frontiers | Frontiers in Political Science

TYPE Original Research
PUBLISHED 14 May 2025
DOI 10.3389/fpos.2025.1501904

OPEN ACCESS

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RECEIVED 25 September 2024
ACCEPTED 01 May 2025
PUBLISHED 14 May 2025

CITATION
Upham P, Scholte R and Feron S (2025) Social representations of injustice in sustainability transitions: the case of farmers and Dutch agricultural nitrogen policy.
Front. Polit. Sci. 7:1501904.
doi: 10.3389/fpos.2025.1501904

Social representations of injustice in sustainability transitions: the case of farmers and Dutch agricultural nitrogen policy

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Here we document publicly circulating social representations of farmers, including government policy proposals, in the context of the Dutch agricultural nitrogen controversy for the period 2019–2023. The data are articles in three different Dutch national newspapers. Our aim is to provide a social psychological account of what sociotechnical sustainability transition theorists describe as 'regime resistance', using an agricultural policy case. As these representations are principally of farmers as the victims of injustice, we use the lens of just transitions to further characterize and structure them. The main representations are of ongoing uncertainty for farmers; loss of sympathy for farmers; farmers not being listened to; difficulty in farmers engaging with what is perceived as a highly challenging governmental policy position; and a concern for the future of farming and farmers. The representations are further characterised by the emotion of anger. The approach adds to an understanding of the social psychology of resistance to policy-led 'regime destabilisation'. Arguably, social representations associated with policy intended to effect sociotechnical change can be viewed as an indicator of the social condition of the transition and its key social groups.

KEYWORDS

social representations, farmers, Netherlands, nitrogen, regime resistance, media analysis

1 Introduction

Farming is a vital human activity on which we all depend, but many aspects of its industrialised form have long been environmentally problematic. Agriculture is now the source of 11% of European greenhouse gases and is a key driver of biodiversity and habitat loss through land conversion, soil degradation, water abstraction, and chemical and nutrient pollution (EEA, 2024). In recent years, farmers in Europe have staged protests against policies intended to reduce the environmental impacts of the sector, often aligning with populist politics (van der Ploeg, 2020). At the same time, European farmers may also be regarded as being caught in a trilemma of being asked to simultaneously mitigate climate change, produce food and maintain biodiversity (Turck et al., 2023). Given the pressures on farmers, albeit arguably legitimate pressures, it is not surprising that they often feel treated unjustly and misunderstood.

This study can be seen in the context of others that have explored Dutch farmers' anger and political response. van der Ploeg (2020) characterizes the farmers' movement as one of right-wing rural populism that deliberately downplays important environmental and health aspects of the nitrogen crisis, and which uses symbolic argumentation to justify and lobby for the right to continuously expand an industrial-scale, fossil-fuel and capital-intensive

agricultural sector (van der Ploeg, 2020). Meijer (2022) focuses on resistance to the ongoing nitrogen crisis debate in the context of the future of farming. She views both the farmers and their animals as suffering. With ammonia emissions from animal farming being the key problem, Meijer (ibid) draws attention to changing public discourse about animals and their welfare, including perceived structural maltreatment of dairy animals (ibid). The intensification of farming has involved an increase in farm size and a decrease in the number of farmers, and farmers are more likely to experience mental health problems than the average Dutch citizen (NRC, 2021; Meijer, 2022). In this connection, van der Ploeg (2020) also refers to the model of indebtedness that capital-intensive farming follows. Visscher et al. (2022) have also studied the nitrogen debate in Dutch newspapers, focusing on the use of frames and other differences in actor portrayal between newspapers.

Here, we describe newspaper-based social representations of perceived injustice in the context of the Dutch nitrogen 'crisis'. Our use of the word 'perceived' is intended literally and is not intended to express a position on the justice of the situation. We use the theory of social representations (Moscovici, 1988), which, in common with discourse analysis, analyses human communication to highlight the ways in which this is used to convey, convince and persuade, and also to characterize socially circulating ideas on a topic. Moscovici's (1988) theory of social representations is also intended to reveal how individuals and social groups understand their social reality. These understandings, made up of knowledge, opinions, and beliefs, are posited as being shared by social groups having the same characteristics (Höijer, 2011).

The concept of social representations may seem similar to that of framing or discourse, as all use communication for rhetorical, persuasive purposes. The difference lies primarily in social representations theory being an approach to the social psychology of groups: social groups are posited as being cohered and constituted by shared ideas (ibid). Moreover, assimilation, acceptance and use of these ideas and language is posited as taking place and facilitated by specific processes, notably 'anchoring' and 'objectification', discussed further below. Social representations are also held to be composite or integrated phenomena, blending ideation (beliefs and knowledge) with attitudes and affect.

We examine social representations of the Dutch nitrogen policy problem in the Dutch media as an example of how such understanding can provide insight into policy processes, particularly those involving media amplification for the purpose of resisting or promoting a policy position. We understand these representations through the lens of the *just transitions* literature, as we find farmers' concerns to be principally represented in these terms. Different forms of perceived injustice have driven emotionally-laden (typically angry) responses that are a part of the ongoing development of European agri-environmental policy (Finger et al., 2024). From a sociotechnical transitions perspective, this can be viewed as a case of regime resistance (Geels, 2014), where the regime is comprised of incumbent actors, and the incumbent actors are farmers and associated industries. We refer to farmers as incumbents in that they at least part-own the means of production in the sector, and are in any case an important actor group therein[1].

The representations that we examine are multiple, relating to the controversy surrounding agricultural nitrogen reduction policy. The primary theoretical research question that we examine is: *How may the social psychological processes of the 'regime resistance' theorised in sociotechnical transitions perspectives be both studied and understood?* By social psychological processes, we mean those processes of individual experience, such as cognition, affect and behaviour, that are influenced by their social context. We propose that social representations may serve this purpose, for their simultaneously social and individual nature; for an important empirical case in the Netherlands, with wider European relevance, we look at how the prevalence of these changes over time coincide with selected policy events; and we examine the main representational themes involved. By social representations, we mean the shared beliefs, perceptions and understandings used in sense-making. While we use newspaper representations as data, our purpose is not to comprehensively catalogue the social representations circulating in the newspapers of the time, nor in other communications media. Moreover, we assume that publicly-circulating representations are comprised of elements that are to some extent shared, that these are involved in cognition, and that they influence individual and collective action.

In terms of structure, the paper begins with short overviews of the policy context, social representations theory and just transitions principles, which we apply subsequently. A description of the research design and methods are followed by an overview of the incidence and timing of newsprint references as tracked against policy events, and then a description of the social representations organised by just transition principles. Discussion of the implications for environmental and wider sustainability transitions policy follows.

2 Policy context

In the Netherlands, the environmental impacts of intensive agriculture have been of sustained concern (RIVM, 1988; TNO, 2019). As in other European countries, agricultural systems, particularly livestock and their various nitrogenous emissions, have impacted natural systems and human health for decades (DEFRA, 2018). The Netherlands has the highest nitrogen emissions per hectare of agricultural land relative to other European countries, being almost four times as high as the EU average (TNO, 2019). In 2015, the Integrated Approach to Nitrogen (Programma Aanpak Stikstof, PAS) was introduced in the Netherlands to address this, considering not only possible ecological losses, but also possible economic benefits when reducing excess nitrogen (Heer et al., 2017). However, in May of 2019, the PAS was legally ruled as insufficient, as it did not meet EU conservation law requirements for reducing the excess nitrogen (Raad van State, 2019). This required further, more stringent measures that have been highly controversial in the agricultural sector.

Before providing further detail on the agricultural policy context, two points should be borne in mind. First, other sectors have also been required to reduce their nitrogenous emissions in the Netherlands: the industrial sector accounts for 2.1% of Dutch nitrogen emissions and by 2030 must reduce this by 38%; the construction sector is responsible for 0.6% of total nitrogen emissions in the Netherlands, and builders must make a separate calculation of the nitrogen emissions associated with each construction project, as part of planning consent; road traffic and households each produce about 6.5% of nitrogen emissions, and

1 Eurostat (2024) shows 89% of farms in NL to be family-owned.

emissions have fallen sharply for road traffic as a result of EU regulation, while heat pumps have been subsidised for residential use; second, of special note, some 55% of nitrogen emissions in NL are wind-blown from outside of the country's boundaries (Aanpak Stikstoff, 2023).

However, the third point to keep in mind, responsibility for emissions is not the same as responsibility for deposition, for reasons relating to the form and location of nitrogen emission, and while Dutch policy measures aim to address excess nitrogen emissions and deposition generally, a key focus of controversy has been specifically relating to the impact of nitrogen deposition on Natura 2000 (N2000) sites. An RIVM briefing to the Dutch House of Representatives on 25 May 2022 states the sectoral share of nitrogen *deposition* on nitrogen-sensitive Natura 2000 sites as being: Agriculture 46%; Mobility 11%; Industry and energy 2%; Households, services, construction 6%; Abroad (i.e., transboundary, incoming to NL) 35% (Aanpak Stikstoff, 2023). Moreover, although agriculture is 'only' responsible for—and capable of controlling—a little less than half of deposition on sensitive sites, the impact of reductions in each sector is also taken into account by the Government: the reduction of a kiloton of NOx from industry is on average a factor of 10 to 20 less effective for reducing deposition on Natura 2000 sites than the reduction of a kiloton of NH_3 in agriculture (ibid, p.2).

Peak-load sources of nitrogen, defined as those causing above 2,500 mol nitrogen deposition per year on Natura 2000 sites, are offered (by the State) advice, support and subsidy for change. Under the peak-load emitter scheme (LBV plus), livestock farmers who are classified as peak-load emitters qualify for compensation of up to 120% of their breeding site's market value. While a small number of industrial sites are in the group of 3,000 peak-loading companies identified by RIVM, most are dairy cattle and veal calf farms, followed by pig and poultry farms (van der Maas et al., 2023).

The Dutch government's policy has included, in the recent past, reducing the scale of the livestock component of Dutch agriculture: according to policy as of late 2024, by 2030, livestock would have had to have been reduced by one third and nitrogen deposition reduced by half. The government aimed to achieve these goals through voluntary buy out or relocation of farms, while also promoting more sustainable agricultural practices through a range of subsidies. Ideally, this should all happen on a voluntary basis, however forced buyouts are also an option (van Halm, 2022). The announcement of these plans was received with disapproval and anger, especially (not surprisingly) by Dutch farmers. Farmers' protests have been frequent, including roadblocks by tractors or hay bale fires, particularly between late 2019 and late 2022. These protests were initially met by confusion, since at first no clear demands were made, and anger and frustration dominated (van der Ploeg, 2020). In general, farmers took and continue to take the view that they are having to bear the burden of nitrogen reduction largely alone, despite nitrogenous emissions from other sectors (Sommer, 2020). At the time of writing, Spring 2025, government policy remains uncertain and under development.

A final point in terms of the policy context: with a new Dutch government in mid-2024, nitrogen policy is in flux and the general policy direction may well involve a weakening of environmental commitments. For example, while focused on the manure market, Minister Wiersma's letter to Parliament of 13.09.24 proposed a reduction to the dimensions of derogation-free zones around Natura 2000 areas, i.e., a less precautious approach (Wiersma, 2024a). This is likely just the beginning of a change of direction signalled in the new Government's program, which states that the National Rural Area Programme (NPLG) will be discontinued (Rijksoverheid, 2024, chapter 4). The NPLG took an integrated, area-specific approach, to attempt to balance the conflicting claims of agriculture and nature in rural areas, considering measures for biodiversity, nitrogen emissions, water, soil and climate together rather than separately. Responsibility for this planning was at province level, but the new government will instead control this centrally, with province involvement, and with substantially reduced funding (Wiersma, 2024b).

3 Theoretical approach

3.1 Just transitions

Just transitions principles have been proposed as a way of bridging sociotechnical dynamics and the justice aspects of sustainability transitions (Jenkins et al., 2016). The approach has origins in the concepts of energy justice and environmental justice (Upham et al., 2022). It uses some of the conceptual terminology and theories of change in the sociotechnical transitions literature, notably that technological change can be seen as a thoroughly social process that involves alliances, competition, collaboration, power, institutionalization and other structuring and agentic activity.

Typically, three main types of justice are defined in the just transitions literature: recognitional justice, distributional justice, and procedural justice (Jenkins et al., 2016). *Recognitional justice* refers to the understanding and representation of all individuals, going beyond mere tolerance of them. Recognitional justice thus requires the acknowledgement of different perspectives, which come from social, cultural, and other contextual differences (Jenkins et al., 2016). Lack of recognition can be further subdivided into cultural domination, non-recognition, and disrespect (Fraser, 2012). *Distributional justice* involves questions of allocation of benefits and burdens of transition across a population (Jenkins et al., 2016). This type of justice concerns the distribution of both (environmental) burdens and benefits as well as the responsibilities associated with these. As some resources will inevitably be unevenly distributed, it is important that there is evidence of this inequality in combination with compelling argument for its justification or remedy (Jenkins et al., 2016). *Procedural justice* is linked to distributional justice, and refers to the fairness, equitability, and inclusivity of transitions processes themselves, particularly decision-making processes (Jenkins et al., 2016).

3.2 Social representations theory

Moscovici's (1988) theory of social representations is a theory of how individuals and social groups understand their social reality. These understandings, made up of knowledge, opinions, and beliefs, are viewed as shared by social groups having the same characteristics (Höijer, 2011).

In the construction of social representations, Moscovici (1988) defined two key processes: objectification and anchoring. Objectification refers to the way in which a communicator seeks to conventionalize or normalize a new object or idea through simplifying forms of communication. Hence slogans and vivid imagery are often used in objectification processes to simplify, represent, and convey a complex set of ideas and identities (Höijer, 2011). Complexity is elided in favour of tangibility, memorability, comprehensibility and salience.

Anchoring completes the process of objectification by linking a new object (often an idea) to the existing thought system of the individual and its group. By doing so, the new object is merged into a form that is familiar and identifiable within a network of meanings that were already present. This proposition is intended to help explain why different social groups interpret the same objects (as said, often ideas) in different ways. Hence, a successful communicator uses anchoring by understanding the terms in which their audience thinks, and what is important to them. Emotional anchoring can be described as an attachment mechanism working by attaching a new phenomenon to a strong emotion. For example, climate change is often linked to guilt or fear (Höijer, 2011).

Thematic anchoring relates to how representations might be connected to underlying collective and general patterns of thinking, referred to as themes or themata. These themata are in themselves social and cultural in nature. Themata may be related to concepts of ideology, often seen as taken for granted or common sense for a specific group, such as notions of democracy, human rights, or equality. Underlying these themes are antinomies, such as 'self/other', 'good/bad', or 'fear/hope', which can relate to a specific topic (Höijer, 2011; Upham et al., 2020). Thinking in these types of oppositions is an integral aspect of cultural socialisation; we distinguish concepts from one another through opposites in order to make sense of the world (Moloney et al., 2005). Given this, it is not difficult to see why Moscovici's theory has often been applied in media analysis (Höijer, 2011), as well as to the study of environmental controversies, including the siting of renewable energy infrastructure (e.g., Devine-Wright and Devine-Wright, 2009; Batel and Adams, 2016; Batel et al., 2016; Upham and Johansen, 2020; Batel and Rudolph, 2021).

Another aspect of social representations theory that we consider is its treatment of emotions. Joffe (2008), for example, has argued that emotions are central to social representations, in that their affective dimensions shape the formation, transmission and transformation of shared social meanings, particularly because emotionally charged representations are more likely to be widely disseminated and maintained within groups. Bouriche (2022) argues that such functions of emotions are an instance of an inherent tendency in cognitive functioning to seek to maintain alignment—i.e., to reduce tension—between one's understanding of the world and any change in material reality of which we become aware. Bouriche (ibid) likens this to Weick's (1995) view, proposed in the context of sense-making theorisation, that emotional activation signals a disjunction between expectations and reality. In other words, one of the purposes of emotions is to draw the attention of an individual to something that needs attention because it represents a change from pre-existing expectations. This places emotions as fundamental to cognition, not only influencing what is thought, but influencing whether new thoughts on a topic take place at all. This clash between expectations and reality arguably concurs with farmers' experience and their response in the context of environmental targets.

4 Methods

4.1 Research design

The study uses a case-based design in which social representations of farmers in the context of Dutch agricultural nitrogen reduction policy in Dutch newsprint media are identified, tracked against selected policy announcements, and used to illustrate the argument that social representations can provide a social psychological perspective on sociotechnical 'regime resistance' in environmental policy contexts. It may be noted that the specific Dutch case is in many respects neither special nor atypical, in that farmers across Europe have been campaigning against policy relating to the agricultural sector (Henley, 2024). That said, government buy-out of firms for environmental motives is relatively unusual. This makes the contrasting Danish case of government purchase of agricultural land for conversion to create better conditions for biodiversity and the protection of drinking water all the more striking (LVVN, 2024)—something that we return to in the Discussion section.

Newspapers are a specific form of communication media, with particular characteristics, including an emphasis on text rather than imagery. As such, they provide corresponding types of representation and do not reflect other influential forms of communication. Hence, oral and some social media representations can be expected to be more informal, colloquial and diverse. Given this, we do not claim to capture all forms of representation. In addition, news media representations are mediated by journalistic and other source communicator strategies and norms, as well as automated reprint of press releases, and, more recently, the use of artificial intelligence to generate news articles (Meade, 2023). The upshot of all of this is that we treat the representations observed as representations in *a* form of public circulation. Their provenance and impact are matters that could be fruitfully explored further, but this goes beyond the scope of this study. Importantly, in the news articles we cannot always attribute voices (nor is it the aim of this study), i.e., identify whether we are reading farmers' voices or journalists'—unless there are direct quotations. Most of the quotations in the main text below are the voices of farmers, but in the coding in general we have not distinguished voices.

Regarding the more general choices of the research design, social psychological perspectives extend the scope of the processes considered in sociotechnical transitions studies, providing an understanding of the cognitive aspects of agency. As transitions perspectives are generally formulated at the level of aggregate social behaviour, making connections with social psychological perspectives is challenging. Social representations theory, among others, has been advocated as an option for making such connections, given that representations are posited as both collective and individual (Upham et al., 2019; Giardullo et al., 2019).

4.2 Data collection

The data consist of newspaper articles held by the Nexis Uni database, for the time period May 2019 to February 2023. The beginning of this period is when relevant articles began to increase in number in the context of the longer period that Nexis Uni provides, namely from January 1992; the end date of February 2023 was simply the end of the study period—the controversy continues still at a lower level, following significant political change in the Netherlands, in which the controversy itself played a role.

To keep the number of articles manageable, given that the articles were read and coded manually, a sample dataset of 100 to 150 newspaper articles was sought; details are described below. After testing several searches, the combination of the keywords 'stikstof'

(nitrogen) and 'boeren' (farmers) was chosen as the most reliable way of eliciting closely relevant articles. Searches were performed using the 'group duplicates' and 'run search as terms & connectors' settings. The former setting makes sure that duplicates of the same article are grouped together, while the latter setting yields more results in this case than the alternative option of running the search as 'natural language'.

The newspaper titles were chosen to reflect a combination of both the availability of articles and the aim of reflecting several ideology-based reporting styles. The newspapers chosen were *De Telegraaf*, *De Volkskant*, and *Trouw*, for the reason that these are national Dutch newspapers that target the whole of the Netherlands, but with differences in content and readership. There are other national and regional newspapers in NL, and other news sources (including social media). Nonetheless, the Dutch Media Authority (Commissariaat voor de Media, 2024), in its Mediamonitor, states that the five DPG Media brands, which include de Volkskrant and Trouw, reached 64% of the Dutch population weekly in January 2024 (meaning 64% of people read at least one DPG Media branded product in the week they were questioned in 2024). Mediahuis, whose brands include De Telegraaf, reached 33% of the Dutch population on the same basis. These figures do not include the regional news brands of DPG Media and Mediahuis.

Overall, although we do not have definitive data on readership/exposure for the three news sources selected, while there are other sources, and bearing in mind that we cannot claim comprehensive coverage, the sources selected are significant in terms of Dutch media coverage. More generally, newspapers are a form of publicly circulating representation and only one such form. We choose newspapers because they are one instance of a broadcast form, meaning that they have a wide circulation, reaching relatively large numbers of people. The newspaper articles in the Nexis Uni database are also mostly accessible to readers in the online versions of the newspapers, although some online articles may require a subscription. As a final, additional caveat: it may well be that representations of any particular phenomenon differ between regional and national newspapers; certainly this will be so for coverage of local events. That said, there are ongoing concerns about different types of decline in relation to local news coverage, including in the Netherlands (Verza et al., 2024). We have not explored this here, but it certainly merits closer attention.

In Figure 1, an overview is provided of the number of newspaper references to the agricultural nitrogen problem, for the selected newspapers, between the period of 1992 to 2023. These years reflect the full date range of the Nexis Uni database. In Figure 1 it can be seen that besides a short spike in the publication rate in August of 1995, the combination of the key words 'stikstof' and 'boeren' did not yield a substantial number of articles until October 2019, where it peaked at 116 in that month. At this point, the large spike in references is followed by fluctuations between 10 and 50 articles per week, peaking at its highest level (143 articles) for the month of June of 2022. This, in combination with the knowledge that the abrogation of the Integrated Approach to Nitrogen happened on the 29th of May 2019, led us to focus on the time period for the analysis of social representations as from the 29th of May 2019 until the most recent possible date at the time of study, namely the 28th of February 2023. Within this period the total number of references within the database is 32,151, of which 1,560 were from the three chosen national newspapers.

After applying all of the abovementioned criteria, 1,560 articles were retrieved through Nexis Uni. Systematic sampling was performed, selecting every 10th article of the entire dataset when sorted chronologically. This was to ensure the preservation of the relative frequency of representations within the articles, despite the possibility, indeed the likelihood, of differing numbers of articles from each paper. The sampling process also involved manually skipping several articles

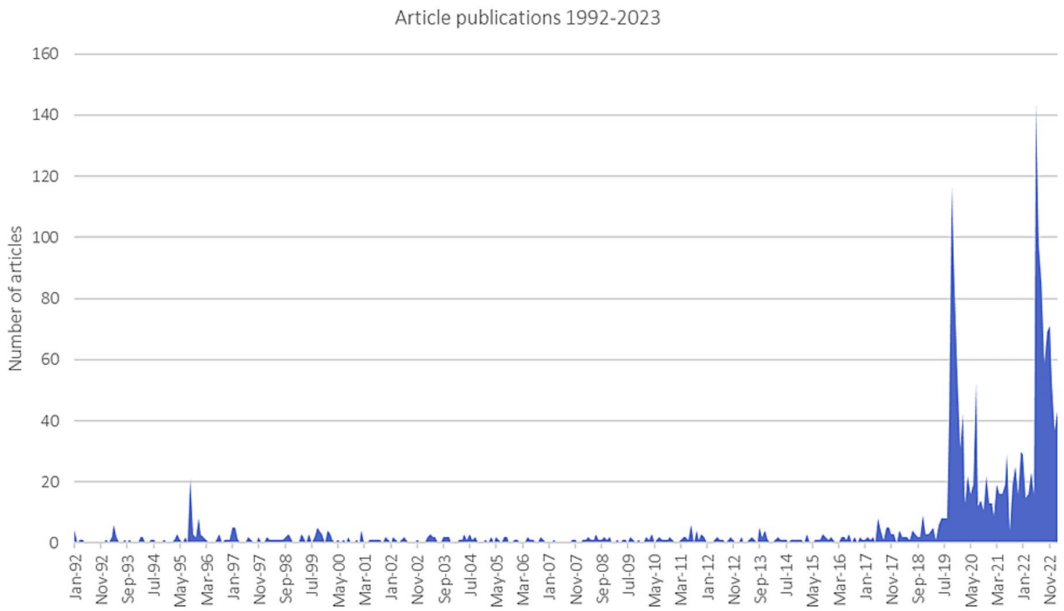

FIGURE 1
Number of newspaper article publications per month between 1992 and 2023 referencing the agricultural nitrogen problem (number of articles before application of the sampling method).

that were deemed irrelevant to the study, in the sense of the keywords being present, but the article being about a different topic.

In total, the number of articles examined was 156, i.e., a sample of about 10%. To ensure that the sampling method did not interfere with the relative frequency of references over time, the number of references per month was plotted, both before and after application of the sampling method, as can be seen in Figures 2A,B. Both figures show, per month, the total number of references as well as the number of references separately for each newspaper, over the chosen time period. Although the number of references differs per newspaper, the total number follows a similar pattern over time both before and after application of the sampling method, indicating that the sampling method did not substantially disrupt the relative frequency of references over time.

The sample numbers for each newspaper were as follows: De Telegraaf $n = 39$; De Volksgrant $n = 44$; Trouw $n = 73$, such that representations in the Trouw dominate numerically. We chose not to normalize frequencies across newspapers, i.e., to adjust for differing prevalence across newspapers, in order to retain information on the relative frequency of representations per se and per theme. While further consideration of the differences between newspapers may be of interest, here the aim was to indicate newspaper representations on this topic in NL as a whole, using a spread of newspapers.

4.3 Data analysis

The articles were manually and qualitatively coded based on the numerical prevalence and types of representations. This means that the articles were coded in terms of any: themata; imagery associated with objectification; emotional tone; other themes present; and position with respect to fairness. The unit of analysis is the news article, not its sub-sections. Appended Table 2 (the MS Excel file in the Supplementary material) shows the outcome of this coding. There was one coder, a native Dutch speaker, who repeat-coded a 10% sample as a reliability check, and who found no notable internal inconsistency via that check.

The coding scheme was built up by both deductive and inductive reasoning, the former resulting in a set of *a priori* codes and the latter resulting in a set of posteriori codes (Swain, 2018). The a priori codes were based on the previously stated research aims, questions and background information on the case, as well as codes such as emotional tones. Posteriori coding came from the analysis of the data itself. A detailed overview of the coding scheme for the newspapers is appended. Where an article contained multiple representations and hence codes, all codes present in an article were recorded. Two consecutive rounds of coding were performed to enhance consistency.

Particular attention was given to cross-referencing the timing of the articles and their numerical incidence with the events surrounding the case. By maintaining the relative frequency of article publication, it became possible to not only establish any variations in frequency that can be linked to the case, but also to contribute to explaining changes in representations over time through the contextual information. A comprehensive listing of the sources for the coded quotations is appended.

The allocation of quotations to specific justice categories was primarily based on face value interpretations, while considering the source of the quotation, the associated social representations connected to the source, and the contextual information provided within the quotation itself. When more than one justice category fitted a quotation, it was allocated to the most dominant category. English translations for the quotations were added, as the original quotations are in Dutch. The quotations are appended, with some also included below to aid comprehension.

5 Results

Below we provide an overview of the main trends, themes, and patterns, beginning with an overview of connections with policy events, and then moving on to farmer representations in relation to different types of perceived injustice.

5.1 Timeline of events and article frequency

The changes in reference frequency—already visible in Figures 2A,B—can also be mapped to the timing of policy events. In general, peaks in the number of references are associated with a policy event or announcement, as described in Figures 3–5. After the abrogation of the PAS on May 29th of 2019, attention focused on the environmental impacts of nitrogen deposition, with the Dutch government highlighting the urgent need to reduce nitrogen outputs

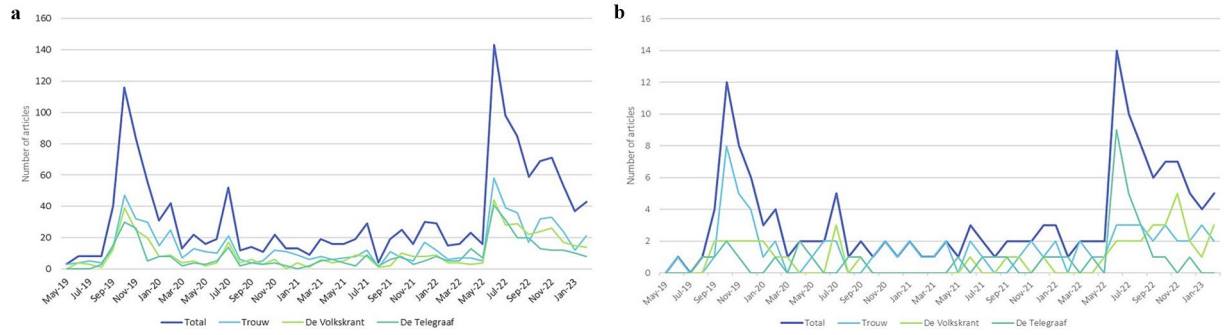

FIGURE 2
(a) Number of newspaper references within the given criteria before application of the sampling method. **(b)** Number of newspaper references within the given criteria after application of the sampling method.

(Raad van State, 2019). In the following, discussion and debate continued regarding how the 2030 nitrogen reduction goal should be attained. This discussion, within the government but also between the government and various stakeholders, mainly concerned the attempt to find a policy solution for the nitrogen crisis that balances both environmental sustainability, especially for nature conservation, and the needs of farmers and the entire agricultural sector.

The farmers' organisations *Farmers Defence Force* (FDF) and *Agractie* expressed concerns early on about the impacts of the proposed measures to tackle the nitrogen crisis, principally the voluntary buy-out or relocation of farms and the target of reducing livestock numbers by 30%, on the livelihood of farmers and the agricultural sector as a whole (Bosma and Peeren, 2021). After the abrogation, tensions gradually rose, and farmers started protesting against government proposals. As can be seen in Figure 3, the number of newspaper references greatly increased as of September 2019, with a particular increase in October 2019, as newspapers covered the crisis and the many protests.

On October 1st of 2019, thousands of farmers took to protesting en masse in The Hague. With hundreds of tractors, they caused major disruption and large traffic jams. On October 16th, another large-scale protest was held. These protests were not only against the proposals, but also against the negative light in which—according to the protestors—farmers and farming in general were being represented in the news media. The main trigger of the protest, however, was media reporting on political intentions that a 50% reduction of all livestock was needed (e.g., NL Times, 2019); this can be compared with the actual policy measures and targets as of mid-2023, which are varied and are not expressed in terms of the scale of the sector, but in moles of nitrogen deposited in particular locations (Aanpak Stikstoff, 2023). Overall, this period was marked by many demonstrations and blockades by farmers (Bosma and Peeren, 2021).

Shortly after these protests, in November of 2019, the political party *BoerBurgerBeweging* (BBB) was formed, a party focusing explicitly on people outside of the Randstad, the conurbation comprised principally of Rotterdam, Amsterdam, Utrecht, the Hague and other smaller, proximate towns. The BBB was founded by a marketing agency (Wagendorp, 2023), with the stated aims of representing the interests of the agricultural sector and people living in rural areas. The *BBB* holds that other political parties and government policy focus too much on the larger cities and on the Randstad (BBB, n.d.).

Between December of 2019 and January of 2020, the government introduced several new initiatives to address the crisis, such as the voluntary buyout scheme. In Europe, such schemes have been implemented in both the Netherlands and Flanders, Belgium, where livestock buyout programmes may be defined as "schemes that compensate for the loss or decline in the value of production assets on livestock farms on the condition that production will be ceased permanently" (Boezeman et al., 2023, p.4). Despite the voluntary nature of the Dutch scheme, in 2021 the Rutte-IV Coalition cabinet said that it was also seriously considering mandatory termination of farming activities (ibid, p. 6). Although protests and farmer actions continued on a smaller scale during this time, a decrease in the number of media references can be seen. Nonetheless, the number remains high compared to the start of the period.

In Figure 4, the number of references to the agricultural nitrogen crisis stays relatively low compared to the peaks in the period before it, overall showing only small variations. This can be explained by the focus temporarily shifting away from the nitrogen crisis due to the COVID-19 pandemic, with its own challenges (Rijksoverheid, 2021). While the nitrogen crisis by no means disappeared, during this time newspaper references to it are not as frequent as before, and policymaking and discussions continued at a delayed pace and with many adjustments made afterwards. In March of 2021, the BBB took part in the elections, after which they are now taking up one seat in the House of Representatives (BBB, n.d.). In the same month, the 'Nitrogen Reduction and Nature Improvement' bill was approved.

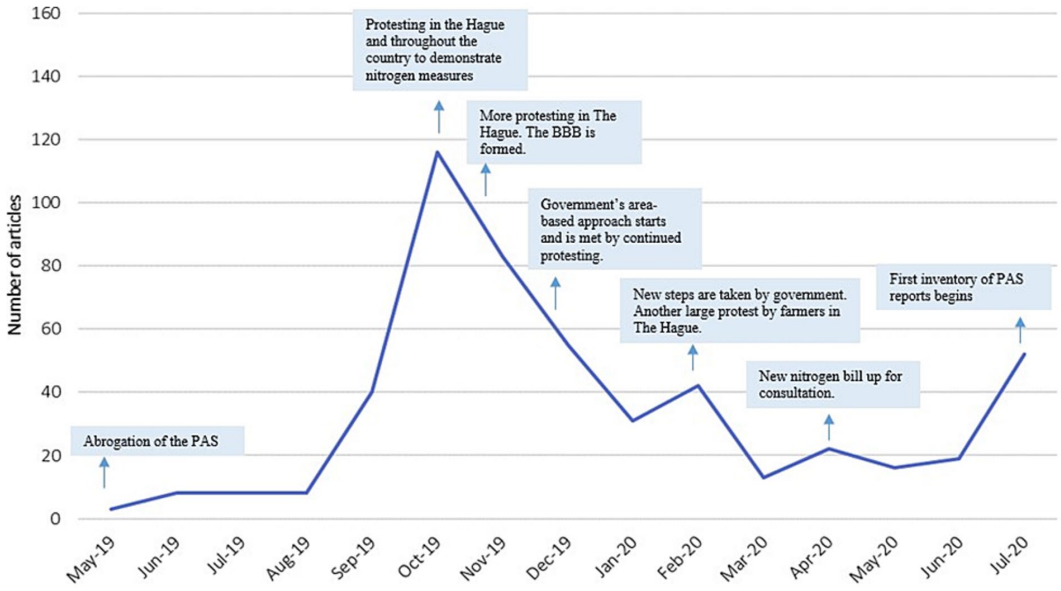

FIGURE 3
Overview of the number of references per month between May 2019 and July 2020.

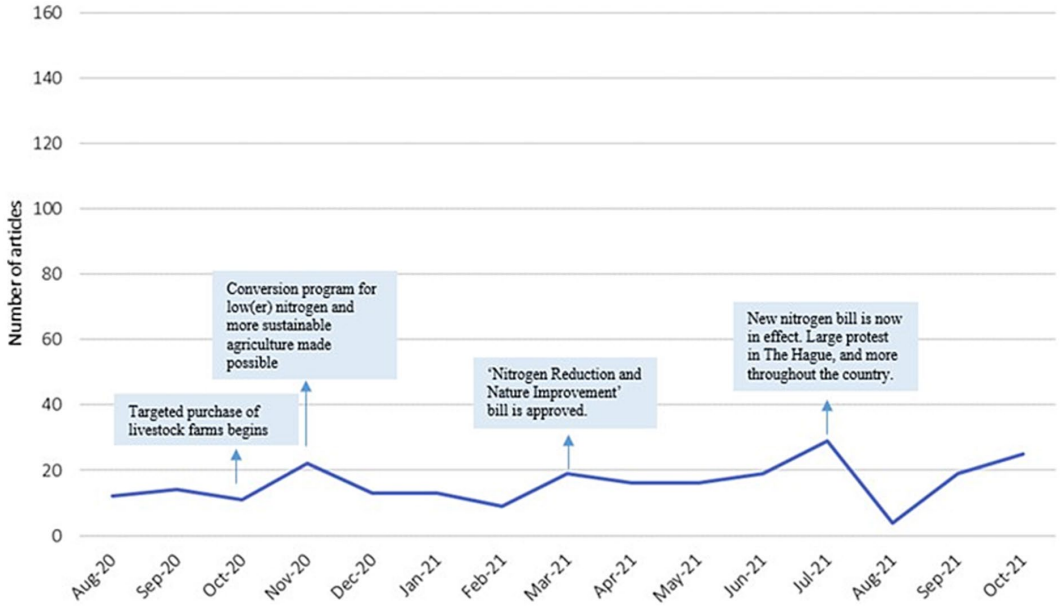

FIGURE 4
Overview of the number of references per month between August 2020 and October 2021.

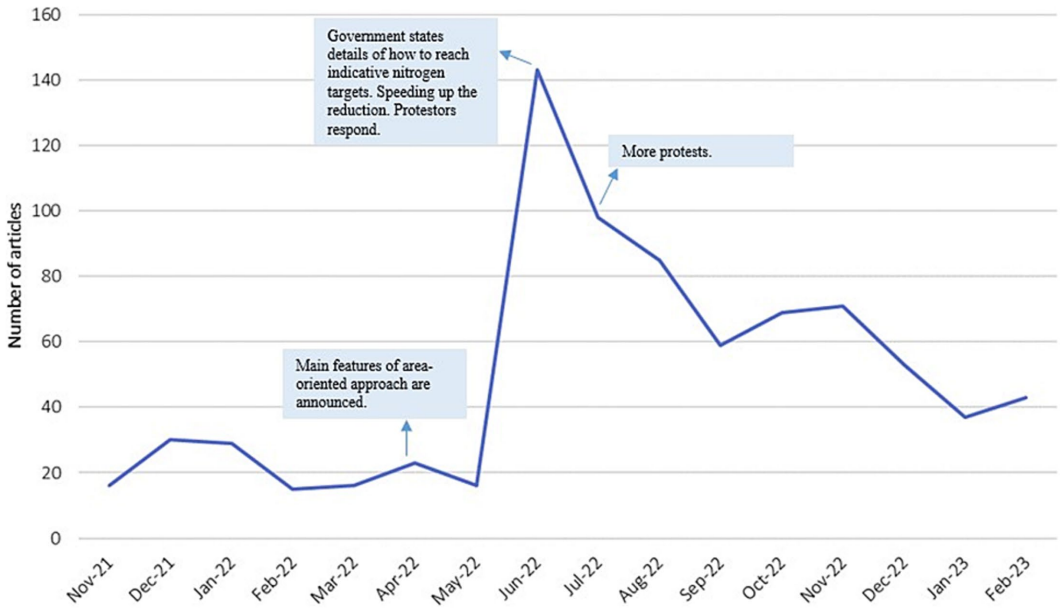

FIGURE 5
Overview of the number of references per month between November 2021 and February 2023.

In July of 2021, the new nitrogen law[2] came into effect, and farmers held another large demonstration in The Hague, advocating for greater recognition of farmers' contributions to society and demanding fair policies concerning nitrogen regulations and agricultural practices. Here, a slight spike in the number of refences can be seen, after which in August, the number of references decreased again. However, with protests happening in September and November of 2021, the number of references increased (NOS, 2022). Figure 5 shows the period November 2021 to February 2023. During this period, a major spike in the number of references can be seen between May 2022 and July 2022. This is the largest spike in references

2 The Act sets out environmental standards that include the requirement for nitrogen deposition on at least 40% of the surface area of the nitrogen-sensitive nature areas within the Natura 2000 network to be reduced to less than place-specific critical depositions load by 2025. This applies to 50% of the areas by 2030 and 74% by 2035 (Levend Landschap, 2022).

over the entire sampling period, and it marks the time of the design of the implementation programme for the new nitrogen bill, including the 'nitrogen map' (LVVN, 2022) that stated guiding emission reduction targets for specified geographical areas, which became a key focus (objectifier) of concern. During this period, new measures (as in footnote 3) were announced, with the aim of reducing nitrogen deposition by 70% in 131 locations close to biodiverse zones. As this would impact many farms, agricultural stakeholders responded again with many protests and farmer actions. In July 2022, protests reached a new level, with actions such as dumping manure on the highway, and responding to onlookers who tried to clean this up with threats of physical violence and use of verbal abuse (NOS, 2022).

In the months following this peak in media references, their number decreased, but stayed relatively high until February 2023. This period is also marked by much discussion about measurements as well as the implementation of measurements. As of the end of the study period, late February 2023, the Dutch agricultural nitrogen crisis remained an ongoing issue, with relatively high media attention compared to before May of 2019, as already visible in Figure 1. In general, the more significant announcements regarding proposed or implemented measurements correlated with both large-scale protest in response to these announcements, and a corresponding increase in the number of media references.

5.2 Key representations as just transitions issues

In this section, an overview of the most prominent themes evident in newspaper representations of the Dutch agricultural nitrogen crisis is provided, followed by consideration of these through a just transitions lens. Figure 6 provides a quantitative overview, in terms of percentages of the overall thematic frequency of each of the most evident representations in the data. A description of each code is appended.

In aggregate over the time period studies, the newspaper coverage of the Dutch agricultural nitrogen crisis gives an overall impression of confusion, uncertainty, and intense debate surrounding the notions of fairness or unfairness regarding the measures proposed or employed by the government. As illustrated in Figure 6, the data contain several key themes, of which the theme of (un)fairness is the most frequent, being present in one third of all analysed articles. A strong theme of unfairness is especially evident in relation to farmers specifically, wherein terms such as "blame" or "victim" are regularly employed. The following sections provide further detail by justice category, though it should be noted that statements often embody more than one type of justice.

5.3 Recognitional justice

Recognitional justice focuses on valuing people as both individuals and as groups, in which different needs, values, and preferences are all part of identities, and histories are of central importance (Wijsman and Berbés-Blázquez, 2022). Overall, farmers were repeatedly described as perceiving that they are undervalued in terms of their societal importance. The representations emphasise a desire for recognition, both in terms of farmer identity and the crucial role that farmers play in ensuring the food supply for the country (appended quotations 3, 6, and 7). The historical significance of the farming industry is highlighted here, anchoring this importance to the 'hunger winter' of the final year of World War 2. In doing so, the representations underscore the contrast between the recognition and appreciation they received in the past and the current situation, in which they perceive themselves as not being acknowledged and appreciated, but rather subjected to criticism.

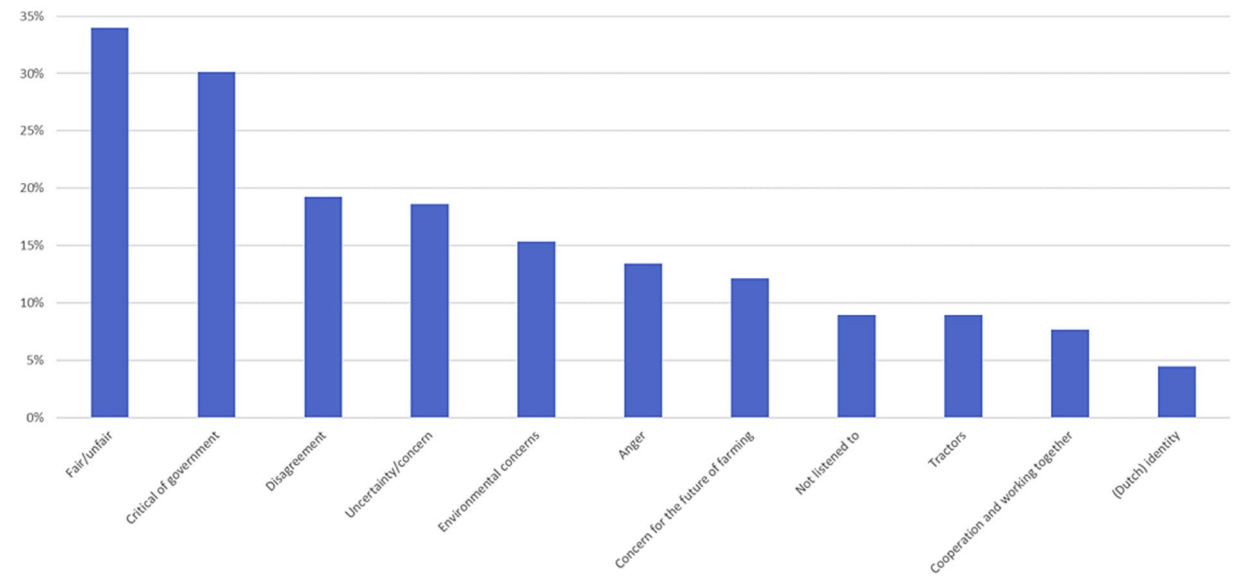

FIGURE 6
Frequency (%) of codes in the combined sample of three newspapers. Notes: the percentages relate to the proportions of the sample in which the codes are present; for comprehensibility, only codes at a frequency of above 4% are included.

The acknowledgement of this shift in societal recognition and valuation additionally shows that farmers were aware of negative representations of themselves now held in public discourse. This is exemplified in the quotation below in particular, in which this representation is anchored in criminality, suggesting that not only do farmers feel undervalued, they also feel unjustly targeted. These representations often carry a strong emotional tone, which further reflects a profound sense of frustration and grievance.

> "Farming is part of us, we do it from the heart, and when that is made impossible for you and are looked at like you're a criminal… When I think back to that it touches me deeply." (Farmer's view, De Telegraaf July 4th 2022).

The use of tractors as a symbolic object—an objectified form of representation—also played a significant role. Farmers sought to highlight that farming is not just their job, but rather an integral part of their identity. Tractors are arguably anchored to values of authenticity and hard-working, as well as dedication to feeding the country. This is not to say that such representations were hegemonic (i.e., homogeneous in their meaning and pervasive). For example, tractors have also been used by farmers as an expression of physical force, blocking roads and entrances. Imagery of tractors appeared in 9% of the articles analysed, but some of these focused on the broader aspects of the nitrogen crisis and used the tractor image to simply represent farming per se. Hence the same object can be used for different purposes, with the meaning being context-dependent.

The connection made between farming and identity is illustrated in appended quotation 8 and above, where farming and agriculture are represented as integral parts of the farmers' identities, as important as language and culture. That said, these sentiments regarding the importance of identity are present in only a minority (4%) of the articles. A more prominent theme is, however linked to this, namely the concern for the future of farming, which is present in 12% of the articles. Farmers convey a particular understanding of themselves in the future by anchoring representations of farming to the labour of the many generations of farmers before them. Appended quotation 2 and 10 (below) exemplify this generational aspect, i.e., the continuity and intergenerational responsibility inherent in farming practices. The farmers also imply that the long history of farming justifies the right to continue farming. This representation of an unjust halt to the continuity of farming is connected to critique of the government, as quotation 10 below illustrates.

> "In short, I had lost faith in the government. I was on a farm that had been in the family for a hundred years, with thus a century of farming experience. But we could not build on the government. There was no long-term vision. It was this one time, then that the next. I wanted to farm for the future again." (Farmer's view, Trouw July 15th 2022).

Employing the terms "deaf" and "snowed under," the farmers convey their belief that their voices are being disregarded in the discourse and debate, with trust in government declining (appended quotation 4 and 5; these quotations also relate to governmental processes). The sentiment of not being listened to is present in 9% of articles and reflects a significant aspect of the farmers' representation of themselves as being subject to an injustice in regards to nitrogen management policy.

5.4 Distributional justice

The principal objective within this dimension is to further a just apportionment of benefits and burdens of transitions policies (Wijsman and Berbés-Blázquez, 2022). The dominant theme here is that farmers perceive unfairness in shouldering what they view as the majority, if not the entirety, of the burden of mitigating the nitrogen crisis. The farmers thus feel both unjustly blamed for the crisis and represent themselves as the victims of that crisis. This representation is illustrated by appended quotations 11, 14, 15, 18, and 19 (below).

> "And how stupid can you be as a government to set nitrogen targets only for agriculture and not immediately for everything else? Then you yourself create the image that the farmer is being picked on." (Farmer's view, De Telegraaf, July 2nd 2022).

Historical anchors of war and hunger were employed to justify the farmers' anger and to refute the idea that farmers are to blame for nitrogen deposition in nature-sensitive areas. Nonetheless there are instances of opposing viewpoints, illustrated in quotation 13. Such conflicting representations within society regarding the burden allocation and its perceived (un)fairness underlie the divergent perspectives and debates surrounding the entire crisis. Nonetheless, the newspaper coverage in the study period predominantly circulates farmers' representations of proposed nitrogen reduction policy being unfair rather than fair. The emotional dimension of anger, and the representation of being victims, resonates strongly with this dominant theme, with anger being present in approximately 13% of the articles. As mentioned, this anger is not only at the perceived unfairness of farmers shouldering the burden of the crisis, but also at their perception that public discourse represents them negatively.

Farmers are also represented as valuable economic entities in both the country and in the crisis. The argument that farmers should have the opportunity to expand their businesses, and that obstruction to future expansion would be unfair, is illustrated in the editorial quotation 12 below. Quotation 17 further illustrates the argument that the burden should be shared among sectors, also because of the job opportunities that the farming sector provides[3].

> "That means that expansion of that farm is then no longer possible. Unfair, farmers feel, because they will then never be able to buy additional animals later and compensate for the nitrogen emissions." (Editorial view, Trouw October 14th 2019).

3 The World Bank (2021) reports modelled ILO estimates of NL agricultural employment as c.2.25% of total NL employment. This is a decline from 4% in 1991. The decline has been steady except for an uptick to 3.75% in 2005, which looks like a function of context rather than specific to agriculture. Statistics Netherlands (2023) state an ongoing decrease in agricultural employees for all reporting years from 2000 to 2020, followed by an increase in 2021, and a decrease in 2022 (280, 584 people in 2000; 178,575 people in 2022). Of course this employment will not be distributed equally across the country.

A recurring theme is criticism of the government, regarding expectations of inequitable distributional consequences, disproportionate allocation of blame, and the difficulty of engaging with a government perceived as so opposed to farmers' welfare. Critique of the government is evident in approximately 30% of articles. Over time, this criticism appears to intensify, and assessments of the government's handling of the crisis increasingly adopt tones of dissatisfaction and disapproval. The government is represented as "stupid" and "blundering," both in their current and past interactions with farmers (appended quotations 19, 20, and 21). Once again, anger is evident in these illustrative quotations, as well as in the overall discourse from the farmers' side. Hence negative representations of the government became increasingly prominent in the latter part of the period examined.

In sum, the distributional justice dimension in the nitrogen crisis unveils contrasting representations, accompanied by historically related anchors and a prevailing emotional tone of anger from the farmers' perspective, frequently related to the government's handling of the crisis.

5.5 Procedural justice

Procedural justice is concerned with the fairness of decision-making processes in terms of the inclusion of affected individuals and groups in those processes. In this context, it is important to ensure the participation and engagement of stakeholder groups who are directly impacted (Wijsman and Berbés-Blázquez, 2022). Farmers express a strong desire to be actively engaged in the decision-making processes, perceiving their involvement to be required for the shaping of policies and strategies that might affect their own livelihoods. However, despite the presence of such views, the number of representations of farmers as excluded from decision-making per se is relatively low. Illustrative quotations are appended (appended quotations 22–24, and 25 by a BBB party representative below), reflecting the subsequently politicised sentiment that the government does not exhibit a genuine willingness to collaborate.

> "Farmer entrepreneurs no longer feel understood by the current parties, she argues, although she stresses that her BBB is not a protest party founded by angry farmers. 'We were founded to stand up for the countryside. The current parties, including the CDA, are increasingly urban-oriented." (BBB representative, Trouw, January 29th 2021).

Procedural justice is viewed by the farmers as going beyond only listening to affected stakeholders, to some form of negotiation or shared decision-making. The formation of the BBB serves as an attempt to provide this type of involvement through formal political representation, rather than only protest at its margins. Holding one seat after the general elections of 2021, the BBB aims to advocate for the interests of rural communities, including farmers (BBB, n.d.). Shortly after the present analysis was completed, in March 2023, the BBB won a majority of votes in all Dutch provinces and entered the Senate[4] as the largest political party (NOS, 2022).

4 An explanation of the Dutch political system is available here: https://www.eerstekamer.nl/begrip/english_2.

6 Discussion

Farmer protests have continued periodically across Europe since the period of this study, gaining momentum and intensity towards the end of 2023 and early 2024 (Finger et al., 2024). Protests and triggers and reasons differ by country, but are united by structural challenges to farming sustainably that have not yet been resolved (ibid).

Dutch nitrogen policy, particularly agricultural but not only, continues to present a significant challenge in the Netherlands beyond the timespan of the study. In the view of the PBL (Netherlands Environmental Assessment Agency), the rate of progress has made the 2030 nitrogen goals unattainable (PBL, 2023). Whereas nitrogen emissions targets for mobility and industry are 'in sight', agricultural ammonia remains a more stubborn problem (ibid). PBL emphasise the urgent need for change, given the fragility of nitrogen-sensitive species and previously inadequate measures in terms of nitrogen reduction (PBL, 2023; Terlingen and Jackson, 2023).

One might say that the handling of nitrogen policy serves as a symbol of the consensual political culture in the Netherlands, which complicates making decisions where strong dissensus is involved. Others have observed that this has also applied to climate-related issues, where action was advisable long before it was given attention politically. When such issues do finally emerge onto the political agenda, they may be even more difficult to resolve, given the increased stakes for those involved (Van De Grift, 2021). Of course, internationally, the Netherlands is not at all alone in having delayed on climate action, nor in experiencing agricultural (and other) nitrogen deposition problems. Moreover, as stated, more than a third of nitrogen deposition on NL N2000 sites originates from outside of NL itself, something the farmers are understandably keen to point out.

The study of social representations in this context provides an understanding of how the situation is being understood, how particular understandings are promoted. The approach provides an understanding of both motivation and strategic presentation in policy advocacy and resistance. It also provides an understanding of the creation and maintenance of social identity and shared sensemaking that is involved in creating, maintaining and promoting the advocacy positions involved in transitions. Social representations that more readily 'anchor' to existing ways of thinking, or that can 'objectify' concerns, are more influential than representations that do not or cannot. Hence the use of particular imagery and symbols that objectify (e.g., that use actual objects such as upturned Dutch flags, tractors on highways, burning straw bales etc.). Similarly, anchoring to historic and identity-defining themes that are more abstract but nonetheless particularly meaningful for the group and wider population (such as provision of food, being marginalised victims of urban-centred policy etc). While discourses, frames and narratives perform similar social functions, analytically these approaches do not have social psychological ambitions as explanatory accounts, though all are relevant to policy processes. Similarly, one can get a sense of how the power of anchors differs by considering others: while the BBB has not hidden the role of a marketing agency in its development (Wagendorp, 2023), this aspect of the group's history would be an unlikely candidate to which to anchor for political mobilisation.

The sociotechnical concept of regime resistance (Geels, 2014) explains why incumbent actors may resist change, as a function of

many types of sunk investment and a network of interdependent actors. Such an explanation, however, is relatively high level and intentionally so. Social representations theory and other approaches intended to explain individual and social behaviour can add more detailed accounts, which, while case-specific, rely on generalisable concepts. Here, representations of farmers as an unfairly suffering societal group places moral pressure on the government, as well as strengthening farmers' group identity, motivation, resilience, and visibility. The strong emotional tone of the representations adds to the efficacy of the campaigning, to the extent that it is perceived as justified.

In terms of further work, it would be useful to better understand the different voices being represented in circulating representations in agricultural (and other) controversies: which voices are present, differences in what is being said, and how it is being communicated (via what media—i.e., including other media). Second, it would be useful to understand the relationships between the foregoing and the wider contextual conditions. The Danish case of relatively rapid agreement on conversion of 15% of agricultural land by 2045 (Regeringen, 2024) appears notably different to the protracted Dutch case (LVVN, 2024). What were the social representations in this case and why? LVVN (ibid) suggest that agreement amongst most of the coalition parties in government was critical, and of course this will have been important, but why was there no vociferous opposition campaign outside of the formal political context? Where are the dissenting voices? We have not probed this case, but one possibility is that, while the percentage of agricultural land involved is substantial, ways were sought and found that minimised the impacts on incumbent actors as a whole: this seems to be at least partly the view of Greenpeace in Denmark, who perceive in the agreement limited change in agricultural practices, postponed environmental regulation and a weak climate tax (Justesen, 2024). Moreover, perhaps it was possible to find those minimum-impact ways for reasons of a particular agro-economic structure, scale, physical geography and so on. We leave this to others to research.

7 Conclusion

We have sought to provide some insight into the social psychology of 'regime resistance' in the context of Dutch nitrogen reduction policy, with a focus on farmers as a key stakeholder group, where large-scale intensive farming comprises 'the regime', and where perceptions of injustice are a key theme. We categorise the publicly circulating representations of Dutch farmers in terms of the forms of injustice identified in the 'just transitions' literature. We have not sought to judge the merits of farmers' claims, but we have provided some scientific and statistical context to aid general comprehension of the situation.

We have illustrated how social representations theory helps to explain how a sustainability controversy is publicly represented in a sample of newspapers. This includes how the controversy is perceived, experienced and responded to by those affected by it, with the caveats described above regarding voices. There are social and political functions to the representations in terms of creating, maintaining and communicating among the farming community as a group, as well as providing terms with which to view the situation.

The social representations observed have mainly centred around a sense of injustice regarding transition management by the government. These representations are further characterised by strong emotions, in particular anger, fuelling the adoption of resistance and protest strategies by farmers. The study highlights the value of including a social psychological perspective when seeking to understand controversies involving sociotechnical change. Combined with a just transitions frame, it provides an insight into what representations are circulating, how these link to justice principles, and the cognitive processes involved. Those representations relate specifically to: ongoing uncertainty for farmers; loss of sympathy for them; farmers not being listened to; difficulty in farmers engaging with what is perceived as a highly challenging governmental policy position; and a concern for the future of farming and farmers.

While it may be unrealistic to have the ambition of satisfying all stakeholders during sociotechnical transitions processes, the principle of just transitions does clarify the significance of treating affected stakeholders fairly in reaching more sustainable outcomes—though of course this still raises many questions as to what exactly is fair, and how that fairness might be achieved. It is for this reason that we take the position of Baasch (2020), who argues that while we may categorize justice arguments according to *a priori* theoretical types, a justice-psychological approach (ibid) also recognizes that perceptions of justice are inevitably contextualized and in part subjective. Unfortunately, we must admit that this does not make policy problem resolution any simpler, or necessarily more acceptable to affected parties.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

PU: Conceptualization, Methodology, Writing – original draft, Writing – review & editing. RS: Data curation, Formal analysis, Investigation, Project administration, Visualization, Writing – original draft. SF: Validation, Writing – review & editing.

Funding

The author(s) declare that no financial support was received for the research and/or publication of this article.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The authors declare that no Gen AI was used in the creation of this manuscript.

Publisher's note

Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpos.2025.1501904/full#supplementary-material

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