-right groups, to coincide with European elections (Landbouwen, 2024). These shows of force in Brussels were flagged by farmer unions as a signal that farmers from all over Europe were united and had common and urgent claims that needed immediate attention. With European Parliament elections looming in June, and Belgium holding the EU presidency, political leaders across Europe rushed to show solidarity with farmers' grievances.

In the Netherlands, protests started as early as October 2019, sparked by the so-called “nitrogen crisis” that involved tightened national environmental regulations on nitrogen emissions to adhere to the European Natura 2000 obligations (Stokstad, 2019). The initial protests took place in The Hague, but soon spread across the country over the period 2019–2022 in various forms, such as blockades of roads or supermarket distribution centers, demonstrations around government headquarters, and displaying an inverted Dutch flag or wearing a red farmers' handkerchief (Siegmann, 2024). This initial wave of protests led to the formation of a pro-farmers political party BoerBurgerBeweging (BBB, or Farmer–Citizen Movement) in 2019. The BBB won a single seat in parliament in the 2021 general election, achieved a larger victory by winning most seats in nearly all provinces during the 2023 provincial elections, and even joined the current coalition government in May 2024 (Matthews, 2024a,b). Even though smaller demonstrations took place in 2023 (e.g., organized by the farming activist group Farmers Defence Force (FDF)), it was not until protests swept through Germany, France, and Belgium in early 2024 that protests and tractor blockades picked up again in the Netherlands from early February 2024 onward (NOS, 2024). This latest round of protests marked a significant evolution from earlier demonstrations, by being integrated into a broader European context of discontent and deeper political integration through the electoral success of the BBB.

3. Data and methods

3.1. Survey

We conducted online surveys with farmers in Germany, Belgium, and the Netherlands from May to July 2024, shortly after the protests had finished. Ethics approval was obtained for data collection in Germany, Belgium, and the Netherlands by the Research Ethics Committee of the University of Göttingen. Additional approval was sought for the Netherlands through the Research Ethics Committee of Wageningen University & Research. In Germany, the survey was conducted through a survey company that sent invitation letters to farmers by email. In Belgium, the survey was distributed via farmers' organizations and agricultural newspapers, while in the Netherlands, we posted the survey link through a popular farming news outlet.

All survey participants were first asked to provide informed consent. The surveys in Germany, Belgium and the Netherlands were designed jointly, with the main focus of eliciting farmers' reasons to protest. For France, we received data from a survey conducted by a private company in April 2024 and distributed via email to 130,000 farms through the mailing list of a major French agricultural newspaper. Specifically, we obtained data from an open-ended question on protest reasons worded as: “What are the main reasons that motivate farmers to express their discontent?” in addition to data on protest participation, farm size, and farming system.

In relation to the selected countries, the choice of the four countries was guided by the aim to include the first and main countries where farmers' protests took place in December 2023 and January 2024 (Finger et al., 2024; Gurcov et al., 2024), before other countries joined in. However, we acknowledge that not including countries, such as Italy or Poland, narrows the geographical coverage and the elicitation of reasons and national policy responses. Yet, the final selection of countries was also shaped by pragmatic considerations.³

The main question of interest is an open-ended question to elicit farmers' reasons for protesting. The idea was to get unprompted protest responses and thereby elicit what is top of mind for farmers in relation to protest reasons without priming their thoughts (Haaland et al., 2024). Following best practice (Stantcheva, 2023), the open-ended question was followed by another question probing whether anything else comes to mind in the German, Belgian, and Dutch surveys. In addition, all surveys included questions on protest participation and support, farm systems, and farm size. An overview of the structure and content of the surveys we conducted in Germany, Belgium and the Netherlands is provided in Table 1. We then merged our survey data with the data received for France.

As we merged our own survey data with secondary data from France, the main question of interest (i.e., the open-ended question to elicit unprompted protest reasons) and the protest participation⁴ question differ slightly between the French data and the remaining countries, see Tables 1 and 2. Yet, both open-ended questions elicit farmers' protest reasons, enhancing comparability. Nevertheless, we carefully read all text answers, and there was no evidence that the answers from France provided conceptually different input than the answers in the remaining surveys, i.e., all answers directly addressed protest reasons and discontent. Thus, this suggests that the main variable of interest is comparable across countries.

³ The short-term availability of participating researchers with access to farmers and relevant networks was an important factor. As the protests emerged suddenly, we did not have dedicated external funding for this study, which limited the scope of data collection to countries where collaborators could act quickly.

⁴ Please note that protest support was not included in the French data set.

Table 1
Overview of survey structure across countries.

	Germany	Belgium	Netherlands
<i>Survey Organization</i>			
Data collection (online)	Survey company	Distribution by agricultural organizations and newspapers	Online newspaper advert, newsletter and social media
Period of data collection	March to May 2024	May to July 2024	June to August 2024
Representative sample	In relation to region, age, gender	In relation to region	In relation to region and age
<i>Questions about farmers' protests</i>			
Participation	Starting from December 2023, farmers' protests have taken place in Germany and other EU countries. Did you participate in any of the farmers' protests? (yes/no)	Since December 2023, farmer protests have taken place in various EU countries, including Belgium. Did you participate in any of the farmers' protests? (yes/no)	As of December 2023, farmers' protests have taken place in several EU countries, including the Netherlands. Did you take part in any of the recent farmers' protests (as of December 2023)?
Support	To what extent do you support the farmer protests? (Measured on a scale from 0 (no support) to 100 (full support)).		
Protest reasons (open-ended)	After the protests started, the German government has decided on a stepwise abandonment of the tax relief for agricultural diesel and withdrew the plans to tax farm machinery. However, the protests continued. In your opinion, what are the main reasons why farmers continued to protest? This question is very important to understand reasons for the protests and to create policy advice. Please take your time answering it.	In your opinion, what are the main reasons why farmers are protesting? This question is very important to understand reasons for the protests and to create policy advice. Please take your time answering it.	
Follow up question (open-ended)	Are there any other reasons you can think of?		
Protest reasons (closed-categories)	5-point Likert Scale questions to assess agreement (1: strongly disagree, 5: strongly agree). – Farm prices are too low to provide a fair income. – Imports not produced to EU standards undermine domestic markets. – Environmental regulations have become an intolerable burden. – Farmers do not receive the respect they deserve from society. – The administrative burden of the CAP is too much		
<i>Survey structure</i>			
Sections	- Farm characteristics - Farmers' protests - Assessment of perceptions	- Attention check - Farm characteristics - Farmers' protests	- Attention check - Farm characteristics - Farmers' protests

Table 1 (continued)

	Germany	Belgium	Netherlands
	- Climate change and CAP attitudes - Political attitudes and farmer organization membership - Location and farmer characteristics - Survey bias opinion	- CAP assessment and uncertainty - Farmer characteristics and location orientation - Survey bias opinion	- CAP assessment and uncertainty - Socio-economic characteristics and location - Political orientation - Survey bias opinion

Table 2
Overview of data from France.

<i>Survey Organization</i>	
Data collection	Survey company Link sent to 130,000 email addresses of farmers April 8–29, 2024
Period of data collection	
Representative sample	In relation to region, age, gender
<i>Questions about farmers' protests</i>	
Participation	Have you participated in farmers' protests? 1. Yes, I have participated in numerous demonstrations 2. Yes, I have participated in some 3. No, I have not but I support the protests 4. No, I have not because I disagree with this movement 5. I do not wish to respond
Support	Not asked
Protest reasons (open-ended)	What are the main reasons that motivate farmers to express their discontent?
Follow up question (open-ended)	Not asked

3.2. Data

Overall, our data set comprises 2232 observations across all countries. This includes 305 observations from Germany, 1012 from France, 199 from Belgium, and 716 from the Netherlands. In line with differences in the agricultural sectors across the EU, our sample farms differ in size and production system across countries. Summary statistics are provided in Table 3.

In Germany, our sample data is representative in terms of regional distribution. However, cereal farms are overrepresented in our data, and our sample average farm size of 253 ha is significantly larger than the national average of 65 ha (Destatis, 2024). This can be explained by a small number of very large operations in the Eastern part of Germany. The French sample is representative in terms of age, gender, and regional distribution,⁵ but the average farm size of 128 ha is greater than the French average (69 ha). In relation to farm systems, field crops are underrepresented, while pig, poultry, and dairy farms are overrepresented. The Belgian sample is also representative in terms of regional distribution but shows an overrepresentation of larger farms (79 ha of sample farms vs 39 ha national average) and farms with ruminants. For the Netherlands, the sample represents regional spread and typologies accurately, with only an underrepresentation of horticulture and permanent crop systems. The average farm size (65 ha) is also larger than the national average (44 ha). Overall, our samples are skewed towards larger farms and certain farm types (i.e., cereal farms in Germany, and livestock/dairy farms in France and Belgium). Samples skewed towards larger farms are a common problem in farmer surveys, see for example Läßle and Osawe (2023) and Kuhfuss et al. (2016).

⁵ Based on information received about the data set.

Table 3
Summary statistics of the sample data for all countries.

	Germany	France	Belgium	Netherlands
Protest participation ¹	68.85	42.39	72.36	30.59
Support (0–100)	75.54 (26.77)	–	87.77 (20.03)	75.87 (29.09)
Categories assigned ²	2.94 (1.65)	2.04 (1.15)	3.55 (1.75)	2.43 (1.10)
Farm size (ha)	252.51 (930.22) [65.04]	128.00 (122.59) [69.00]	78.50 (151.16) [38.70]	64.82 (70.12) [43.60]
Farm system (% of farms)				
Field crops	44.92 [35.37]	15.42 [28.78]	28.64 [33.72]	21.37 [22.60]
Horticulture	0.33 [3.87]	1.68 [3.87]	4.52 [8.40] ³	6.84 [16.30] ³
Permanent crops	2.30 [6.63]	18.97 [19.10]	0.00 [–]	2.65 [–]
Dairy, cattle, sheep, goats	24.92 [39.70]	39.62 [32.47]	50.75 [38.60]	49.72 [48.20]
Pigs and poultry	9.18 [4.97]	8.00 [4.90]	12.06 [7.76]	6.15 [6.90]
Mixed farms	18.36 [–]	8.30 [10.57]	4.02 [9.72]	4.61 [6.00]
Other	0 [–]	8.00 [–]	0 [–]	8.66 [–]
Observations (n)	305	1,012	199	716
(% of farms)	0.12	0.26	0.57	1.40

Mean (St.dev.) for continuous variables, % for binary variables. Numbers in [] are national statistics. ¹In France, participation also included an option 'do not want to answer', which was chosen by 2.37% of sample farmers. Protest support was not included. ²Categories assigned: number of protest reason categories each answer was assigned. ³Horticulture and permanent crops are jointly reported in national statistics for Belgium and the Netherlands.

Nevertheless, it is important to keep this in mind when interpreting the findings.

It is also important to note that our country samples differ in absolute size (see last row of Table 3). Belgium, with 199 farms, has the smallest absolute sample, whereas France has more than 1000 observations. However, when considered relative to the national farm populations, the Belgian sample (0.57 % of all farms) is not smaller than the French sample. In relative terms, the German sample is the smallest. In Germany, however, data were collected through a professional survey company, which helps mitigate concerns about representativeness. The Dutch sample is the largest in relative terms. These differences in sample size inevitably affect the precision and comparability of results across countries. Since we do not pool the data and restrict ourselves to descriptive statistics, the results should be interpreted as indicative patterns rather than strictly comparable estimates.

In line with the generally observed large size and support of farmers' protests across Europe, reported participation by our sample farmers was also high (see top rows of Table 3). This is particularly true in Germany and Belgium, with 69 % and 72 % of our sample farmers, respectively, taking part. In contrast, participation was lower in France and the Netherlands. 42 % of French sample farmers joined the protests, while in the Netherlands only 30 % of sample farmers protested in early 2024. However, additional data collected (not shown) reveals that many Dutch sample farmers (56 %) participated in previous protests in 2019–2023. As the 2024 protests were only the latest wave in a series of protests (that started in 2019), enthusiasm among farmers to protest was also reported to be much lower in the Dutch (agricultural) media (Boerderij, 2024). Beyond participation, our findings also show broad support for the protests. On a scale from 0 to 100, average levels of support exceeded 75 in Germany and the Netherlands and reached 88 in Belgium.

In relation to the number of categories each answer was assigned to, Belgian farmers stated the most reasons with 3.54 on average, followed by German farmers with 2.94, Dutch farmers with 2.43, while French

farmers stated 2.04 reasons on average. This difference could partly be explained by the fact that we specifically asked a follow-up question in the surveys we conducted in Germany, Belgium, and the Netherlands. This led to additional information in almost 40 % of answers for Germany and Belgium, and over 60 % of the answers in the Netherlands. Despite this difference, we did not receive fewer types of reasons in the French data, which ensures that the core variable is comparable across countries.

To explore whether protest participation and support differ by farm size, we divided our samples into bottom 25 %, middle 50 % and top 25 % in relation to farm size, see Table 4. In Germany, France, and Belgium protest participation by our sample farmers increases with farm size, which is not the case for the Dutch sample farmers. Here, we observe the highest participation rates for the middle 50 % farm size farmers. In relation to protest support, we do not find significant differences between the farm size groups.

In relation to protest participation by farm system, among our sample farmers in Germany, 66 % of cereal farmers and 67 % of dairy, cattle, or sheep farmers participated. In France, 50 % of cereal farmers and 53 % of permanent crop production farmers joined the protests, compared with just over 40 % of livestock farmers. In Belgium, more than 80 % of livestock farmers participated, whereas cereal farmers had a lower participation rate of 65 %. In the Netherlands, only 26 % of cereal farmers took part in the protests, while livestock farmers showed higher participation of 35 %. Given that nitrogen regulation is a key issue in the Netherlands, this pattern is not surprising. A complete overview of protest participation by farm system is provided in Appendix 1.

3.3. Analysis of text data

Open-ended survey questions are an emerging method in economics (e.g., Andre et al., 2024; Bursztyn et al., 2020; Chopra et al., 2024), but the analysis of open-ended survey questions is more common in other social sciences, such as political science and sociology. We draw inspiration from these disciplines and apply recent insights on best practices, for example regarding formulating questions (Patton, 2023), following correct text analysis procedures (Popping, 2015) and dealing with cross-cultural differences (Scholz et al., 2022).

In general, there are several ways to analyze text data,⁶ and we use a combination of human coding and AI-assisted coding following Haaland et al. (2024). Traditional hand-coding of text data is increasingly complemented by AI (e.g., Bursztyn et al., 2023; Graeber et al., 2024). For example, recent studies indicate that LLMs can classify text data with high reliability, which is also reproducible (Gilardi et al., 2023). However perfect replicability is not yet possible with ChatGPT (Leek et al., 2024). In economics, several recent papers have successfully applied

Table 4
Protest participation and support by farm size and country.

Farm size	Variable	Germany	France	Belgium	Netherlands
Bottom 25 %	Participation	49.35 %	32.41 %	59.62 %	25.41 %
	Support	73.53 %	–	86.27 %	75.23 %
	Observations	77	253	52	181
Middle 50 %	Participation	72.73 %	42.37 %	73.47 %	33.89 %
	Support	73.78 %	–	87.88 %	76.30 %
	Observations	154	498	98	360
Top 25 %	Participation	81.94 %	53.82 %	83.67 %	28.24 %
	Support	80.90 %	–	89.16 %	75.55 %
	Observations	72	249	49	170

Note: Sample size differs for Germany, France and the Netherlands due to 2, 12 and 5 missing values respectively in the farm size variable.

⁶ See Stantcheva and Ferrario (2022) and Ash and Hansen (2023) for an overview of text analysis methods.

LLMs (mainly OpenAI's ChatGPT) for text classification tasks (see Bursztyn et al., 2023; Graeber et al., 2024;). The use of LLMs, such as ChatGPT, offers significant advantages in qualitative research across the entire research process (Bano et al., 2023; Rathje et al., 2024). Their ability to process large volumes of text quickly and efficiently enables more in-depth analyses than traditional manual approaches. While LLMs such as ChatGPT-4 can be a low-cost and viable alternative to human coding of qualitative data, their performance may depend on factors such as the quality of the prompt, the specific model used, and the complexity of the classification task (Rathje et al., 2024). Moreover, LLM-based classifications can be affected by limitations such as hallucinations, context misinterpretation, and a lack of full transparency in decision-making (Krugmann and Hartmann, 2024), making careful human validation (still) essential.

We use an inductive coding approach, which is useful for discovering the main reasons why farmers were protesting (Haaland et al., 2024). As a first step, we developed a set of categories. To this end, all text responses were initially read by at least two native speakers per country to identify main themes in the text answers. We also provided an LLM (OpenAI's ChatGPT-4o and 3.5) with sample responses and a request to identify main themes. We then compared and discussed human and LLM themes and developed country-specific categories to be included in the coding scheme. Based on these initial country-specific lists of themes, we discussed the suggested categories among the researchers. Initial categories were iteratively refined; for example, initial categories relating to 'government criticism' and 'policy uncertainty' were merged into 'policy dissatisfaction.' Based on this iterative procedure, we developed a joint coding scheme for all countries (shown in Table 5), including the following 12 categories: 1) bureaucracy, 2) regulations, 3) financial strain, 4) policy dissatisfaction, 5) missing future prospects, 6) societal criticism, 7) unfair market conditions, 8) public good measures, 9) general discontent, 10) protest and community, 11) working conditions, and 12) other. Naturally, some categories are more prevalent in some countries than others, but for comparative reasons we decided to use the same categories across all countries and apply one coding scheme.

A written coding scheme was developed that included the main category, a description, and examples for each category, see Table 5. While most categories are self-explanatory based on the information in Table 5, the category 'public good measures' needs further explanation. This category was designed to capture complaints about environmental and climate measures, as well as animal health and welfare, as these topics are related and did not warrant separate categories. Distinguishing between general regulations and environmental regulations also emerged as important from the data, hence our approach to include all answers relating to complaints about environmental measures under 'public good measures'.

As a second step, following best practice, we applied double coding (Haaland et al., 2024). Thus, we coded the data by two independent means for each country. In France and the Netherlands, we used two human coders to classify the data. In Germany and Belgium, one researcher or research assistant hand-coded the answers into the respective categories, and we used Open AI's ChatGPT-4o as a second coder (Rathje et al., 2024). The human coders and LLM coding followed the same coding scheme. The coding scheme also served as prompt for the LLM, provided in Appendix 2. Prompts need to be concise but still provide clear instructions (Leek et al., 2024; Rathje et al., 2024). We decided to provide example sentences, which improved performance, also found by others (Leek et al., 2024). Temperature, which controls the level of randomness in the model's output, was set to zero, leading to more deterministic results. However, even with a temperature of zero, perfect replicability is not yet possible with ChatGPT (Leek et al., 2024). Following best practice, we compared the classification of human and AI coding and achieved satisfactory results, with percentage agreement ranging from 71 to 91 % depending on the respective category. In the Netherlands and France, coding was completed by human coders only, again using at least two independent coders. Given the multilingual

Table 5

Overview of categories, description and examples answers.

	Category	Description	Examples
1	Bureaucracy	High demands in documentation, paperwork, and other administrative tasks, including office time and procedural complexities. Administrative burden.	"Too much bureaucracy"; "high administrative burden"; "bureaucratic madness"; "we spend more and more time in the office"
2	Regulations	Legal obligations, including regulations, laws, and constraints, often involving red tape, and understood as inadequate (not related to the environment, animal health, or welfare).	"Too much regulation in the operation"; "overburdening of farms with [...] regulations"; "requirements"
3	Financial strain (Financial)	Financial and income challenges, including high costs, low revenues, inadequate agricultural income, and unremunerative prices relative to work and investments.	"The general cost and revenue situation"; "too little income compared to the invested capital"; "rising costs"
4	Policy dissatisfaction (Policy)	General dissatisfaction with politics, including a loss of trust in political decisions, criticism of the national government, and poor alignment of public policies with agricultural needs, lack of understanding of farmers' situations by stakeholders.	"Political promises were not kept"; "because political backing is missing"; "dissatisfaction with politics in general";
5	Missing future prospects (Future)	Concerns about the future of agriculture, including the lack of vision for the sector, challenges in farm renewal, difficulties in succession planning for young farmers, and low retirement pensions.	"Farmers don't like to mention that their farms are no longer able to bear the increased burdens caused by 'old-age pensioners' [...]"; "there is no future for the next generation of farmers"; "we cannot see where all of this is heading"
6	Societal criticism (Society)	Criticism of urban society and media portrayal of agriculture, reflecting a perceived lack of appreciation for farmers and a decline in their social status.	"Negative reporting in the media"; "no appreciation"; "95 % have no idea about agriculture"; "agri-bashing"; "We are considered polluters, but we are the ones who provide food for everyone"
7	Unfair market conditions (Competition)	Injustice in the global market, including unequal power relations, unfair production conditions, and the inequitable distribution of value within supply chains.	"Loss of competitiveness"; "imports are not subjected to the same strict criteria and norms"; "We need mirror clauses on imports"; "The agro-industry is profiting at our expense by paying us indecently low prices"
8	Public good measures (Environment)	Environment, climate, animal health and welfare measure complaints. The role of agriculture in environmental protection, climate change, and the associated regulatory challenges, including complaints about measures related to biodiversity, animal health, and welfare.	"Many of the producing farms [cannot] take advantage of the funding opportunities aimed at extensification"; "Environmental and sanitary constraints that are too stringent, too numerous, and absurd"; "The rules on when you can trim hedges or sow cover crops are too inflexible"
9	General discontent (Discontent)	Unspecified and broad dissatisfaction with the overall situation,	"General dissatisfaction"; "general frustration and

(continued on next page)

Table 5 (continued)

Category	Description	Examples
	reflecting a sense of frustration and discontent within the agricultural sector.	feeling of powerlessness"; "Nothing seems to work"
10 Protest and community (Community)	Solidarity within the agricultural protest movement, highlighting unmet demands, including issues like agricultural diesel refunds and vehicle tax exemptions.	"We farmers stood 100 % behind the protests"; "No compensation offered"
11 Working conditions (Work)	Difficult working conditions, high workloads, work-related risks, lack of vacations, and challenges in finding employees.	"Working an average of 10 h a day, 7 days a week, with no holidays, no rest, and an hourly rate of €3.18. This is modern-day slavery"; "hardship and accidents"
12 Other	Any answers that could not be categorized in any other category.	

Names in brackets are category labels used in graphs, if different from the full category name.

nature of the text data, we assigned different coders based on language, prioritizing native speakers to ensure that cultural nuances were appropriately captured in the coding process. Following common practice, each answer was coded into all applicable categories, i.e., it could fall into several categories (Graeber et al., 2024). After the independent coding was completed, we identified all answers with differences in the coding, and the respective coders decided jointly on the most appropriate codes for each answer. If one of the coders was an LLM, the human coder decided on the most appropriate category.

As each answer contained multiple topics, we also explore how often topics were mentioned together. To this end, we first calculate co-occurrences expressed as percentages, and then visually display them in a network graph. The network graphs represent each specific category as a node (a circle whose size is scaled to its importance) and connect them with lines (edges) indicating topics being mentioned together with thicker lines indicating that the reasons were mentioned together more often. Overall, the network graphs present a visually appealing representation of co-occurrences, where highly connected (central) nodes and the intensity of the connections stand out.

In addition, we also assessed the emotional tone of each answer by using OpenAI's ChatGPT-4o (Rathje et al., 2024). This means that one emotion was assigned to the overall tone of each answer. In many cases, one answer included several protest reasons, which were assigned to the same emotional tone.⁷ Emotion analysis can be done using various methodologies (Nandwani and Verma, 2021). As a guide, we used the numerous emotional states that can be found in various emotional models, i.e., Plutchik, Ekman, Izard, Shafer, and Tomkins as shown in Nandwani and Verma (2021). The researchers then re-read farmers' answers for each country and jointly decided on the following main set of emotions: aggressive anger, annoyed anger, sadness, anxiety and fear, optimism, and no emotion (i.e., matter of fact statement). Aggressive anger is expressed as resentment, rage, and indignation, while annoyed anger means that farmers express frustration or annoyance, such as irritation and dissatisfaction. The distinction between aggressive and annoyed anger is derived from the Plutchik emotion model (Nandwani and Verma, 2021). We deemed it important to create two different

categories for anger as aggressive anger represents more of an active stance while annoyed anger reflects more passivity. We then followed Rathje et al., (2024) to code the overall tone of each answer through OpenAI's Chat GPT-4o. We used exactly the same prompt in all countries, provided in Appendix 3. Following best practice (Rathje et al., 2024, we tested several prompts, and decided to provide a description of the respective emotion, followed by an example to be consistent with our prompt to code protest reasons.⁸

3.4. Collating policy changes

We assembled all national policy changes in each country and at the EU level that were introduced or officially announced⁹ after the protests started in late 2023 until September 2024, as our primary objective was to assess immediate policy responses. We utilized online sources and direct government communications.

Once collated, we classified the policy measures according to the previously outlined categories (see Table 6) of farmers' protest reasons (i.e., bureaucracy, regulations, financial strain, etc.) for each country. Each policy measure was assigned to one category that most closely matched the policy's main purpose. The classification was based on the stated justification by the policymakers when announcing the measures. For example, measures were coded as bureaucracy if they aimed to reduce administrative burdens (e.g., elimination of controls for farms under 10 ha in the EU CAP simplification package).

The category 'regulations' includes measures such as reducing the time for legal challenges against agricultural projects (France) or reduced penalties for violations regarding manure regulations (Belgium). All measures that included financial compensation for farmers were assigned to financial strain. This also means that measures that target the environment are counted under financial strain if they are based on increased subsidies (e.g., increased support for organic farming (France)). In France, the support to organic farms was presented as public spending to help farmers financially (including organic farms) and not to encourage organic farming. The category 'missing future prospects' covered measures to improve long-term viability (e.g., support for farm succession in France). 'Societal criticism' included initiatives such as the EU Strategic Dialogue on the Future of Agriculture or national campaigns to increase citizen support for farmers. 'Unfair market competition' comprised interventions addressing supply chain power imbalances (e.g., measures against unfair trading practices in Germany). 'Public goods' captured adjustments to CAP GAECs and na-

Table 6
Overview of policy responses by country.

Protest Reason	Germany	France	Belgium	Netherlands
Bureaucracy	12	4	8	1
Regulations	0	1	3	0
Financial strain	6	7	8	1
Policy dissatisfaction	0	0	0	0
Missing future prospects	2	3	3	3
Societal criticism	1	5	3	3
Unfair market conditions	3	3	5	1
Public good measures	5	3	8	5
General discontent	0	0	0	0
Protest and community	0	0	0	0
Working conditions	0	1	0	0
Total	29	27	38	14

⁸ Note that by including descriptions and examples of emotions, our prompt is instructional yet still zero-shot and not few-shot as we do not include any labeled examples of completed input-response pairs.

⁹ We included all policy announcements that were specified as clearly defined measures but excluded task force type initiatives.

⁷ On average, each answer included 2.42 reasons (i.e. assigned categories). Robustness analysis with one main and a secondary emotion showed that in over 90% of the cases only one emotion was categorized. Hence, we decided to proceed with assigning one emotion per answer.

tional eco-schemes. Finally, ‘working conditions’ included measures aimed at labor costs or employer contributions (observed only in France).¹⁰

We then counted the number of policy measures for each category. While this coding disregards whether the policy change has a big or small impact, or requires a large budget or not, the simple counting provides useful insights into what has been addressed in each country.¹¹ Table 6 provides an overview of the number of policy responses per category and country. The full description of each included policy measure is provided in Appendix 4. As can be seen, the absolute number of policy responses per country differs. Belgium implemented and announced 38 policy amendments, while the Dutch government made comparatively few policy adjustments.

As a final step, we match the frequency of the farmers’ protest reasons to the respective number of policy changes and depict this graphically. Overall, this provides suggestive evidence of how farmers’ main protest reasons and policy responses align.

4. Results and discussion

4.1. Protest reasons

First, we focus on farmers’ stated protest reasons retrieved from the text data. Following the description in the methods section, we identified the main reasons for protests in the four countries and grouped them into the following twelve categories (shown in Table 5): bureaucracy, regulations, financial strain, policy dissatisfaction, missing future prospects, societal criticism, unfair market conditions, public good measures, general discontent, protest and community, working conditions, and other.

The vast majority of categories address the same main themes in all four countries. This holds for bureaucracy, regulations, financial strain, missing future prospects, unfair market conditions, and working conditions. Low farm incomes (included in the category ‘financial strain’) and trade competition (included in the category ‘unfair market conditions’) have been described as common grievances of farmers (Matthews, 2024a, b; Nature Food, 2024). Our analysis confirms these reasons. In relation to bureaucracy and regulations, the EU Commission conducted a survey to assess farmers’ views on these issues. The survey found that one-third of EU farmers work more than six days per year on administrative tasks linked to the CAP, and 44 % reported being required to submit the same piece of data several times (EC, 2024). The focus and results of this survey align with our findings of shared common grievances across countries.

Yet, other categories are common in all four countries but have slightly different foci. This is the case for the category ‘policy dissatisfaction’, which encompasses the widespread discontent with policy measures at national and EU levels. Among German and Belgian farmers, criticism of the national government is especially prevalent, e. g., “The traffic light coalition must go!” (Germany) and “The minister of environment is not competent” (Belgium). In contrast, French farmers’ policy complaints are mainly targeted at EU policies, e. g., “politicians or EC bureaucrats do not understand our constraints...”. In the Netherlands, typical statements in this category include: “Politics is far removed from the reality of what’s actually happening on farms in practice” and “The main reason, in my opinion, is the inconsistent

government policy.”.

Societal criticism is another category where answer themes diverge across countries. In France, “agri-bashing” is a word frequently mentioned. Agri-bashing has become a common term in France, popularized by the farm unions themselves, to describe the perceived negative portrayal of the intensive agricultural sector by media and society. In contrast, farmers in the Netherlands mention negative media framing and discussions “about farmers” rather than “with farmers”. Yet, van der Ploeg (2020) describes that “agri-bashing” was a common theme in the 2019 farmers’ protest in the Netherlands. In Germany, statements such as “the work is not appreciated, especially by city people” are representative of a feeling that farmers feel misunderstood by society. Despite our observed country differences, societal criticism is a shared concern among EU farmers. For example, Matthews (2024a) writes that the constant criticism directed at animal food producers, mainly due to animal welfare concerns, their climate impact, or their role in water and air pollution, gradually undermines farmers’ morale. In this context, the EU Strategic Dialogue played a significant symbolic role, contributing, at least at the media level, to easing tensions by demonstrating that the European institutions are attentive to grassroots concerns.

Complaints falling into ‘public good measures’ focus mainly on nitrogen regulations in Belgium and the Netherlands, while German farmers are mainly concerned about measures restricting the use of pesticides, e. g., “restrictions in plant protection”. French farmers’ answers often focus on requirements concerning unproductive areas, notably rules concerning the planting and maintenance of hedges, and limiting the use and choice of pesticides. Strict environmental regulations are one of the general protest reasons shared among farmers within the EU (Matthews, 2024). In addition, rejection of the European Green Deal, especially the targets to reduce pesticide use, was one of the most frequently seen topics on farmers’ protest banners and media reports in Poland, driven by right-wing populism (Żuk, 2025).

General discontent focused on broad unspecific complaints, often literally voiced as “general dissatisfaction”. A German farmer, for example, wrote: “the fundamental problems in the agricultural sector have not been resolved.” French farmers express a general fed-up feeling, often voiced by expressions such as “everyone’s had enough” or “things are upside down”. A Dutch farmer wrote: “Until the farmer protests in 2019, I felt alone in my sense of powerlessness about how the sector was being treated and the major falsehoods that were being spread”. This finding aligns with the observation that farmers’ concerns extend beyond agriculture itself, reflecting frustration with the direction of the broader food system (Matthews, 2024a,b; Nature Food, 2024).

The category ‘protest and community’ is driven by German farmers’ answers and encompasses the collective actions and solidarity among farmers within protest movements. It includes specific issues such as the push for agricultural diesel refunds and vehicle tax exemptions. The fact that these issues sparked the protests in Germany explains why this category is most prevalent in Germany and plays a smaller role in the remaining countries.

Finally, the category ‘working conditions’ was driven by French farmers’ statements but is also prevalent in the remaining countries. A German farmer, for example, wrote: “Working 24/7, seven days a week.” French farmers describe exhausting working situations, with no recognition for the time invested, the hardship of the work, or financial security. One French farmer states: “No proper retirement, just €1000, at an age when we’ll be worn out from work, and no recognition of the hardship involved.” Some feel exploited and denounce a form of injustice compared to other socio-professional groups: “Working 16 h a day, 365 days a year, to earn less than the minimum monthly wage. Feeling like beggars dependent on EU subsidies when we work four times more than the rest of the population.” Or similarly: “Working an average of 10 h a day, 7 days a week, with no holidays, no rest, and an hourly rate of €3.18. This is modern-day slavery.”

¹⁰ We did not assign any measures to the categories policy dissatisfaction, protest and community and general dissatisfaction as these measures focus on general broader issues. Yet, for completeness these categories are included in the appendix table and matching exercise.

¹¹ We intensively discussed weighting each policy response by its impact or its cost but decided this would include a larger subjective bias than merely counting the number of policy changes/announcements, which is a more objective measure.

4.2. Frequency of reasons across countries

Next, we focus on how often the categories described in Table 5 were mentioned in each country. On average, each answer was classified into 2.42 categories, meaning that the average response contained over two arguments. This ranged from 2.04 in France to 3.55 categories per answer in Belgium. This confirms that there are a variety of different reasons that took farmers to the streets (Nature Food, 2024) and a focus on media reports and main banners (Žuk, 2025) does not represent the full spectrum of farmers' concerns.

The frequencies of each category per country are shown in Fig. 1, while we present a comparison of each category by country and a radar chart in Appendix 5. We also explore how often topics were mentioned together in one answer in the network graphs in Fig. 2 (the underlying co-occurrences expressed as percentages can be found in Appendix 6). In addition, we assessed whether the frequency of the main complaints¹² differs with farm size and system, shown in Appendix 7.

Focusing on Fig. 1 first, farmers' reasons for protesting are quite different across the four countries but do show common features. This confirms that protests had different triggers in each country but then converged into a broad set of common grievances (Finger et al., 2024; Nature Food, 2024). Importantly, this also shows that a general description of key reasons, for example low incomes and stringent environmental regulations (Matthews, 2025), or a focus on individual complaints e.g., rejection of the European Green Deal and opening EU markets to agricultural products from Ukraine (Žuk, 2025), captures only part of farmers' concerns.

Looking into country-specific reasons, in Germany, 53 % of sample farmers mentioned issues related to bureaucracy. When comparing administrative burdens across countries, German farmers spend an average (median) of 30 h per year on administrative tasks, which is considerably more than France (13 h), Belgium (16 h) and the Netherlands (8 h) (EC, 2019). Hence, our finding that bureaucracy is the main complaint in Germany but not in other countries aligns with these statistics. Our regression results (see Appendix 7, Table A7) also confirm this finding, showing that German farmers are significantly more likely to complain about bureaucracy than farmers from the other countries.

Bureaucracy was followed by German farmers' complaints about policy, with 46 % of answers containing a reference to policy dissatisfaction. Policy dissatisfaction in Germany is largely driven by criticism of the national government ("politics completely off track"). The third most frequent category is regulations (37 %). If a German farmer mentioned bureaucracy, in 54 % of the cases this was jointly mentioned with regulations, and in almost 40 % of the cases the answers also included references to financial strain or policy dissatisfaction (see Appendix 6 Table A6). In almost half of the cases (48 %) regulations and policy discontent were mentioned together, indicating shared grievances. This is also illustrated in Fig. 2, where these categories are connected with thicker lines compared to categories that have been mentioned less frequently. It is interesting to note that the initial protest reason in Germany (cuts to agricultural diesel relief and machinery tax) is a financial reason, but with 28 % this category is not the key protest reason, suggesting that protests revealed a broad spectrum of complaints. This is also in line with Brümmer (2024) and Lakner (2024) stating that the tax cuts were not an essential threat to most farms but just an initial trigger.

In France, protest reasons are dominated by financial concerns (53 %). Comparing farm incomes across countries reveals that, on average, French farmers earn less than their German, Dutch, and Belgian counterparts (Palacin, 2024). While this confirms our findings, a note of caution is required due to differences in cost of living between countries.

In addition, income varies with farm size and system. In fact, we find that French farmers who manage larger farms are significantly less likely to complain about financial strains, while livestock farmers are significantly more likely to mention financial strain compared to cereal farms (see Appendix 7 Table A8). In this context, it is also important to note that our sample is biased towards larger farms, possibly under-representing the importance of financial concerns among farmers. In France especially, there is a long history of unions projecting an image of unity while, in practice, defending primarily the interests of large crop exporters (Hobeika, 2013). Yet, in this instance, our findings confirm often reported themes of low income as a key protest reason (Matthews, 2025). Complaints about financial concerns are followed by dissatisfaction with policy (27 %), a complaint that is significantly more prevalent among larger and livestock farms compared to cereal farms (see Appendix 7 Table A9). Bureaucracy, regulations, societal criticism, and unfair market conditions are mentioned in approximately 20 % of the answers. Our findings show that reduced bureaucracy and fairer trade competition demanded by French farmers' unions (Nature Food, 2024) did not emerge as French farmers' primary concerns. In addition, if a French farmer complained about financial strain, in over half of the answers the farmer also mentioned bureaucracy or regulations, as indicated by the thick grey line in Fig. 2 between those categories. Interestingly, public good measures often relating to environmental and animal welfare regulations, play a relatively minor role (7 %), which is in contrast to the general perception that one of the main protest reasons is strict environmental regulations (Matthews, 2024a, Matthews, 2025; Žuk, 2025).

Looking at Belgium, a different picture emerges. Similar to France, the main reason for protesting is financial strain (53 %). Comparing farm incomes again, Belgian farmers earn slightly more than French farmers, but still less than German and Dutch farmers (Palacin, 2024). Interestingly, there are no differences in mentioning financial strain in relation to farm size and system (see Appendix 7 Table A8), suggesting that it is a universal problem. However, when interpreting this finding, the over-representation of large farms in the sample needs to be considered. In contrast, the other complaints are rather unique to Belgium. Regulations (49 %), lack of future prospects (44 %), public good (environment) measures (43 %) and policy dissatisfaction (42 %) dominate protest reasons, followed by bureaucracy (37 %), societal criticism and unfair market conditions (both 28 %). Overall, it appears that Belgian farmers have a broad spectrum of complaints, which is in contrast to farmers in the other countries. Naturally, many categories are stated together, also indicated by the connections of the categories in Fig. 2. For example, if a Belgian farmer mentioned bureaucracy, regulations and financial strain were also included in 59 % and 68 % of the answers, respectively (see Appendix 6 Table A6). Protests in Belgium were initially sparked by uncertainty surrounding nitrogen regulations and widespread discontent. The broad spectrum of complaints, including 43 % of responses falling into the environment category, suggests that protest motivations may have been more diverse from the outset compared to Germany, where the initial trigger was more narrowly focused.

In the Netherlands, policy dissatisfaction dominates protest reasons (52 %), which is significantly less likely to be mentioned by livestock farmers compared to cereal farmers (see Appendix 7 Table A9). When interpreting this finding, it should be borne in mind that the Dutch sample is over-represented by dairy farmers and larger farms. This is also important as van der Ploeg (2021) describes structural differentiation between entrepreneurial, large-scale farms and smallholders in the Dutch agricultural sector, which shaped not only the grievances expressed but also who was able to mobilize effectively. Policy dissatisfaction is frequently mentioned together with bureaucracy (59 % of the answers mention both), see Fig. 2 (and Appendix 6 Table A6 for detailed numbers). Societal criticism and general discontent (33 % each) are also frequently stated, followed by regulations with 27 %. Public good measures were mentioned in 17 % of the answers. Given that initial protest reasons relate to measures proposed by the government in 2019

¹² For clarity and focus, we concentrate on the three most important complaints (bureaucracy, financial pressures, and policy dissatisfaction), as the complaints show limited variation by farm size and production system.

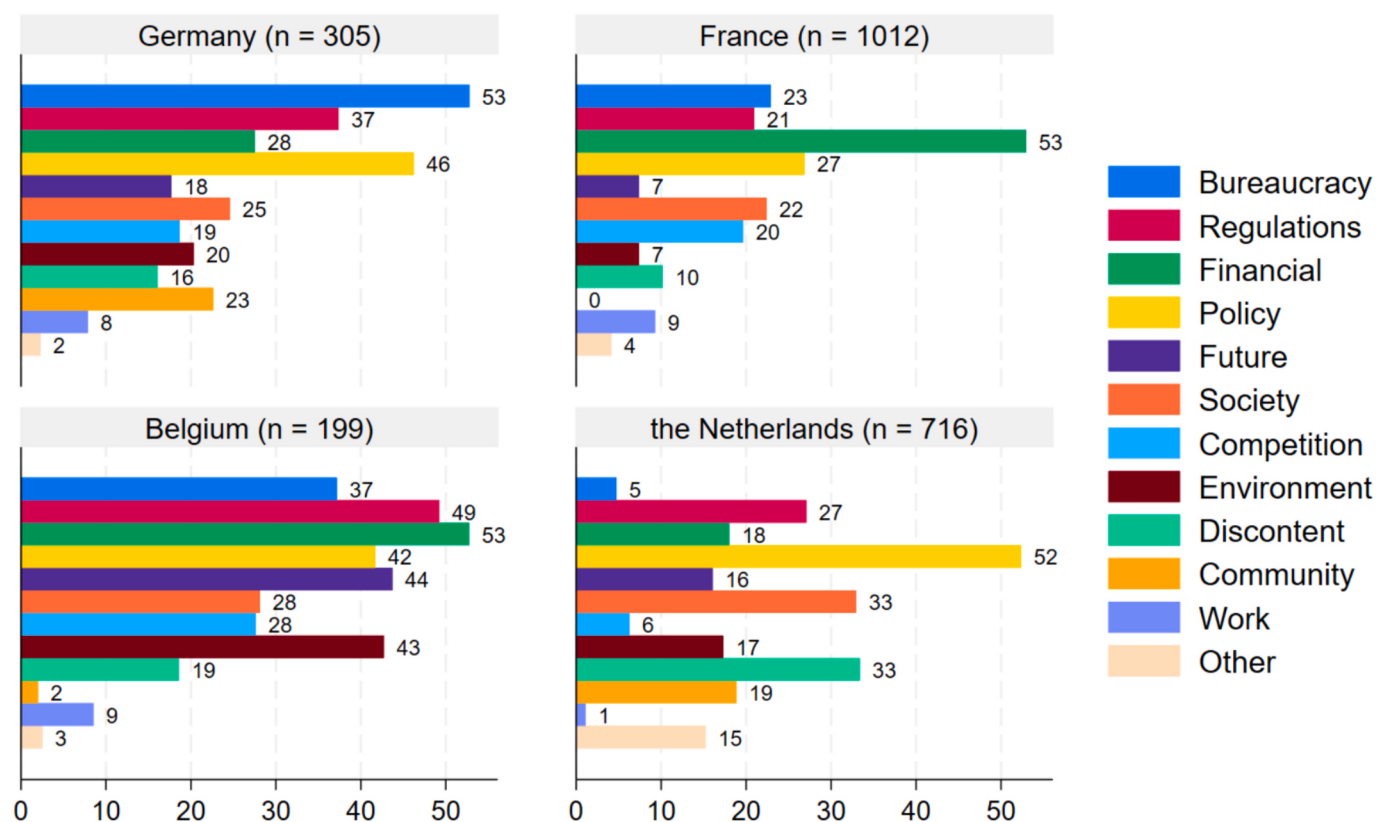


Fig. 1. Overview of main protest reason by country.

to reduce agricultural nitrogen emissions (Nature Food, 2024), this suggests that protests include a much wider set of complaints than initially assumed. Similarly, van der Ploeg (2020) states that the 2019 farmers' protests ignore the many-sided crises of agriculture. As such, this broader range of concerns, which was revealed in our study through asking farmers themselves, points to deeper systemic problems that may have remained hidden otherwise.

4.3. Emotional tones

Next, we shift our focus from *what* farmers said to *how* they said it, exploring the emotional intensity of answers. Overall, our Belgian and French respondents have a tendency to write more neutral or with less emotional aggression, while respondents in Germany and the Netherlands express themselves more angrily (both "annoyed" and "aggressive"), see Table 7. For example, in Germany, 53 % of responses were expressed in an annoyed or angry tone, compared to only one third of responses from Belgian farmers. While Mazzocchi et al. (2024) write that farmers' protest in Italy released negative emotions like anger, fear and sadness, by analyzing X posts, they also document a high level of trust and anticipation of possible positive outcome, often in terms of policies. This contrasts with our analysis of farmers' perceptions, where optimism does not feature, policy dissatisfaction is a key complaint, and few responses were expressed with emotions of sadness, anxiety, fear, or optimism.

While basic emotions are seen as universal (Levenson, 2011), they are often expressed differently (i.e., 'display rules') (De Leersnyder et al., 2015). Thus, it may be the case that the emotions are expressed differently in the respective native languages, and some of the observed differences in Table 7 between countries are not due to different emotions, but to cultural differences in how to express oneself. However, Rathje et al., (2024) show that ChatGPT is an effective tool to detect psychological constructs in 12 different languages, suggesting that our method to detect emotions across countries is rather robust. Still, we refrain from

making direct cross-country comparisons, and focus instead on how specific reasons were expressed within each country.

To explore if specific reasons were voiced more emotionally than others, we created heatmaps (Fig. 3). The heatmaps display the emotional tone underlying farmers' voiced protest reasons across different categories and countries. The first row shows the overall emotions for comparison. Each row underneath represents a protest reason category, (i.e., bureaucracy, regulations, policy dissatisfaction¹³), while each column corresponds to a specific emotion. The shading of each cell indicates the proportion of responses within a given category that were expressed with that particular emotional tone: darker shades represent higher proportions, while lighter shades indicate lower levels or absence of that emotion. The numbers underlying the heatmaps are in appendix 8. When interpreting this figure, it is important to note that one primary emotion was assigned to each open-ended response, even when the response included multiple reasons. In practice, this means that if a response referred to bureaucracy, policy dissatisfaction, and societal criticism, and was coded as expressing annoyed anger, all three reasons were treated as being conveyed in that emotional tone. Robustness checks using both a primary and a secondary emotion per response indicated that over 90 % of responses expressed only one dominant emotion, supporting the validity of this coding approach.

The heatmaps reveal that issues related to bureaucracy were often expressed in an annoyed angry tone, as indicated by the darker shade of the respective boxes. For example, a French farmer expressed annoyance with bureaucracy as follows: "A deep fed-up feeling with the paperwork and the constant monitoring of our work", while a German farmer wrote: "Out of frustration over bureaucracy." Overall, our findings indicate that bureaucracy has been a longstanding problem for farmers

¹³ For completeness, we included all emotions, but sadness, anxiety and fear, and optimism were not mentioned frequently enough to allow quantitative assessment.

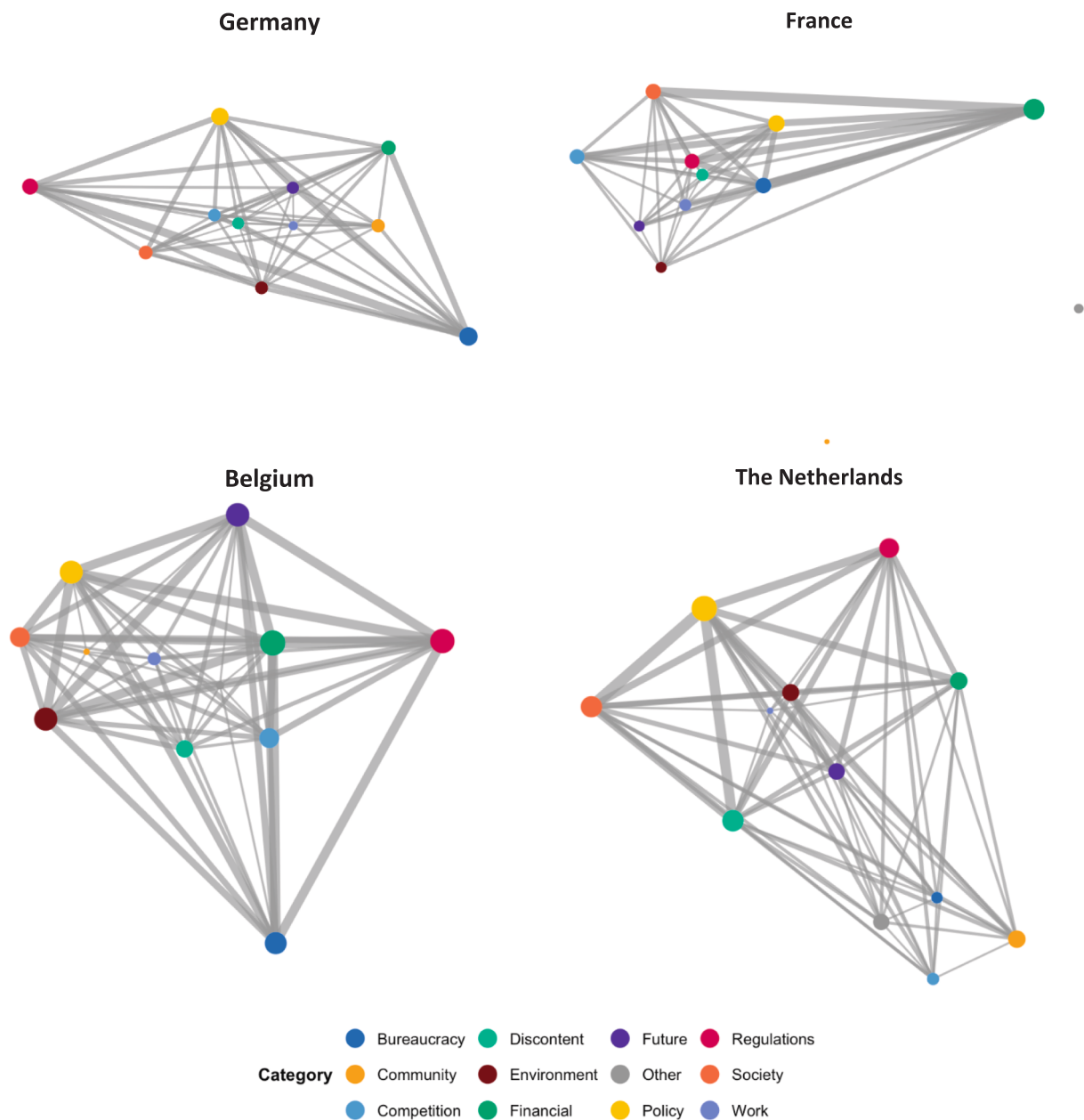


Fig. 2. Network graphs (visualizing co-occurrences) of categories by country.

Table 7
Emotions expressed in protest reasons per country.

Emotion	Germany	France	Belgium	Netherlands
Aggressive anger	20.33 (62)	15.03 (152)	10.05 (20)	26.12 (187)
Annoyed anger	53.44 (163)	42.73 (432)	34.67 (69)	50.84 (364)
Sadness	1.31 (4)	5.04 (51)	0.50 (1)	1.96 (14)
Anxiety and fear	2.30 (7)	2.47 (25)	2.51 (5)	5.45 (39)
Optimism	0.66 (2)	0	0	0.28 (2)
Neutral tone	21.97 (67)	34.72 (351)	52.26 (104)	15.36 (110)
Observations	305	1,012	199	716

% reported; absolute numbers in brackets.

in many countries. The CAP simplification package confirms this issue, as it was introduced to address the administrative burdens that stakeholders in the sector have long criticized.

In contrast, aggressive anger was less frequent but often used to express policy dissatisfaction in Germany (e.g., “the indifference and the exploitation by politics are the problem. Added to that is the lack of understanding and the assumption that farmers are so stupid.”) and general discontent in France and Belgium. A French farmer, for example, expressed aggressive anger with outdated systems, political manipulation, and social problems: “A rearguard fight on a production model that hasn’t been updated since World War II, [...] Conclusion: there are still 800 million people suffering from malnutrition for more than 80 years. Bravo!!” Another example is from a Belgian farmer who wrote: “There is a general fed-up feeling about always being considered the main source of all the planet’s problems, when in fact we are the first to be affected by the changes we are experiencing. The overwhelming presence of agribashing, misinformation, and—worse still—the mockery from politicians has been the last straw.”

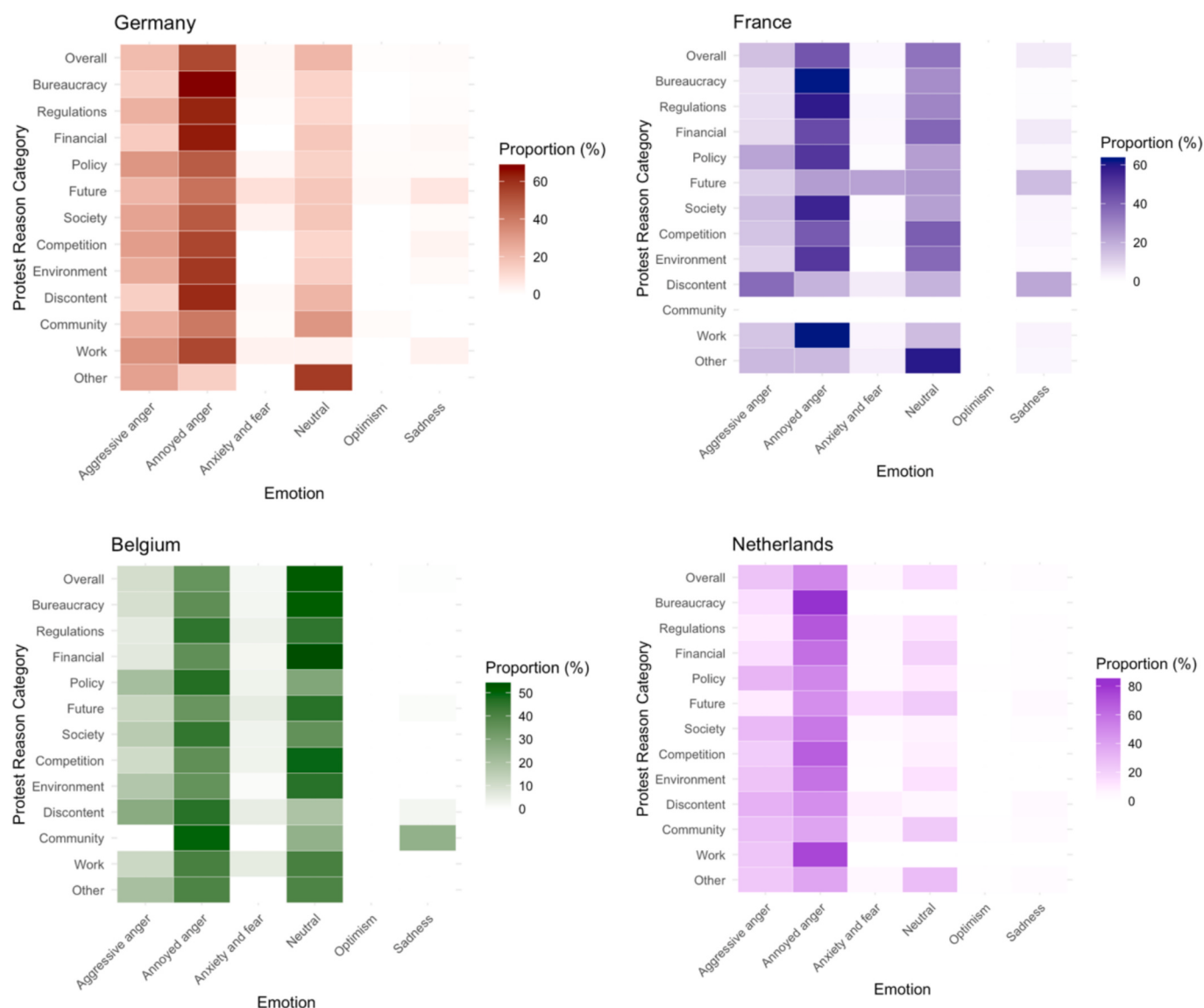


Fig. 3. Heatmaps of emotions by category.

A neutral tone was most prevalent in Belgium, as farmers often simply listed various complaints (e.g. “Against current policies, better prices, more respect, less administration”). A neutral tone was also often used to state topics like public goods (environment). A German farmer, for example, wrote: “It wasn’t just about the tax exemption and diesel rebate, but about the entire situation of agriculture — fertilization, animal husbandry, and so on”. Competition (France) and community and protest (Germany) were also often expressed in a neutral tone, with a typical statement being: “From the very beginning, the complete reversal of the tax increases was demanded. Because that did not happen, the protests continued” (German farmer, community).

In Germany, almost 70 % of the answers that included the category ‘bureaucracy’ were voiced in an annoyed angry way. This also holds for answers that include regulations and financial strains as protest reasons with 63 % and 64 %, respectively, voiced in an angry annoyed tone. This includes statements such as: “Bureaucracy, regulations, ordinances — no support from politics. Nothing but ordinances and harassment that are no longer understandable.” In contrast, almost one third of reasons relating to policy dissatisfaction were voiced in an aggressive anger tone

(e.g., “Because we are being governed worse than ever before.”), which is higher than the average of answers that were classified as aggressive anger (20 %).

In France, the heatmap clearly indicates that answers are mainly expressed in an annoyed angry or neutral tone. Specifically, about 60 % of answers that were coded as either bureaucracy, regulations, or work conditions were voiced in an annoyed angry way. This is expressed with statements such as: “Standard of living. No income for the many hours worked, ever-increasing regulations. Ever more complicated paperwork.” General discontent was often voiced in an aggressive anger tone (37 % of answers that included discontent), while public good topics and unfair competition statements were often made in a neutral manner (37 % and 40 %, respectively).

The heatmap for Belgium indicates that a neutral tone forms the majority of answers, but many topics are also expressed in an annoyed angry tone. When it comes to regulations, policy, and societal issues, about 45 % of answers are expressed in an annoyed angry tone, which is higher than for other protest reasons. An example for such a statement is “We’re being bullied by regulations and the government who treats us

unfairly compared to the industry”.

Finally, in the Netherlands, an annoyed angry tone predominates. 85 % of answers that included bureaucracy and almost 70 % of answers that include regulations were expressed in an angry annoyed tone. A statement illustrating the role of these emotions is “We’ve had enough. We can’t plan for the future, and our financial position isn’t strong enough to keep adjusting business operations and change them again, and again, and again in a short time span”. In contrast, concerns about future perspectives were more likely to be voiced in a neutral tone, e.g. “We live in a changing world, and we want to move with it, but it has to be realistic”.

4.4. Policy responses

As the last part of our analysis, we explore how farmers’ protest reasons and how they are expressed align with policy changes. Fig. 4 matches protest reasons ordered by frequency and normalized to one (X-axis) with the absolute number of policy changes per country (Y-axis), see Table 6. The location of the dots in the four quadrants indicates the importance of the protest reason and policy response. For example, a dot in quadrant I means that this issue was of high importance to farmers and policymakers, while a dot in quadrant III implies that the issue was given low importance by both. In contrast, dots in quadrant II and IV imply a diverging set of priorities. For example, quadrant IV means the issue was less important to farmers but given high importance by policymakers.

Beginning with the top left of Fig. 4 reveals that the main protest reason of German farmers (bureaucracy) was met with the largest number of policy adjustments (12). The German government launched an initiative to reduce bureaucracy including measures such as elimination of the annual proof of status as an active farmer and simplifications in relation to agroforestry and flower strips, directly addressing German farmers’ main grievance. Despite these measures, farmers’ complaints about regulations, mentioned in 37 % of farmers’ answers, were not directly addressed (Quadrant II) and no policy measure was assigned to this category. However, it is worth noting that certain bureaucracy simplification measures can also reduce regulatory burdens, and that many regulations lie outside national policymakers’ authority, since most CAP rules are determined in Brussels. In addition, bureaucracy and regulations were frequently mentioned together (see appendix 6), and both reasons were often expressed in an annoyed angry tone. Financial strain was the next most important topic for policymakers, addressed with six measures. Beyond withdrawing the planned cut in the tax exemption for agricultural machinery, and a step-wise abandonment of the agricultural diesel tax relief, the German government launched an agricultural relief package for the farming sector in July 2024 as a response to the protests. This relief package includes reforms directly addressing financial strain such as tax laws (income averaging), but also measures addressing unfair competition through supply chain regulations. Seven of the protest reasons and policy responses fall into quadrant III, implying low importance from both sides. However, public good measures (environment) mentioned in 20 % of the answers, and often expressed in an annoyed angry tone, were less important to German farmers but given relatively high importance by policy makers with five measures assigned to this category. This category also included the implementation of CAP eco-schemes announced in the aforementioned agricultural relief package. The environmental focus of policy responses was particularly notable at the EU level which reduced environmental conditionality measures, and this was often described as a key reason (Matthews, 2025; Żuk, 2025). Yet, Europe’s main farmers’ union (Copa-Cogeca) lobbied strongly for a relaxation of environmental regulations, which may help explain why policymakers reacted so forcefully on this front (van de Klippe, 2024). Policymakers were under strong lobbying pressure, even though, based on our results, this was not a primary concern of farmers, a pattern we also observe in France and the Netherlands, as described below.

The French policy responses are matched to reasons see the top right of Fig. 4. The French government also reacted to the protests and implemented three successive waves of measures (Parlons Climat, 2024). The first wave (January 2024) focused on immediate financial relief, with seven measures assigned to this category (see quadrant I). These included aid for livestock farmers affected by EHD, support for organic farming, subsidized loans, and tax relief, such as the cancellation of the planned increase in non-road diesel fuel taxes. This directly addressed the main concern expressed by French farmers, financial strain, which was often voiced in an annoyed angry tone (see Fig. 3). The second wave of French policy measures centered on administrative simplifications and regulatory flexibility, largely targeting concerns of cereal producers. Key measures included pausing the national pesticide reduction plan (Ecophyto), easing environmental requirements, and restricting the authority of environmental agencies over controversial infrastructure projects such as water reservoirs. Yet, public good complaints were mentioned in only 7 % of farmers’ answers but were nonetheless addressed with disproportionate urgency (see quadrant III). The third wave of French policy measures followed renewed mobilization by unions representing small-scale and peasant farmers and emphasized structural and symbolic reforms. These included reinforcing the ‘Egalim laws’ to ensure fair value distribution within the agri-food sector, revising pensions (addressing financial concerns), opposing the EU-Mercosur agreement, and committing to defend a system of minimum prices indexed on production costs, mainly addressing unfair market competition. Finally, while complaints about society were not key grievances (mentioned in 22 % of answers), they received relative policy attention through five measures serving largely symbolic functions (see quadrant IV). One prominent initiative was the EU Strategic Dialogue, which, although planned before the protests, gained urgency and visibility as a signal that EU institutions were listening to grassroots concerns.

In Belgium, shown at the bottom left of Fig. 4, the country’s various government levels (federal, Walloon and Flemish) took several steps to meet farmers’ demands, and four of the key complaints of farmers were given high policy attention (shown in quadrant I). Specifically, financial, environmental, and bureaucracy complaints were given strong policy attention, with eight policy measures each. Belgian farmers expressed these complaints in a neutral or annoyed angry tone (see Fig. 3). Financial strain was the key concern of Belgian farmers, and policy responses included measures such as optimization of CAP subsidies and compensation for farmers affected by bluetongue disease. Environmental measures included the adaptation of nitrogen regulations and changes to the CAP GAECs. In addition, political stances were taken to refute the European Nature Restoration Law, the EU climate targets, and some derogations were implemented, such as on calendar regulations and nitrogen deposition and emissions. In relation to bureaucracy (also addressed with high urgency – see quadrant I), the governments introduced measures aimed at reducing administrative burdens, for example, faster issuance of permits for water capture, simplified notification procedures for nitrogen emissions, and simplified modules to apply for eco-schemes. In contrast, regulations and missing future prospects for the future were given a low policy response (see quadrant II), even though they were perceived as important by farmers (49 % and 44 % of answers, respectively). Three measures were introduced addressing each complaint. For example, with respect to regulations, penalties for violations regarding manure regulations were reduced. For missing future prospects, fiscal incentives for succession were introduced, and several task forces were set up (e.g., on strengthening agri-food supply chains and securing land access), to bring various stakeholders together and to collectively determine a vision for the sector.

For the Netherlands, major policy shifts already took place in response to the 2019–2022 protests by Dutch farmers. Responses to the 2024 protests were less drastic and more in line with EU-level changes and regulatory easing. This may explain why a quite different picture emerges in the Netherlands (shown at the bottom right of Fig. 4). The

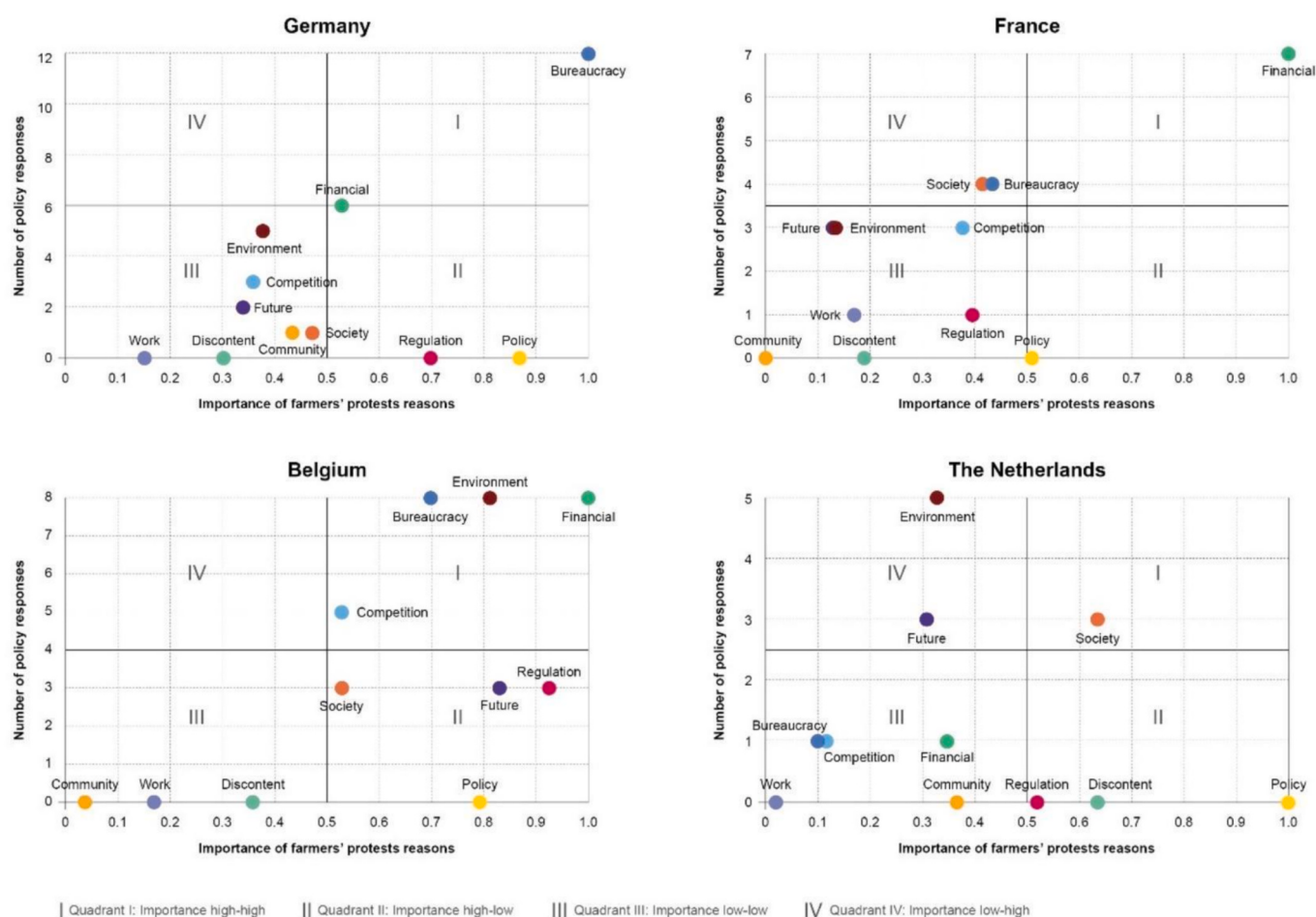


Fig. 4. Protest reasons and policy responses by country.

majority of farmers' protest reasons were given low policy attention (see quadrant III), except for society, environment, and lack of future perspectives, expressed often in an annoyed angry tone, which received high policy responses, with three, five and three policy measures in each category, respectively. The mismatch is particularly striking for environmental complaints, which were of lower importance for Dutch farmers (17 % of answers) but were given the strongest policy attention. This includes measures such as more flexibility in eco-schemes and extensions for manure applications and sowing catch crops. One potential explanation for this policy attention is that the Farmer Citizen Movement (BBB party) was elected on promises to depart from previous nitrogen reduction strategies. The Dutch case also needs to be understood in the context of earlier mobilizations. The Farmers Defense Force (FDF), founded in 2019, united diverse farming and agribusiness groups (Resnick and Swinnen, 2023) and promoted a populist discourse portraying farmers as marginalized by environmental, consumer, and animal-welfare interests (van der Ploeg, 2020). Through disruptive protest actions after the Dutch government's 2022 plan to halve nitrogen emissions, the FDF, together with the political rise of the BBB and support from right-wing parties skeptical of climate policy (Resnick and Swinnen, 2023), had already initiated Dutch agricultural policy changes. This may also explain the over-proportional policy focus on environmental issues.

5. Conclusions and policy implications

In December 2023, German farmers started protesting due to an unexpected cut in tax breaks for agricultural diesel and machinery. The protests quickly spread across Europe, with thousands of farmers voicing

their discontent loudly in many places (Finger et al., 2024). Drawing on data from over 2,200 farmers in Germany, France, Belgium, and the Netherlands, we offer the first systematic, large-sample assessment of farmers' own voiced protest reasons, collected through an open-ended question to avoid priming respondents' answers (Haaland et al., 2024). Our analysis goes beyond simply categorizing protest reasons: we also examined the emotional tone in which grievances are expressed, providing deeper insight into the intensity and nature of farmers' discontent. Furthermore, we are the first to systematically align farmers' stated complaints with protest-induced policy changes, at the national and European levels, offering suggestive evidence for evaluating how well political responses addressed farmers' raised concerns.

Our findings revealed eleven main protest reasons (see Table 5). While many grievances are shared across countries, notable heterogeneity exists within protest reasons and their frequency of mentioning across countries. German farmers' main complaint is high bureaucratic burden, French farmers predominantly complain about financial strain, Belgian farmers have a broad spectrum of complaints, while Dutch farmers' main grievance is policy dissatisfaction (see Fig. 1). Thus, our findings confirm that considering farmers as a homogeneous group masks the complexity of the situation (Nature Food, 2024).

One of the most frequently cited themes in discussions of recent farmers' protests is that farm prices are too low to provide a fair income (Matthews, 2024a). Our findings confirm this concern among French and Belgian farmers, but not among German and Dutch farmers. Another widely reported theme was competition from cheap imports (Matthews, 2024a). Although this issue was raised in all four countries, it was not the most frequently mentioned grievance in any of them. Similarly, while environmental regulations were cited by surveyed farmers, they

did not emerge as a primary concern either. As such, our findings differ from earlier studies and reports that rely on media portrayals or union framing; by contrast, our analysis draws on survey data that directly capture farmers' own voices. This likely explains why we find environmental regulation to be a less central grievance than has often been suggested.

In relation to how complaints are voiced, our findings show that annoyed anger is the prevailing emotion expressed by farmers in Germany, France, and the Netherlands, while Belgian farmers most often state their protest reasons in a neutral tone (see Table 7). A closer analysis reveals that annoyed anger tends to be associated with more direct and specific grievances, such as bureaucratic burdens, which are more readily targeted by concrete policy responses. Interestingly, aggressive angry emotions were voiced less frequently than one might expect from media portrayals of angry farmers and protest actions like tractor blockades or burning straw bales. Aggressive anger is also typically directed toward broader, more general complaints, such as general dissatisfaction with policies or societal discontent, issues that cannot easily be addressed by individual policy measures.

Yet, national governments and the EU were quick to react to farmers' protests with policy changes (Matthews, 2024a; Finger et al., 2024). A key finding of our analysis is that farmers' primary concerns, particularly financial and bureaucratic issues, often received significant policy responses when they were major grievances (i.e., in France, Germany, and Belgium). This supports the idea that cohesive demands are more effective in achieving policy change (Mueller, 2024) and that a large number of supporters generally increases the likelihood of success (Pearson, 2024). This also resonates with Mennig (2025), who finds that agri-food political debates focus on the most important challenges, yet with differences in attention. However, we also observe some misalignment. While farmers consistently rated environmental constraints as less important than other issues, these measures received considerable attention from policymakers (see Fig. 4). This discrepancy suggests that policymakers may have placed disproportionate emphasis on alleviating environmental regulations, even though surveyed farmers expressed relatively little concern about them.

While our findings draw on more than 2,200 farms across four countries and offer detailed insight into farmers' stated reasons for protesting, it is important to acknowledge that the samples are skewed toward larger farms and particular production systems. However, our analysis of the three most frequently mentioned protest reasons—bureaucracy, financial strain, and policy dissatisfaction—does not suggest that these concerns are driven predominantly by larger farms or any one farm type. Although there are some country-specific differences between, for example, livestock and cereal farms (see appendix 7) these do not alter the broader patterns. The fact that similar grievances emerge across differently composed national samples further indicates that the main findings reflect underlying structural concerns rather than artefacts of sample bias. Nonetheless, we acknowledge that smaller or specific farm systems may place different emphases on certain issues, and this should be considered when interpreting the policy implications.

More generally, the diversity of complaints and the varying emotions attached to them highlight a gap between farmers' concerns on the ground and the narrower set of issues that organized interest groups and populist actors strategically amplify, with symbolic opposition to environmental regulation becoming a unifying complaint (van de Klippe, 2024; Žuk, 2025). This gap connects to broader debates on lobbying power and political economy: interest groups frequently reframe environmental regulation into a symbolic battleground (Resnick and Swinnen, 2023), while populist actors selectively mobilize anger and resentment to embed farmer protests within right-wing narratives (Van

der Ploeg, 2020; Žuk, 2025). In this way, grassroots demands are reframed to serve broader political objectives—a communication strategy well documented in the political economy literature, particularly in relation to Copa-Cogeca and the CAP (Erjavec et al., 2015; Swinnen, 2015). By refocusing the policy debate on environmental constraints imposed on farmers, attention is diverted from other, more crucial issues—such as the redistribution of CAP support to those who need it most—a topic that farmer unions representing larger farms are keen to avoid. In France especially, there is a long history of the dominant farmer union projecting unity while primarily defending the interests of large crop exporters (Hobeika, 2013). These dynamics help explain why the protests came to be widely portrayed mainly as a revolt against environmental regulations in the media (FNSEA, 2024), a storyline also strategically promoted by Europe's largest farmers' union (Copa-Cogeca) and amplified by public authorities (van de Klippe, 2024).

The recent wave of protests ultimately provided momentum for dominant farmer unions to push for the EU "food sovereignty" and CAP simplification, culminating in the 2024 reform package that largely dismantled environmental conditionality. Copa-Cogeca, a central advocate of the EU's role in "feeding the world," also argued for relaxing environmental standards on the grounds that they undermine both Europe's productive capacity and price competitiveness, prompting the EU to suspend the requirement to set aside 4 % of arable land in 2023. At the same time, a broader political shift (Matthews, 2025) marked by the rise of far-right parties, sometimes with strong farming-sector support (Žuk, 2025), and often denouncing climate policy as "green tyranny" (Resnick and Swinnen, 2023), may also help explain this policy focus. However, such policy misalignment risks undermining European Green Deal objectives and will have detrimental effects on the environment, particularly as key goals already remain unmet (e.g., Möhring et al., 2020). Beyond interest intermediation, another explanation for this misalignment may be that policymakers often fall back on ready-made or more easily implemented solutions, even when these do not adequately match farmers' grievances. As a result, current policy measures may not suffice to ease frustrations and could even trigger additional political and economic knock-on effects (Nature Sustainability, 2024).

Looking ahead, it remains uncertain whether competitiveness will continue to dominate policy change, or whether mounting pressures from climate change, environmental degradation, biodiversity loss, and diet-related health costs will ultimately compel policymakers to pursue more ambitious measures (Matthews, 2025). Addressing farmers' deeper grievances will require systemic change and sustained political engagement. Yet, not only policy changes but also how they are communicated to actors is important. Here, the influence of novel communication approaches and deliberative governance processes are promising options, which may also provide interesting avenues for future research.

CRedit authorship contribution statement

Doris Läßle: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sophie Thoyer:** Writing – review & editing, Validation, Resources, Formal analysis, Conceptualization. **Goedele Van den Broeck:** Writing – review & editing, Investigation, Formal analysis, Investigation, Conceptualization. **Pauline Lécole:** Writing – review & editing, Validation, Formal analysis. **Yann de Mey:** Writing – review & editing, Conceptualization; Data curation, Software, Formal analysis; Investigation, Visualization, Validation. **Jaap Sok:** Investigation.

Appendix 1. Protest participation by farm system

Table A1

Protest participation by farm system.

Farm system	Germany	France	Belgium	Netherlands
Crop production	66.42 % (137)	48.72 % (156)	64.91 % (57)	26.14 % (153)
Horticulture	0.00 % (1)	23.53 % (17)	44.44 % (9)	22.45 % (49)
Permanent crops	71.43 % (7)	47.92 % (192)	– (0)	15.79 % (19)
Dairy, cattle, sheep, goats	67.11 % (76)	38.90 % (401)	79.21 % (101)	35.67 % (356)
Pigs and poultry	78.57 % (28)	38.27 % (81)	66.76 % (24)	36.36 % (44)
Mixed enterprises	73.21 % (56)	52.38 % (84)	87.50 % (8)	30.30 (33)
Other	– (0)	32.10 % (81)	– (0)	19.35 % (62)
All systems	68.85 % (305)	42.39 % (1,012)	72.36 % (199)	30.59 % (716)

Notes: Numbers in brackets are the total number of farms in that category.

Appendix 2:. Coding scheme and prompt for main protest reasons

The coding scheme that served as guide for human coders and as prompt is provided below. This is the prompt that was used to code the data with OpenAI's ChatGPT into the respective categories following a procedure described in Rathje et al. (2024). Please note that after the coding was completed, we re-ordered and shortened the names of some of the categories (e.g., work, protest and general dissatisfaction) to improve the logical flow and presentation in this paper.

“You will be supplied with a list of responses. The responses refer to reasons why farmers continued to protest. Please classify responses based on the coding scheme below. Answer only with numbers.

For each answer, please list all categories that apply for the same answer and list the numbers. This can be up to 10 different categories per individual answer.

The coding scheme gives you a description of the category and typical answers for each category.

Here is the coding scheme:

Category 1: Bureaucracy, administrative burdens.

Description: High demands in bureaucracy, documentation, and administrative tasks, including office time and paperwork.

The focus is on the procedural and administrative side of operations, such as excessive paperwork, time spent in the office, and the frustration with bureaucratic processes. This category reflects the inefficiencies and frustrations related to managing administrative tasks rather than the content or nature of the regulations themselves.

Examples: too much bureaucracy; high administrative burden; bureaucratic madness; we spend more and more time in the office; the hassle of the continuous avalanche of all kinds of declarative obligations, as time-consuming as they are useless, serving the administrative behemoth that oversees farmers.

Category 2: Regulations and legal requirements.

Description: Legal obligations, including regulations, laws, and constraints, often involving red tape, but not related to the environment, animal health, or welfare.

This category includes the impact of laws, rules, and regulations on operations, emphasizing the challenges posed by increasingly restrictive or burdensome legal requirements. The focus here is on the nature of the rules and regulations and their effect on the operations, rather than the process of managing them.

Examples: too much regulation in the operation; overburdening of farms with [...] regulations; requirements; Increasingly restrictive rules; absurd and disconnected regulatory policies; imposing absurdities on us.

Category 3: Financial strain and income challenges.

Description: Financial challenges, including high costs, low revenues, inadequate agricultural income, and unremunerative prices relative to work and investments.

This category encompasses the economic difficulties faced by agricultural operations, including the struggle with high costs, low revenues, and insufficient income relative to the work performed and investments made. It highlights issues such as rising operational expenses, unremunerative prices, and the general imbalance between financial input and output, leading to significant financial strain for those in the agricultural sector.

Examples: The general cost and revenue situation; too little income compared to the invested capital; rising costs; no income for hard daily work; do you know many people who work for the glory of it?

Category 4: Political dissatisfaction and government criticism.

Description: General dissatisfaction with politics, including a loss of trust in political decisions, criticism of the national government, and poor alignment of public policies with agricultural needs.

This category encompasses the widespread discontent with political directives, reflecting concerns over the disconnect between public policies and the agricultural sector. It highlights issues such as delays in payments, contradictory instructions, unmet promises, and a perceived lack of understanding of agriculture by policymakers, leading to a loss of trust and criticism of government actions.

Examples: political promises were not kept; because political backing is missing; dissatisfaction with politics in general; as a German, one must be ashamed of their government; the traffic light coalition must go!; dissatisfaction with the government.

Category 5: Future prospects.

Description: Concerns about the future of agriculture, including the lack of vision for the sector, challenges in farm renewal, and difficulties in succession planning for young farmers.

This category encompasses the uncertainties and challenges related to the future of agriculture, particularly for young farmers. It highlights issues such as the perceived lack of prospects for the next generation, the difficulties in ensuring farm succession, and the overall sense of a bleak future within the agricultural sector. This category reflects the concerns about sustainability and continuity in farming.

Examples: Farmers don't like to mention that their farms are no longer able to bear the increased burdens caused by 'old-age pensioners' [...]; [...] destruction of regionally effective infrastructure (slaughterhouses, retail...); The lack of future perspective; many farmers are leaving the profession after 10–20 years of activity, which was unthinkable just 30 years ago.

Category 6: Societal criticism.

Description: Criticism of urban society and media portrayal of agriculture, reflecting a perceived lack of appreciation for farmers and a decline in their social status.

This category encompasses the feelings of low recognition and appreciation for farmers within society, particularly from urban populations. It highlights the portrayal of agriculture in the media, the decline of social status for farmers, and the tension between farmers and consumers influenced by green ideology. This category also includes criticism from farmers towards consumers and broader societal attitudes, addressing issues of social justice and the perceived disconnect between urban perspectives and agricultural realities.

Examples: negative reporting in the media; no appreciation; 95 % have no idea about agriculture; agri-bashing.

Category 7: Unfair market conditions.

Description: Injustice in the global market, including unequal power relations, unfair production conditions, and the inequitable distribution of value within supply chains.

This category encompasses the challenges faced by producers due to market power imbalances, unfair pricing mechanisms, and the influx of cheap imports produced under lower standards. It highlights issues such as the unequal power dynamics between producers and other actors in the supply chain, the exploitation in the production of import goods, and the unfair distribution of added value. The presence of low-cost imports, often produced with lower environmental, labor, and quality standards, exacerbates these challenges by undercutting local producers and distorting fair competition. This category reflects concerns about the economic pressures placed on producers, contributing to broader market injustices.

Examples: loss of competitiveness; imports are not subjected to the same strict criteria; mirror clauses on imports; agriculture as a real bargaining chip in the development of other export-oriented production sectors; failure to remunerate our farm products at fair price.

Category 8: Environment, climate, animal health and welfare measure complaints.

Description: The role of agriculture in environmental protection, climate change, and the associated regulatory challenges, including complaints about measures related to biodiversity, animal health, and welfare.

This category encompasses the pressures faced by the agricultural sector due to environmental and climate-related regulations. It highlights the concerns and frustrations of farmers regarding the impact of these regulations on their operations, including stringent requirements for environmental protection, biodiversity conservation, and animal welfare. This category also addresses the broader role of agriculture in combating climate change, alongside the perceived burdens of complying with increasingly complex and demanding environmental standards. The tension between agricultural practices and the regulatory demands aimed at addressing environmental and climate issues is central to this category.

Examples: many of the producing farms [cannot] take advantage of the funding opportunities aimed at extensification; environmental and sanitary constraints that are too stringent, too numerous, and absurd.

Category 9: General dissatisfaction

Description: Unspecified and broad dissatisfaction with the overall situation, reflecting a sense of frustration and discontent within the agricultural sector.

This category captures the general, non-specific feelings of dissatisfaction and frustration expressed by those in the agricultural community regarding their current circumstances. It includes a wide range of grievances that may not be tied to a particular issue but rather reflect a pervasive sense of discontent with the overall state of the industry, policy environment, market conditions, or societal attitudes. This category serves to encompass the diffuse and often undefined frustrations that contribute to a broader sense of unease and dissatisfaction among farmers and agricultural stakeholders.

Examples: general dissatisfaction; general frustration and feeling of powerlessness.

Category 10: Working conditions and workload.

Description: Difficult working conditions, high workloads, work-related risks, lack of vacations, and challenges in finding employees.

This category encompasses the various challenges related to the working conditions and labor dynamics within the agricultural sector. It highlights the physically demanding nature of agricultural work, including the high workloads and associated risks, as well as the difficulties in taking time off. Additionally, this category addresses the ongoing struggle to attract and retain employees in the agricultural industry, reflecting broader issues related to labor shortages and the demanding nature of farm work. These factors contribute to the overall strain on farmers and agricultural workers, underscoring the difficult and often relentless nature of agricultural labor.

Examples: Working an average of 10 h a day, 7 days a week, with no holidays, no rest, and an hourly rate of €3.18. This is modern-day slavery; hardship and accidents; an accumulation of fatigue due to the workload, regular inspections, and the financial impossibility for many to hire an employee.

Category 11: Protest and community.

Description: Solidarity within the agricultural protest movement, highlighting unmet demands, including issues like agricultural diesel refunds and vehicle tax exemptions.

This category encompasses the collective actions and solidarity among farmers within protest movements, driven by a shared sense of unmet demands and grievances. It includes specific issues such as the push for agricultural diesel refunds and vehicle tax exemptions, which are emblematic of broader dissatisfaction with policies affecting the agricultural sector. This category reflects the unity and collective efforts of farmers to address these unresolved issues through protests and advocacy, underscoring the importance of solidarity in pursuing their demands.

Examples: We farmers stood 100 % behind the protests; no compensation offered.

Category 12: Other.

Description: anything that cannot be classified in any of the other categories.

Here is the text:".

Appendix 3:. Prompt for emotion analysis

This is the prompt that was used to code the data with OpenAI's ChatGPT into the respective emotions.

“You will be provided with a list of responses, each explaining why farmers continued to protest. Your task is to evaluate the emotion expressed in each response. Carefully read the entire response and choose one main emotion category from the list below that best reflects the overall tone of the answer. Record your choice using only the corresponding number for the selected emotion. This is important, answer with numbers only.

Here are the categories:

Category 1: Anger- Aggressive.

Farmers' answers express intense, almost aggressive anger, such as resentment, rage, and indignation.

Examples: I'm fed up, Political misjudgments in the agricultural sector, influenced by ignorance and incompetence, driven by ideologues with no practical knowledge.

Category 2: Anger – Annoyed.

Farmers express frustration or annoyance, such as irritation and dissatisfaction.

Examples: frustration about bureaucracy; constant demands/blame lead to frustration.

Category 3: Sadness.

Farmers convey emotions of sorrow, disappointment, grief and hopelessness in how they express themselves. This category focuses on the emotion of sadness.

Examples: I don't want to do this anymore because today, on Father's Day, I can't celebrate with my family, but instead have to sit in the office.

Category 4: Anxiety and Fear.

Farmers express feelings of being anxious, worried, fearful, nervous, or being tense.

Examples: fear of the future, I am anxious about the future.

Category 5: Optimism.

Farmers express hopefulness and confidence about the future. This also includes being happy or joyful and a belief in positive outcomes.

Examples: Things will get better. The protests have achieved a lot.

Category 6: No Emotion

The answer does not include any emotional tone.

It includes matter-of-fact statements that list the reasons for protests without any emotional tone or without expressions in the writing, such as exclamation marks or capitalizing words.

Here is the text:“

Appendix 4:. Changes in agricultural policy

We assembled all policy changes in each country and at the EU level that were introduced or officially announced after the protests started in late 2023 until September 2024. In the following, we provide an overview of all included policy measures in the EU and per country. While the EU measures are described, they are included in the respective tables for each country. Measures that are not yet implemented are marked with a (*).

EU

On March 15, 2024, the European Commission proposed changes to the CAP Strategic Plans ('simplification package'), including revisions to Good Agricultural and Environmental Conditions (GAECs). The changes were framed both as a swift response to farmers' concerns and a long-term effort to ease administrative burdens that have long been criticized by stakeholders in the sector. Key revisions include making non-productive areas (GAEC 8) voluntary,¹⁴ allowing diversification instead of strict crop rotation (GAEC 7), and granting Member States more flexibility in defining soil cover periods (GAEC 6). Additional exemptions and adjustments were proposed for soil management (GAEC 5) and permanent grassland rules (GAECs 1 and 9). Farms under 10 ha are now exempt from conditionality checks and sanctions, reducing what is perceived by many as red tape for 65 % of CAP beneficiaries, though these farms represent just 10 % of farmland. The Council formally adopted the targeted CAP revision in May 2024, with immediate effect. The EU CAP changes on conditionality (based on the simplification package of May 2024) are summarized into one measure for all countries (under public good measures), while no control on farms of less than 10 ha is classified under the category bureaucracy.

In late January 2024, the European Commission launched the Strategic Dialogue on the Future of EU Agriculture, bringing together around thirty organizations including farm unions, cooperatives, agri-food companies, rural and civil society groups, NGOs, financial institutions, and academics, to discuss key issues like fair agricultural income, environmental sustainability, and sector competitiveness. This was included as one measure under societal criticism for all countries.

Germany

Context

Farmers' protests started on 18 December 2023, following the announcement of the German government to cut tax breaks for agricultural diesel and the tax exemption for agricultural machinery on 13 December 2023. On 4 January 2024, the government withdrew the planned cut on tax exemption for agricultural machinery. The government decided to hold on to the tax breaks for agricultural diesel, but amended it to a stepwise introduction. In July, the German government introduced an agricultural package to support agriculture ('*Agrarpaket zur Entlastung der Landwirtschaft*') and is working on reducing bureaucracy for farmers by simplifying measures.

¹⁴ Member States were invited to introduce these types of measures in their Eco-schemes.

Table A2
Policy changes in Germany.

<i>Protest reasons</i>	<i>Count</i>	<i>Policy change</i>
Bureaucracy	12	- No control on farms of less than 10 ha (EU –simplification package of May 2024) - Annual proof of status as an active farmer is no longer required - Administrative burden for cultivating industrial hemp is streamlined - Rotation for agricultural minimum activity adjusted* - Double approval requirement for conversion of permanent grassland removed* - Agroforestry simplifications: The eco-scheme for agroforestry will be made easier, including removing the minimum width requirement for tree strips and the obligation to submit a utilization plan* - Flexible wildflower strips: Flower strips will no longer need to be at least five meters wide everywhere but only over “the majority of their length,” allowing minor deviations without loss of premiums - Reporting requirements for statistical purposes will be simplified by amending the Agricultural Statistics Act (expected to take effect 2025)* - Simplification in animal husbandry: Reporting and documentation requirements will be reduced, deadlines standardized, and digital solutions introduced (expected summer 2024)* - Cattle passports will be digitized to improve traceability (planned by the end of 2025)* - Simplified payments: Requirements for payments for ewes and goats will be simplified, including the removal of fixed-date regulations* - The wine monitoring regulation will be simplified*
Regulation	0	
Financial strain	6	- Planned cut in tax exemption for agricultural machinery revoked - Tax break for agricultural Diesel will be introduced over 3 years - Income fluctuations considered in income tax (existing measure extended until 2028) - Coupled payments for cattle, sheep, and goats will not automatically be revoked if ear tags are lost - Farms with enclosed game eligible for funding under extensive permanent grassland use* - Reward for additional crops: The pesticide-free cultivation of additional crops, such as millet, amaranth, buckwheat, or quinoa, will be incentivized*
Policy dissatisfaction	0	
Missing future prospects	2	- Repurposing Period for Agricultural Buildings Extended* - Easing Regulations for Residential Buildings on Agricultural Farms*
Societal criticism	1	- Strategic dialogue (EU)
Unfair market conditions	3	- Control unfair trading practices - Regulate unfair trading practices - EU-wide uniform minimum standard for the protection of agricultural producer
Public good measures	5	- Derogations or greater flexibility for GAEC 1 and 9 (permanent grassland), GAEC 5 (soil erosions), GAEC 6 (minimum soil cover). GAEC 7 (reverts back to crop diversification) and GAEC 8 (eliminates the obligation to have a given share of arable land as non-productive area) (EU –simplification package of May 2024) - Reduction in the limit of fallow land and grass strips (Eco-scheme)* - Easing of requirements on the extensification of permanent grassland in relation to livestock (Eco-Scheme)* - New Eco-scheme to support of grazing of dairy farms (EU) - New Eco-scheme to support biodiversity (EU)
General discontent	0	
Protest and community	0	
Working conditions	0	

Source:

Agrarpaket zur Entlastung der Landwirtschaft. Available at: <https://www.bmel.de/SharedDocs/FAQs/DE/faq-agrarpaket/FAQList.html> [last accessed: Dec 2024]. BMEL (2024). BMEL – Initiative Bürokratieabbau – Arbeitsfortschritt September 2024. Available at: https://www.bmel.de/SharedDocs/Downloads/DE/_Ministerium/initiative-buerokratieabbau-09-24.html [last accessed: Jan 2022].

GAP: Was ändert sich? Available at: https://www.lwk-niedersachsen.de/lwk/news/41988_GAP_Was_aendert_sich_2025 [last accessed: Jan 2025].

France

Context

The French government reacted quickly to respond to farmers’ protests in January and February 2024. Three waves of measures were adopted in an accelerated procedure for a new French agricultural law (LOA in French for “Loi d’Orientation agricole”. In total, the French government made 70 commitments as responses to farmers’ protests, but not all were new. However, the French Parliament was renewed in June after a decision made by the French President to call for early elections. Since then, there is an unstable government, hindering decision processes and making it difficult to anticipate the fate of announced measures.

Table A3
Policy changes in France.

<i>Protest reasons</i>	<i>Count</i>	<i>Policy change</i>
Bureaucracy	4	- No control on farms of less than 10 ha (EU –simplification package of May 2024) - Administrative simplification measure in France: proposal for a unique control procedure - Simplifying and unifying the regulations on hedges by merging different rules into one, to encourage hedge planting as a way to balance agricultural production and biodiversity (LOA)* - France Agriculture Services network, accessing multiple related services or information in a single place (LOA)*
Regulation	1	- Reducing the time for legal challenges against agricultural projects and hydraulic works, by simplifying procedures to give farmers quicker clarity on their project’s compliance (LOA)*
Financial strain	7	- Financial support to compensate livestock losses due to Haemorrhagic Epizootic Disease (HED) - Increased support to organic agriculture - Additional €150 M to livestock farmers

(continued on next page)

Table A3 (continued)

Protest reasons	Count	Policy change
		- Cancellation of the increase in taxes on non-road diesel fuel - Two financial tools to help farmers with financial strains: short- and long-term loans at reduced rates and guaranteed by the state* - New program to monitor risks (« surveillance des aléas », Proposition suite Projet Loi de finances 2025)* - Retirement pension for farmers it will be re-evaluated on the basis of the income earned during the most profitable 25 years of activities*
Policy dissatisfaction	0	
Missing future prospects	3	- Education: creation of an “Agro Bachelor”; training of professionals in education, consulting, and administration on actions and solutions supporting agroecological and climate transitions, increase in resources for agricultural education (LOA)* - Supporting farm succession and establishment of new farmers (implementation of diagnostic and support tools to assist in evaluating farms for passing on farms and supporting the setup of new farmers) - New tool for collective investment in land (Agricultural Land Investment Group) (LOA)*
Societal criticism	5	- Reinforcement of the Demeter cell: control on organizations that supposedly denounce unfairly the responsibility of farmers - Announcement of the organization of a national debate on the future of agriculture (also inviting stakeholders from environment, food etc.)* - Strategic dialogue (EU) - Adjusting the enforcement of environmental law with procedures and penalties tailored to each situation, ensuring proportional and graduated sanctions to avoid stigmatizing farmers (LOA)*
Unfair market conditions	3	- National program for career guidance and discovery in agriculture and agri-food professions (LOA)* - Announcement of French government opposition to Mercosur trade agreement* - Reinforcement of Egalim French law (improve the position of farmer in value chain) - “Solution committee – Comité des solutions”: monitor application for authorizations to market in France products that are already authorized elsewhere in the EU*
Public good measures	3	- Derogations or greater flexibility for GAEC 1 and 9 (permanent grassland), GAEC 5 (soil erosions), GAEC 6 (minimum soil cover), GAEC 7 (reverts back to crop diversification) and GAEC 8 (eliminates the obligation to have a given share of arable land as non-productive area) (EU –simplification package of May 2024) - Limitations of environmental controls on French farms (notably linked to obligations concerning the respect of biodiversity) - The French pesticide reduction plan (EcoPhyto) is temporarily suspended
General discontent	0	
Protest and community	0	
Working conditions	1	- Extension of the total exemption from employer social security contributions for agricultural seasonal labour employers by 3 years (LOA)*

Source: <https://agriculture.gouv.fr/suivi-des-mesures-en-faveur-des-agriculteurs>.

Parlons Climat.

<https://agriculture.gouv.fr/suivi-des-mesures-en-faveur-des-agriculteurs>.

Belgium.

Context

The farmers' protests in Belgium began in January 2024, sparked by uncertainty surrounding nitrogen regulations in Flanders and widespread discontent in Wallonia. In response, the country's various government levels (federal, Walloon and Flemish) took steps to implement the EC simplifications of the CAP, introduce measures especially aimed at reducing administrative burdens, and set up several task forces, e.g., on strengthening agri-food supply chains and securing land access. The June 2024 elections resulted in a reshuffling of political parties across the three governments. While new Walloon and Flemish governments were formed by October 2024, negotiations for a new federal government remain ongoing. This political instability has hindered the decision-making process and delayed the implementation of new policy measures.

Table A4

Policy changes in Belgium.

Protest reasons	Count	Policy change
Bureaucracy	8	- No control on farms of less than 10 ha (EU –simplification package of May 2024) - Reduced administrative burden on water capture - Faster issuance of water extraction permits* - Simplified notification procedure for nitrogen emissions - Simplified module for environmental permit of nitrogen - Reduced administrative burden of digital register for mineral fertilizer - Reduced administrative burden of applying for Eco schemes - Facilitation of administrative data entry according to 'only once' principle *
Regulation	3	- Reduced penalties for violations regarding manure regulations - Temporary derogation on calendar regulations - Ease regulations on water reuse
Financial strain	8	- Reinforcement of prohibition to sell with losses - Valorisation of Belgian products through marketing support - Compensation for farmers affected by bluetongue disease - Support for production of renewable energy on farms* - Optimisation of using CAP subsidies - Support for construction of water basins - Compensation for farm property if farm needs to exit
Policy dissatisfaction	0	
Missing future prospects	3	- Better protection of agricultural land * - Stop purchasing of agricultural land by government - Improving fiscal incentives on succession and registration taxes for leasing agricultural land *
Societal criticism	3	- Valorisation of Belgian products through marketing support - Launch of a public campaign to increase awareness - Strategic dialogue (EU)
Unfair market conditions	5	- Reinforcement of prohibition to sell with losses - Commitment to press the EU to include mirror clauses in the EU-Mercosur agreement

(continued on next page)

Table A4 (continued)

Protest reasons	Count	Policy change
Public good measures	8	- Amendments on unfair trading practices are added to national legislation - Reference person indicated who will serve as neutral contact person for contracts - Launch of EC observatory on production costs, margins and trading practices in the agri-food supply chain * - Derogations or greater flexibility for GAEC 1 and 9 (permanent grassland), GAEC 5 (soil erosions), GAEC 6 (minimum soil cover). GAEC 7 (reverts back to crop diversification) and GAEC 8 (eliminates the obligation to have a given share of arable land as non-productive area) (EU –simplification package of May 2024) - Adaptation of nitrogen regulations * - Application for derogation of nitrogen regulations on grassland * - Promotion of RENURE as alternative for mineral fertilizer at EC - Refuting European Nature Restoration Law - Refuting European Climate targets - Exemption of nitrogen regulations for G8 farms - Improving communication on nitrogen decree
General discontent	0	
Protest and community	0	
Working conditions	0	

Source:

<https://www.lecho.be/economie-politique/belgique/economie/les-agriculteurs-wallons-ont-obtenu-45-satisfactions-leur-combat-se-restructurer/10533347.html>.

Rapport uitvoering Landbouwakkoord, Vlaamse Regering, versie 20 juni 2024 (confidential).

https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1493.

The Netherlands.

Context

The farmers' protests in 2024 were primarily driven by the so-called Nitrogen Crisis. Farmers protested against proposed measures to reduce nitrogen emissions, which they perceived as overly restrictive and threatening to their occupations. The origins of the Nitrogen Crisis date back to 2019, when the Dutch Council of State ruled that the existing nitrogen policies violated EU law by failing to sufficiently protect Natura 2000 areas from excessive nitrogen deposition (Stokstad, 2019; Sok and Hoekstra, 2023).

The Netherlands has committed to meeting critical deposition values set by the EU, which requires significant measures to reduce nitrogen emissions from agriculture, transportation, and industry. Farmers perceive these requirements as increasing policy uncertainty, with the potential introduction of stricter regulations and legislation aimed at nitrogen abatement. Dutch farmers, across various farm types, consistently identify 'rules and regulations' as the primary obstacle to business development (Yanore et al., 2024).

Table A5

Policy changes for the Netherlands.

Protest reasons	Count	Policy change
Bureaucracy	1	- No control on farms of less than 10 ha (EU –simplification package of May 2024)
Regulation	0	
Financial strain	1	- Full compensation under the eco-scheme as the budget was exceeded due to high participation
Policy dissatisfaction	0	
Missing future prospects	3	- Support for young farmers - Financial support for innovation and 'pioneering farmers' - Subsidies and advisory support for innovation or relocation to reduce nitrogen emissions
Societal criticism	3	- National campaign for organic food - Ban on the use of electric shock devices in livestock farming - Strategic dialogue (EU)
Unfair market conditions	1	- Strengthening farmers' position
Public good measures	5	- Derogations or greater flexibility for GAEC 1 and 9 (permanent grassland), GAEC 5(soil erosions), GAEC 6 (minimum soil cover). GAEC 7 (reverts back to crop diversification) and GAEC 8 (eliminates the obligation to have a given share of arable land as non-productive area) (EU –simplification package of May 2024) - More flexibility in fulfilling eco-scheme obligations - Two-week extension for manure application - Three-week extension for sowing catch crops - Measures to reduce pressure on the manure market due to the abolishment of the Derogation rule
General discontent	0	
Protest and community	0	
Working conditions	0	

Source

<https://www.rijksoverheid.nl/zoeken?trefwoord=protest&dateRange=specific&startdatum=01-01-2024&einddatum=18-12-2024&onderdeel=Alle+ministeries&type=Alle+documenten> (no results).

<https://www.rijksoverheid.nl/zoeken?trefwoord=boeren&dateRange=specific&startdatum=01-01-2024&einddatum=18-12-2024&onderdeel=Alle+ministeries&type=Alle+documenten> (124 results, processed).

<https://www.rijksoverheid.nl/zoeken?trefwoord=landbouw&startdatum=01-01-2024&einddatum=18-12-2024&onderdeel=Alle+ministeries&type=Alle+documenten> (642 results, processed).

Everything related to livestock diseases has not been incorporated in this overview. In 2024, both bluetongue (ruminants) and avian influenza (birds, poultry) occurred, and the government frequently took and communicated about measures such as a confinement mandate or the approval of certain vaccines.

Appendix 5: Comparison of countries by category

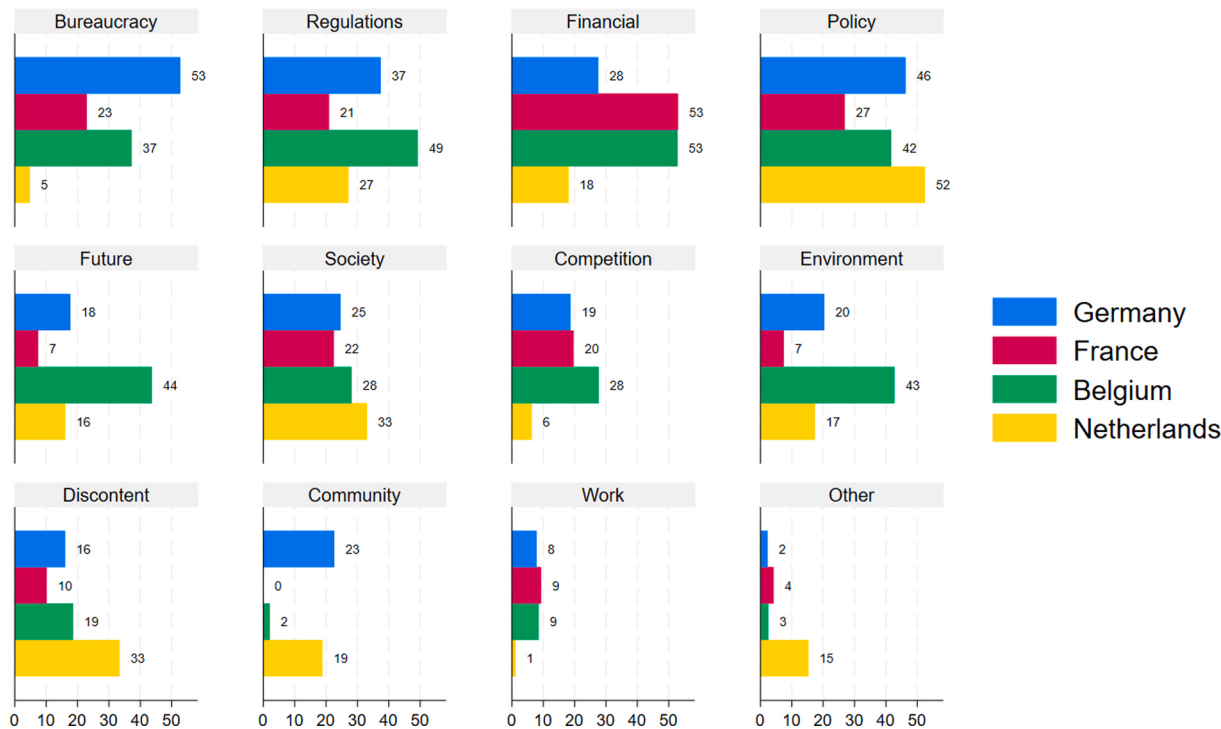


Fig. A1. Comparison of countries by category

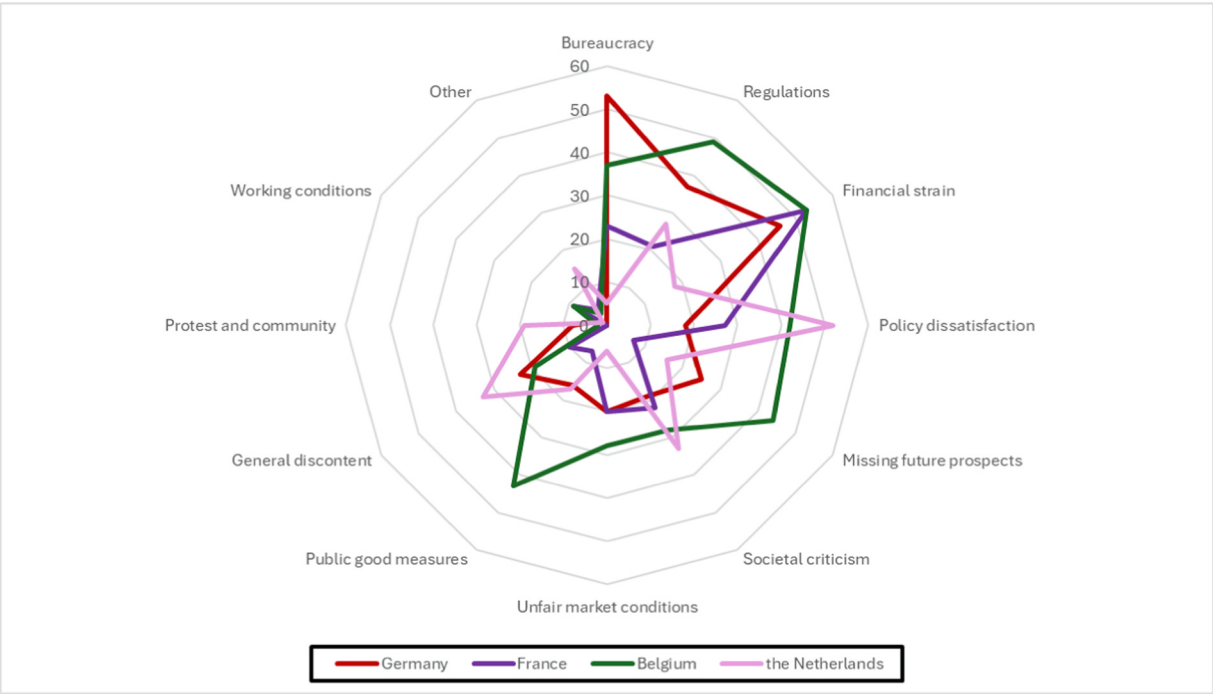


Fig. A2. Protest reasons by country

Appendix 6: Co-occurrences of reasons

54 % in the top left corner of table A5 implies that when an answer was coded as bureaucracy, in 54 % of the cases it was also coded under regulations, and in 37 % also under the category financial strains. Note that these percentages do not add up to 100 %.

Table A6A

Co-occurrences of categories for Germany.

	Bureaucracy	Regulations	Financial	Policy	Future	Society	Competition	Environment	Discontent	Community	Work
Regulations	54 %										
Financial	37 %	39 %									
Policy	39 %	48 %	44 %								
Future	18 %	17 %	19 %	25 %							
Society	27 %	28 %	29 %	30 %	35 %						
Competition	22 %	25 %	27 %	23 %	30 %	23 %					
Environment	24 %	28 %	33 %	21 %	22 %	25 %	35 %				
Discontent	12 %	11 %	13 %	13 %	11 %	9 %	4 %	13 %			
Community	17 %	17 %	20 %	19 %	15 %	21 %	23 %	23 %	22 %		
Work	11 %	16 %	19 %	8 %	13 %	13 %	11 %	21 %	8 %	9 %	
Other	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %

Table A6B

Co-occurrences of categories for France.

	Bureaucracy	Regulations	Financial	Policy	Future	Society	Competition	Environment	Discontent	Community	Work
Regulations	38 %										
Financial	54 %	52 %									
Policy	33 %	37 %	17 %								
Future	6 %	9 %	8 %	9 %							
Society	28 %	27 %	26 %	18 %	21 %						
Competition	22 %	28 %	18 %	19 %	19 %	16 %					
Environment	14 %	6 %	7 %	9 %	8 %	9 %	14 %				
Discontent	2 %	1 %	5 %	3 %	11 %	4 %	5 %	0 %			
Community	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %			
Work	12 %	9 %	16 %	8 %	7 %	15 %	9 %	11 %	4 %		
Other	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %

Table A6C

Co-occurrences of categories for Belgium.

	Bureaucracy	Regulations	Financial	Policy	Future	Society	Competition	Environment	Discontent	Community	Work
Regulations	59 %										
Financial	68 %	58 %									
Policy	47 %	46 %	33 %								
Future	42 %	45 %	43 %	52 %							
Society	35 %	29 %	30 %	42 %	29 %						
Competition	38 %	29 %	36 %	25 %	23 %	36 %					
Environment	43 %	43 %	41 %	53 %	48 %	45 %	36 %				
Discontent	16 %	15 %	12 %	25 %	20 %	23 %	13 %	25 %			
Community	0 %	0 %	0 %	1 %	3 %	2 %	0 %	1 %	5 %		
Work	11 %	10 %	11 %	11 %	13 %	11 %	15 %	8 %	14 %	25 %	
Other	4 %	3 %	1 %	5 %	2 %	5 %	2 %	4 %	3 %	0 %	6 %

Table A6D

Co-occurrences of categories for the Netherlands.

	Bureaucracy	Regulations	Financial	Policy	Future	Society	Competition	Environment	Discontent	Community	Work
Regulations	44 %										
Financial	29 %	26 %									
Policy	59 %	43 %	53 %								
Future	24 %	25 %	17 %	17 %							
Society	47 %	35 %	41 %	32 %	36 %						
Competition	12 %	13 %	9 %	7 %	6 %	7 %					
Environment	26 %	18 %	15 %	18 %	17 %	17 %	22 %				
Discontent	18 %	29 %	33 %	28 %	27 %	33 %	36 %	35 %			
Community	9 %	6 %	14 %	13 %	14 %	11 %	7 %	9 %	13 %		
Work	0 %	3 %	4 %	1 %	3 %	2 %	0 %	1 %	2 %	0 %	
Other	6 %	11 %	7 %	8 %	5 %	7 %	7 %	8 %	8 %	10 %	0 %

Appendix 7: Main protest reasons by farm size and system

We also explored if the probability of mentioning a protest reason differs by farm size and system. For brevity, we focus on the three most prevalent protest reasons (i.e., bureaucracy, financial strain and policy dissatisfaction). To this end, we estimate probit regression models with the respective

category as dependent variable and farm size and farm system as independent variables. We estimate four models per category, one for all countries (including country fixed effects) and one model for each country. Overall, we find limited differences between the probability of mentioning bureaucracy, financial strain and policy discontent in relation to farm size and systems.

The estimation results in table A6 indicate that bureaucracy is a complaint that concerns farms from all sizes and systems, as suggested by lack of statistical significance of the included variables. The overall model also confirms that German farmers are significantly more likely to complain about bureaucracy than farmers from the other countries. In Germany, farmers with livestock are more likely to complain about bureaucracy when compared to cereal farms (the baseline category), while there are no statistically significant variables for the remaining countries.

Table A7

Coefficient estimates of probit model protest reason bureaucracy.

Bureaucracy	All Countries	Germany	France	Belgium	Netherlands
Farm size (ha)	0.0002 (0.000)	0.0002 (0.000)	0.0004 (0.000)	0.0001 (0.001)	0.001 (0.001)
Horticulture/Perm. Crops	−0.007 (0.115)	−0.176 (0.465)	0.005 (0.159)	0.115 (0.453)	−0.133 (0.317)
Animal	0.060 (0.082)	0.521** (0.167)	0.057 (0.131)	−0.158 (0.204)	−0.255 (0.203)
Other/Mixed	0.043 (0.107)	0.074 (0.201)	0.002 (0.159)	0.251 (0.475)	0.120 (0.254)
France	−0.796*** (0.089)				
Belgium	−0.383*** (0.118)				
Netherlands	−1.72*** (0.111)				
Constant	0.004 (0.088)	−0.152 (0.111)	−0.815** (0.138)	−0.257 (0.175)	−1.623** (0.190)
Observations	2,213	303	1,000	199	711

In relation to financial strain, overall, there are no differences in relation to farm size and system, see table A7. French and Belgian farmers are significantly more likely to complain about financial strain than German farmers, and Dutch farmers are significantly less likely to mention financial strain. German livestock farms are significantly less likely to mention financial strain compared to cereal farms. In France, we find that the probability to complain about financial strain is significantly related to farm size, but the economic significance is very small. In addition, French farmers with livestock are significantly more likely to complain about financial strains, when compared to cereal farms. Given that the initial protest trigger was a cattle disease outbreak, this result is expected. In Belgium and the Netherlands, financial strain is a universal complaint across all farm sizes and systems, as indicated by the lack of statistical significance of these variables.

Table A8

Coefficient estimates of probit model protest reason financial strain.

Variable	All Countries	Germany	France	Belgium	Netherlands
Farm size (ha)	−0.00002 (0.000)	0.00001 (0.000)	−0.001** (0.000)	−0.0001 (0.001)	−0.0001 (0.001)
Horticulture/ Perm. Crops	0.038 (0.101)	−0.690 (0.579)	0.209 (0.144)	0.560 (0.496)	−0.287 (0.229)
Animal	0.046 (0.073)	−0.403** (0.181)	0.296** (0.120)	−0.189 (0.201)	−0.028 (0.139)
Other/Mixed	−0.432 (0.097)	0.041 (0.207)	0.183 (0.144)	−0.877 (0.511)	−0.356 (0.218)
France	0.647*** (0.090)				
Belgium	0.637*** (0.120)				
Netherlands	−0.338*** (0.097)				
Constant	−0.596*** (0.089)	−0.461*** (0.114)	−0.037 (0.126)	0.205 (0.174)	−0.828*** (0.140)
Observations	2,213	303	1,000	199	711

In relation to policy dissatisfaction, probit model results are displayed in table A8. The probability to complain about policy increases with farm size, yet the economic significance of the coefficient estimate is small. Livestock farms are also less likely to complain about policy when compared to cereal farms. This is also the case for German and Dutch farmers, while French farmers who keep livestock are more likely to complain about policy, compared to cereal farms. In addition, with increasing farm size, French farmers are less likely to complain about financial strains.

Overall, it appears that protest reasons are quite common across all farm sizes and systems, with some differences in expressed reasons between farms that keep livestock compared to cereal farmers. Largely, our findings do not confirm differences in complaints between farmers with large or small holdings, as suggested by Nature Food (2024).

Table A9

Coefficient estimates of probit model protest reason policy dissatisfaction.

Variable	All Countries	Germany	France	Belgium	Netherlands
Farm size (ha)	0.0004** (0.000)	0.003 (0.000)	0.001** (0.000)	−0.0001 (0.001)	0.0003 (0.001)
Horticulture/ Perm. Crops	−0.088 (0.101)	−0.063 (0.456)	−0.002 (0.151)	0.564 (0.455)	−0.357 (0.188)
Animal	−0.171** (0.071)	−0.391** (0.168)	−0.149 (0.125)	0.239 (0.205)	−0.259** (0.123)
Other/Mixed	−0.077 (0.094)	0.300 (0.204)	−0.137 (0.153)	1.101** (0.511)	−0.355 (0.168)
France	−0.460*** (0.086)				
Belgium	−0.026 (0.117)				
Netherlands	0.254*** (0.090)				
Constant	−0.098 (0.087)	−0.077 (0.113)	0.636 (0.131)	−0.422 (0.179)	0.270** (0.122)
Observations	2,213	303	1,000	199	711

Appendix 8:. Emotions by category

The second row (overall) of tables A9 A-D shows the overall distribution of the emotions (also shown in table 6), while the following rows show the percentage of answers that fell into a specific emotion, if an answer included this category. For example, a value of 68.94 implies that almost 70 % of answers that included the category bureaucracy were voiced in an annoyed anger tone.

Table A10A

Proportion of protest reason categories by emotion (Germany).

	Aggressive anger	Annoyed anger	Sadness	Anxiety and fear	Optimism	Neutral
Overall	20.33	53.44	1.31	2.30	0.66	21.97
Bureaucracy	14.91	68.94	0.62	1.86	0.00	13.66
Regulations	23.68	62.28	0.88	0.88	0.00	12.28
Financial	15.48	64.29	2.38	0.00	1.19	16.67
Policy	31.91	48.94	1.42	2.84	1.42	13.48
Future	22.22	42.59	7.41	9.26	1.85	16.67
Society	28.00	49.33	1.33	4.00	0.00	17.33
Competition	29.82	54.39	3.51	0.00	0.00	12.28
Environment	25.81	58.06	1.61	0.00	0.00	14.52
Discontent	14.29	61.22	0.00	2.04	0.00	22.45
Community	24.64	40.58	0.00	1.45	1.45	31.88
Work	33.33	54.17	4.17	4.17	0.00	4.17
Other	28.57	14.29	0.00	0.00	0.00	57.14

Table A10B

Proportion of protest reason categories by emotion (France).

	Aggressive anger	Annoyed anger	Sadness	Anxiety and fear	Optimism	Neutral
Overall	15.03	42.73	5.04	2.47	0.00	34.72
Bureaucracy	7.79	62.34	0.87	0.87	0.00	28.14
Regulations	8.02	58.49	0.94	2.36	0.00	30.19
Financial	8.77	45.71	5.22	2.24	0.00	38.06
Policy	22.14	50.92	2.21	1.11	0.00	23.62
Future	12.00	24.00	16.00	22.67	0.00	25.33
Society	16.30	55.95	3.08	1.32	0.00	23.35
Competition	14.14	41.41	2.53	1.52	0.00	40.40
Environment	10.67	50.67	1.33	0.00	0.00	37.33
Discontent	36.89	18.45	21.36	4.85	0.00	18.45
Community	0.00	0.00	0.00	0.00	0.00	0.00
Work	13.83	63.83	3.19	3.19	0.00	15.96
Other	16.67	16.67	2.38	4.76	0.00	59.52

Table A10C

Proportion of protest reason categories by emotion (Belgium).

	Aggressive anger	Annoyed anger	Sadness	Anxiety and fear	Optimism	Neutral
Overall	10.05	34.67	0.50	2.51	0.00	52.26
Bureaucracy	9.46	36.49	0.00	2.70	0.00	51.35
Regulations	6.12	44.90	0.00	4.08	0.00	44.90
Financial	6.67	36.19	0.00	2.86	0.00	54.29
Policy	20.48	46.99	0.00	3.61	0.00	28.92
Future	12.64	34.48	1.15	5.75	0.00	45.98
Society	16.07	44.64	0.00	3.57	0.00	35.71
Competition	10.91	36.36	0.00	3.64	0.00	49.09
Environment	17.65	35.29	0.00	1.18	0.00	45.88
Discontent	27.03	45.95	2.70	5.41	0.00	18.92
Community	0.00	50.00	25.00	0.00	0.00	25.00
Work	11.76	41.18	0.00	5.88	0.00	41.18
Other	20.00	40.00	0.00	0.00	0.00	40.00

Table A10D

Proportion of protest reason categories by emotion (Netherlands).

	Aggressive anger	Annoyed anger	Sadness	Anxiety and fear	Optimism	Neutral
Overall	26.12	50.84	1.96	5.45	0.28	15.36
Bureaucracy	14.71	85.29	0.00	0.00	0.00	0.00
Regulations	10.82	69.07	1.55	5.67	0.00	12.89
Financial	14.73	60.47	1.55	3.88	0.00	19.38

(continued on next page)

Table A10D (continued)

	Aggressive anger	Annoyed anger	Sadness	Anxiety and fear	Optimism	Neutral
Policy	32.00	50.67	1.33	4.27	0.27	11.47
Future	10.43	47.83	4.35	14.78	0.00	22.61
Society	30.08	56.78	1.69	3.81	0.00	7.63
Competition	22.22	66.67	0.00	2.22	0.00	8.89
Environment	25.81	58.87	0.00	1.61	0.00	13.71
Discontent	33.47	47.70	4.18	8.79	0.00	5.86
Community	28.15	39.26	2.96	5.93	0.74	22.96
Work	25.00	75.00	0.00	0.00	0.00	0.00
Other	23.85	38.53	2.75	5.50	0.92	28.44

Data availability statement

Data and code to replicate the findings are available at zenodo <https://doi.org/10.5281/zenodo.17435985> Original text responses are not included due to confidentiality.

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