Emotional and coping responses to threats to professional identity in sustainability transitions

by

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Abstract

In today's society, environmental problems form large challenges that can only be addressed by deep structural changes. Sustainability transitions embrace these challenges, calling for a radical transition towards a sustainable society to address these ongoing problems. This transition involves shifting towards practices that are better for the planet and society as a whole. However, changing or quitting certain practices can have an impact on practitioners' professional identity. Professional identity focuses on the questions "who are we?" as members of a certain profession, and "what do we do?". Previous research has emphasized the need to look at the role of identity and related emotional responses in sociotechnical transitions. Understanding this intersection between identity and emotions could provide more insight into barriers to this type of transitions. This research has attempted to fill these gaps in the research by examining how sustainability transitions might threaten the professional identity of involved actors, and which emotional and coping responses follow as a result of these threats. In order to create a framework with regard to these different concepts, a total of fifteen semi-structured interviews of approximately 45 minutes were held with Dutch farmers in the region of Twente. Dutch farmers were chosen as the sample group since they are currently involved in big transitions with regard to the nitrogen crisis and new government regulations. The data acquired through the interviews was analyzed using the Gioia method. The results of the analysis show three potential threats to professional identity: threat of having to exit the profession, threat of having to let go of familiar practices and threat of profession being viewed in a negative light. In turn, these threats to professional identity provoke five different emotional responses: feelings of sadness, fear, powerlessness, frustration and optimism. In order to cope with these threats to professional identity and associated emotions, four different coping mechanisms were employed: agency, enhancing public opinion, having a social support network and exiting the identity. Recommendations for future research include adding more professions, studying different cultural and political contexts to make the findings more robust, and including longitudinal studies to study how emotions, coping mechanisms and identity adaptation develop over time in sustainability transitions.

Keywords: Sustainability Transitions, Identity Threats, Threats to Professional Identity, Emotions, Coping Mechanisms, Dutch farmers

Table of Contents

"I hereby confirm that this thesis has been written by me and is the result of my own work, with no help of generative AI".

1. Introduction

These days, environmental issues, such as climate change, biodiversity loss, and the depletion of resources like clean water, oil, forests, and fish stocks, pose significant challenges to society (Geels, 2011; Köhler et al., 2019). These challenges are so grand that incremental changes will not suffice (Köhler et al., 2019; Markard et al., 2012). Addressing these issues requires significant improvements in environmental performance, which can only be achieved through deep-structural changes in transport, energy, agri-food and other systems (Geels, 2011). Sustainability transitions aim to facilitate this shift towards more sustainable systems through a fundamental restructuring of current production and consumption systems (El Bilali, 2019; Kaufman et al., 2021). This includes changing many behaviors embedded in production and consumption systems (Kaufman et al., 2021).

In addition to changing behaviors, sustainability transitions require individuals to change their practices as an integral part of these behavioral changes (Markard et al., 2012). Examples of more sustainable practices are car sharing, community energy, meat-free Mondays, urban farming, district heating and electric vehicles (Köhler et al., 2019). However, changing certain practices can affect practitioners' identity, as changes in practices may alter how people conceive of themselves, the community that they are a part of, and how they give meaning to their lives (Janssen et al., 2022). This extends to individuals' professional identity, which can be significantly impacted by transitions (Nelson & Irwin, 2014). This is demonstrated, for example, by the transformation of librarians from 'masters of search' to 'connectors of people and information' in response to the integration of Internet search into their profession (Nelson & Irwin, 2014). To narrow the scope, this research focuses on how professional identity is affected in sustainability transitions.

Identity, in essence, relates to an individual's self-definition, or how people answer the question, "who am I?" (Ashforth & Schinoff, 2016). An individual's professional identity relates to the questions "who are we?" (as members of this profession) and "what do we do?" (Nelson & Irwin, 2014). Individuals tend to value their identities, which therefore are related to preserving their sense of self-worth. When the value of an identity is more positive, the individual can draw more self-worth from it, and vice versa (Petriglieri, 2011). Although in reality identities can and do change, individuals prefer to maintain and enact their identities

as they are, in order to not only gain a sense of stability and continuity over time, but also to maintain their current level of self-worth as derived from their identities (Petriglieri, 2011).

When individuals do perceive an experience as suggesting potential harm to the significance, personal meaning, or expression of their identity, this is considered an individual-level identity threat (Petriglieri, 2011). The experience of an identity-threatening situation can lead to certain emotions, such as self-doubt, insecurity, fear and confusion, as well as excitement and enjoyment (Winkler, 2018). Moreover, when an individual sees an experience as threatening to their identity, they can pursue anticipatory coping responses in an effort to decrease the probability or severity of potential identity harm (Petriglieri, 2011). Coping involves humans attempting to deal with various psychological threats and stressors. It encompasses the cognitive and/or behavioral strategies individuals employ to navigate specific challenges or pressures, whether they originate externally or internally (Ojala, 2013).

Martiskainen and Sovacool (2021) argue that, in general, far more attention from both research and policy needs to be given to the emotional responses in sociotechnical transitions. Emotions are a predominant part of human existence, influencing the way people think, understand the world around them and make decisions (Martiskainen & Sovacool, 2021). These emotional responses can, at least partly, be explained by the fact that transitions are likely to arouse worries about identity, as change often comes paired with reorientation of existing relationships, financial stability, and other 'givens' in life (Janssen et al., 2022). However, little scholarly attention has been given to the role of identity in sustainability transitions (Janssen et al., 2022). Furthermore, research has mostly neglected how emotions, both felt and enacted, can influence individuals whose identity is threatened or challenged (Cascón-Pereira & Hallier, 2012). Similarly, little is still known on the specific emotions involved in the experience of identity tensions and their role (Winkler, 2018; Cascón-Pereira & Hallier, 2012). Hence, in light of the above, this research extends current literature by looking into the role that emotions play in sustainability transitions related to professional identity, its threats, and the associated coping mechanisms. The research question that was answered is thus the following:
How do professionals emotionally respond to and cope with threats to professional identity in sustainability transitions?

In order to answer this question, I have conducted in-depth interviews with fifteen Dutch farmers in the region of Twente. Dutch farmers formed a particularly interesting sample group since they are currently involved in a big sustainability transition with regard to the nitrogen crisis and new government regulations. These interviews have allowed me to discover how sustainability transitions can impact professional identity, the emotional responses it may bring out in professionals, and the coping mechanisms they might adopt to navigate these emotions and changes. Ultimately, this led to a comprehensive understanding of the emotional, coping and identity-related dimensions of sustainability transitions.

By addressing this research question, this thesis contributes to the literature in three key ways. Firstly, it aims to delve into the role of identity in sustainability transitions. By understanding how individuals navigate threats to their professional identity during sustainability transitions, this thesis sheds light on the broader dynamics of these types of transitions. Secondly, this research contributes to the literature by specifying the typical ways in which actors emotionally respond to threats to their professional identity. This provides valuable insights into the emotional responses of actors involved in sustainability transitions. Lastly, this study aims to complement the existing literature on identity and sustainability transitions by examining the coping strategies employed by actors in the face of threats to their professional identity.

In terms of practical contributions, this research contributes to understanding the role of professional identity, emotional responses and coping mechanisms amidst sustainability transitions. By gaining better insights into how these factors influence individuals navigating sustainability transitions, actors in sustainability transitions will better be able to anticipate and address these responses effectively. For instance, understanding the identity threats and associated emotions experienced by individuals when transitioning towards sustainability could help with the design of support programs and training initiatives. Moreover, when developing new policies, decision-makers could account for the emotional and identity-related experiences of stakeholders. This could give a sense of validation and support among those undergoing identity threats. In turn, increased feelings of support and validation could reduce resistance to change, helping actors drive meaningful progress towards a more sustainable future.

2. Theoretical background
2.1 Sustainability transitions

Many environmental problems, such as climate change, loss of biodiversity, and resource depletion, constitute grand societal challenges. These challenges are caused by unsustainable consumption and production patterns in socio-technical systems (Köhler et al., 2019). Examples of socio-technical systems are sectors such as energy supply, water supply, or transportation (Markard et al., 2012). These societal challenges are so grand that they cannot be addressed by incremental changes, but rather they require radical shifts to new types of socio-technical systems. These shifts are called "sustainability transitions" (STs) (Köhler et al., 2019, p. 2).

In general, a set of processes that leads to a fundamental shift in socio-technical systems is called a socio-technical transition (Markard et al., 2012). Transitions comprise significant changes along multiple dimensions: technological, material, organizational, institutional, political, economic, and socio-cultural. Furthermore, they involve a broad range of actors and typically unfold over substantial stretches of time (e.g., 50 years or more) (Geels, 2011; Markard et al., 2012). During such a transition, new products, services, business models, and organizations emerge, both complementing and substituting existing ones. Moreover, technological and institutional structures change fundamentally, as well as the perspective of consumers on what a particular service (or technology) includes (Markard et al., 2012).

Sustainability transitions are socio-technical transitions that aim to help achieve the shift towards sustainable development through fundamental restructuring of production and consumption systems (Kaufman et al., 2021). The founding theoretical frameworks in the field of sustainability transitions are the Multi-Level Perspective (MLP), the Technological Innovation System approach (TIS), Strategic Niche Management (SNM) and Transition Management (TM) (Köhler et al., 2019). Applications of the Multi-Level Perspective have shown under what conditions socio-technical transitions have unfolded in the past, whereas Transition Management has answered questions about the governance of large-scale societal transformations. The Technological Innovation System Approach, which is concerned with the analyzing and improving the conditions for the development of new technologies, has provided a way to conceptualize and study far-reaching innovations (Farla et al., 2012). Lastly, Strategic Niche Management is widely used for analyzing the emergence of radically

new innovations (Köhler et al., 2019). These frameworks can help to understand the dynamics of transitions and provide tools for policymakers on how to support and guide these transformation processes (Farla et al., 2012).

Moreover, it is important to understand that sustainability transitions have some special characteristics that make them different from many (although not all) historical transitions (Geels, 2011). Firstly, they are goal-oriented or "purposive" as they address environmental problems in contrast to many historical transitions that were emergent. Secondly, most "sustainable" solutions do not offer users obvious benefits as sustainability is a collective good, meaning changes in economic frame conditions would be needed to be able to replace existing systems with environmental innovations. Thirdly, the domains where sustainability transitions are most needed are characterized by large firms who at this moment still defend existing systems and regimes (Geels, 2011). Since sustainability transitions entail phasing out technologies that are not environmentally sustainable, existing business models and assets may be threatened. This is why incumbent firms frequently attempt to slow down the pace of sustainability transitions by employing various tactics to oppose and discredit emerging innovations while emphasizing the advantages of the current system (Markard et al., 2020).

However, perhaps the most relevant aspect of sustainability transitions for this study is that STs require fundamental changes in stakeholders' daily practices. For any innovation to take root or for lasting changes in social patterns to occur, there must be shifts in the social practices at play (Laakso et al., 2021). To illustrate, for sustainability reasons, a reduction in consumption is desirable, e.g., reducing air travel, long-distance commuting and fast fashion clothing (Markard et al., 2020). However, achieving these reductions in demand poses cultural and political hurdles because consumption is deeply intertwined with social norms, such as the notion of freedom, and established practices concerning work, family, and identity. Additionally, both phase-outs and decline in consumption may threaten existing jobs (Markard et al., 2020). Consequently, these changes in practices can change how people conceive of themselves, the community that they are a part of, and how they give meaning to their life. Hence, this can have direct consequences for the professional identity of practitioners, who may also experience identity threat as a result of sustainability transitions (Janssen et al., 2022).

2.2 Identity and identity threats

Identity, in essence, refers to an individual's self-definition, how individuals answer the question, "who am I?" or "who are we?" (Ashforth & Schinoff, 2016). Identity construction is the process through which individuals come to define who they are. The main outcome of this at the level of the individual is identification, which is the degree to which someone internalizes a given identity as (partial) definition of self, for example "I am a salesperson" (Ashforth & Schinoff, 2016). Identity can be considered as a shared set of meanings that define individuals in particular *roles* in society (e.g., parent, employee, partner, teacher role identity), as members of specific *groups* (e.g., a church, book club, or soft ball group identity), and as *persons* having specific characteristics (e.g., an athletic or artistic person identity). Hence, people can have multiple identities of different kinds (Stets & Serpe, 2013). Moreover, identities assist individuals in finding their "place" in interactions, guide behavior, support the development of stable social relationships and make interaction possible within the context of social structure (Stets & Serpe, 2013). According to social identity theory and identity theory, an individual's identities are based on group membership and roles (social identities) and on unique characteristics and traits (personal identities) (Petriglieri, 2011).

A heightened awareness of the constructed and temporary nature of identity can be triggered through changes in the workplace, the disruption of social relationships, cultural changes or other work-life alterations. These situations, including role change, contrasting role expectations, career change, and bullying, can be viewed as identity-threatening situations (Winkler, 2018). Considering that sustainability transitions entail substantial changes across multiple dimensions, it is expected that they will encompass several of these identity-threatening situations, including role change, new role expectations and cultural changes. An individual level identity threat can be defined as "experiences appraised as indicating potential harm to the value, meanings, or enactment of an identity" (Petriglieri, 2011, p. 644). This definition acknowledges the role that an individual's appraisal of different experiences as possible identity threats plays. It also makes clear that identity threats possess the unique feature of arising from present cues of future harm. Lastly, it incorporates work on identity threat's effect on the value, meanings, and enactment of identity simultaneously (Petriglieri, 2011). These three aspects make this definition particularly fitting for this study, as it delves into individual experiences, considers both present and future implications of identity threats, and examines their impact on various dimensions of identity.

Since sustainability transitions require changes in practices, and both phase-outs and decline in consumption are likely to threaten existing jobs, practitioners are prone to experience threats to their professional identity. Professional identity refers to the conjunction of "who are we?" (as members of this occupation) and "what do we do?" (Nelson & Irwin, 2014). All professionals may be considered as having a professional identity, which is often defined vis-á-vis other professions (Nelson & Irwin, 2014) and may help individuals define themselves as lawyers, doctors, engineers, etc.. Therefore, what people "do in their jobs" is a significant aspect of their individual sense of identity (Kump, 2019).

Previous research has depicted how transitions can threaten and change practitioners' professional identity. Nelson and Irwin (2014) illustrate this with their exploration of the relationship between librarians and Internet search, and how technological change and professional identity can be mutually shaping. Initially, librarians discarded Internet search and differentiated themselves from it. Their original perception of themselves as "masters of search" prevented their involvement in Internet search. They had built their identity around their claimed expertise in how information should be organized and searched for. However, over time, librarians came to not only embrace Internet search, but they also incorporated elements of it into other library practices, redefining their professional identity by utilizing the same technology that had once threatened to replace them. A series of changes in librarians' professional identity took place, from "masters of search" to "connectors of people and information" (Nelson & Irwin, 2014). This example demonstrates how a transition can pose a challenge to an individual's professional identity, and ultimately result in the redefinition of their identity. Labatut et al. (2012) illustrate this with another example, describing how new animal breeding technologies and practices affected the professional identity of farmers. Traditional breeding practices, based on individual evaluations by farmers, have been replaced by organizational routines facilitated by technological and organizational innovations such as artificial insemination and collective performance recording. This genetic revolution has significantly changed the selection and productivity of cultivated plants and domestic animals, leading to increased milk production and other gains (Labatut et al., 2012). Farmers' professional identity was previously defined by their capacity to produce good-looking animals, which were collectively evaluated at marketplaces and country fairs. Even though these morphological and aesthetic criteria were not economically valuable, they were of key importance to farmers' social and professional identity. However, the rise of new technology shifted emphasis towards economic criteria, prioritizing metrics

like milk yield and quality, while diminishing the significance of qualitative methods for assessing an animal's value. As a result, the aesthetic criteria used in traditional breeding routines were no longer useful or relevant in the technological routine. Technicians and geneticists became the masters of the technological routine, and the farmers became customers of breeding companies instead. Hence, the professional identity of farmers was radically changed (Labatut et al., 2012). Lastly, Kyratsis et al. (2017) examined how established professionals manage identity threats resulting from a controversial shift in the paradigm defining their field. Through interviews with physicians from five European transition countries, the study investigated how these professionals adjusted their identities in response to changes in healthcare dynamics. The transition examined involved a move from the "narrow specialism" model of the Soviet health system to the "generalism" approach common in Western primary care. During this period, three major types of identity threats were identified: conflicts in professional values, loss of status, and social identity conflicts. These threats can arise from misalignments between long-held professional values and new institutional norms, challenging the professionals' sense of identity. Additionally, shifts in institutional dynamics can lead to status loss, undermining their established positions within their field. Broader societal changes can also provoke social identity conflicts, further complicating their professional identity. These examples provide a clear illustration of how transitions may threaten practitioners' professional identity, requiring practitioners to change their existing professional identity to comply with a new professional paradigm.

2.3 Emotional responses to identity threats

In response to these identity-threatening situations, individuals may experience a range of emotions (Winkler, 2018). Emotions can be defined as "the bodily manifestations of the importance that an event in the natural or social world has for a subject" (Bericat, 2016, p. 493). In short, when an individual encounters a certain event in the world, they will assess/appraise the importance of this event for themselves, and that will determine what emotional response will follow (the bodily manifestation) (Bericat, 2016). Put simply, emotions are complex and intense responses provoked by events or situations that individuals deem personally significant, and they typically concern a subjective experience, a physiological reaction, and a behavioral tendency (Valor et al., 2022)

Researchers have found a variety of emotions related to the experience of identity-threatening situations. Typical examples of these emotions are self-doubt, insecurity, fear and confusion

as well as excitement and enjoyment (Winkler, 2018). An example of an identity-threatening situation is career change, for instance, when junior consultants experience identity threats to their previously successful professional selves. Often experienced emotional responses to this situation include anxiety, shock, discomfort, uncertainty and insecurity, loneliness and social isolation. Moreover, in the context of organizational reform, numerous studies have explored the emotions experienced by managers when their roles become unsatisfactory or conflict with their expectations. For instance, mid-level managers may reevaluate their work-related identity as a result of the emotional experience of "losing the plot," which includes emotions of frailty, uncertainty, insecurity, vulnerability, and powerlessness (Winkler, 2018). These emotional responses to threats to professional identity are likely to extend to sustainability transitions, where professionals may encounter similar threats to their established roles and identities.

On a related note, Bogner et al. (2024) give an emotions perspective on phase-outs in sustainability transitions. They argue that while some individuals and groups may welcome phase-outs for their potential to open up room for more just and sustainable practices, many others who are more affected in their practices and who are facing significant economic and social losses may experience psychological pain. This pain arises from perceived threats to core psychological needs such as competence, autonomy, and relatedness, leading to feelings of self-doubt, guilt, pessimism, fear, and anger. In the context of sustainability transitions, Bogner et al. (2024) propose the concept of "transition pain," which describes a psychological condition marked by enduring negative feelings resulting from anticipated or perceived losses during phase-outs. These losses are seen as threats to fundamental psychological needs, leading to a range of unpleasant emotions. The authors suggest that the intensity with which this pain is experienced, depends on how deeply the actors are embedded in regime practices, structures, and cultures that are threatened to be phased out (Bogner et al., 2024). Given that phase-outs in sustainability transitions are likely to threaten existing jobs (Markard et al., 2020), it is probable that there is a link between the emotions felt in phase-outs and the emotions felt in response to professional identity threats, although further research is required to see how these concepts interrelate.

Mirroring Bogner et al.'s (2024) insights on the link between the intensity of transition pain and actors' entrenchment in regime practices, structures, and cultures susceptible to phase-outs, the level of emotional response to identity threats is shaped by the salience of these

identities. Events threatening highly meaningful identities provoke stronger negative emotions compared to less valued identities, whereas events reinforcing such identities provoke stronger positive emotions (Cascón-Pereira & Hallier, 2012). This suggests that in sustainability transitions, the emotional responses of professionals to threats to their professional identity are influenced by the significance of these identities. Furthermore, emotions are closely tied to the expectations individuals have in social interactions, particularly concerning the validation or non-validation of their identity. According to identity theories, individuals may experience positive or negative emotions based on how their identity is affirmed or challenged within these interactions (Bericat, 2016). Hence, professionals may experience positive or negative emotions based on how their professional identity is affirmed or challenged in social interactions within sustainability transitions.

Moreover, social identity theory suggests that threats to social identity can impact an individual's self-concept and ultimately jeopardize their sense of self. To build on this, when one's group or one of its members is exposed to an emotion-provoking event, collective emotions may be felt (Caillaud et al., 2016). Collective emotions can be experienced without any direct, personal involvement. They only require that individuals categorize themselves as a member of the relevant group and identify with it. An example of this is when individuals judge their group to be responsible for an adverse event (appraisal), and if they identify enough with the group (social identification), they might experience collective guilt or shame. The other way around, when individuals identify as a member of a group which is being held responsible for an adverse event, they may experience negative collective emotions and feel that their social identity is threatened (Caillaud et al., 2016). This may have implications for certain groups of professions going through sustainability transitions. If professionals identify strongly with their group's role in these transitions, they may experience collective emotions such as guilt or shame if the group is perceived to have contributed negatively to the transition. Similarly, if their group is blamed for adverse events in the context of sustainability transitions, professionals may feel threatened in their social identity.

Furthermore, transitions can trigger identity work (Sveningsson & Alvesson, 2003). Identity work can be defined as "people being engaged in forming, repairing, maintaining, strengthening or revising the constructions that are productive of a sense of coherence and distinctiveness" (Sveningsson & Alvesson, 2003, p. 1165). Winkler (2018, p. 121) conceptualizes identity work as "a process of continual engagement in forming and reforming

a coherent and distinct notion of who individuals are and how they relate to others". Hence, one could consider it both a process that individuals go through when faced with a transition that affects their current identity and a coping mechanism to deal with the transition. This process of identity work is displayed as an emotional effort in multiple studies. Authors use feelings like fear, worry, sadness, insecurity, uncertainty, and stress to describe people's involvement in building, sustaining, or changing their identity as an emotional experience (Winkler, 2018). Additionally, they frequently mention loss, devastation, doubt and frustration, which suggests that the process of integrating identity tensions and conflict comes paired with several negative emotions. Especially failed identity work seems to be associated with emotions of frustration, shame, weakness and worry. However, authors associate successful identity work with terms such as happiness, ease, comfort and relief as well as with diminished anxiety, unhappiness and repulsiveness (Winkler, 2018). Thus, transitions do not only give rise to situations that threaten individuals' identities, but they also prompt identity work. Both processes elicit specific emotional responses to the changing nature of identity, which is essential to acknowledge in this context.

2.4 Coping responses to identity threats

Once an individual has appraised an experience as threatening to their identity, it will drive them to pursue an anticipatory coping response in the hopes of negating potential harm to their identity (Petriglieri, 2011). Coping involves "constantly changing cognitive and behavioral efforts to manage external and/or internal demands that are appraised as taxing or exceeding the resources of a person" (Lazarus & Folkman, 1984, p. 141). When it comes to identity threats, anticipatory coping responses are cognitive and behavioral efforts with the goal of reducing the probability or severity of potential identity harm (Petriglieri, 2011). Kyratsis et al. (2017) confirm how transitions can have significant implications for professional identities and how this can lead to the experience of a distinct set of identity threats. Moreover, they describe how some professionals (in their research: physicians) used discrete forms of identity work to successfully cope with the transition by constructing a new professional identity, whereas others resisted the pressure to adopt a new professional identity and stuck with their "old" professional identity. The first outcome is in line with what Petriglieri (2011) labels as "identity restructuring responses", while the second outcome is in line with what she labels "identity protection responses" (Kyratsis et al., 2017). Petriglieri (2011) focuses on identity work that occurs when individuals experience identity threat

(Brown, 2015), describing identity threat coping responses at the individual level. This makes her model particularly relevant to the context of this research.

Petriglieri (2011) groups the threat responses into two main categories based on the target. In the first category the source of the threat is targeted in order to protect the threatened identity. These responses are referred to as identity-protection responses. In the second category the threatened identity is targeted with the aim of making it less of an object for potential harm. These responses are referred to as restructuring responses (Petriglieri, 2011). In short, the first category contains three different responses: derogation, concealment, and positive distinctiveness. Derogation refers to discrediting the validity of the source of the threat. Concealment refers to concealing an identity that the individual appraises to be threatened in a particular context. Positive distinctiveness refers to individuals presenting identity-enhancing information in an attempt to change the perspectives of the individuals or groups who are the source of the threat (Petriglieri, 2011). The second category also contains three responses: changing the importance of the threatened identity (importance change), changing the meanings associated with the threatened identity (meaning change), and abandoning the identity and physically disengaging from any role or group associated with the identity (identity exit) (Petriglieri, 2011). These threat responses provide a framework for understanding how individuals may react to threats to their professional identity in the context of sustainability transitions.

Moreover, Nag et al. (2007) illustrate how individuals cope with (professional) identity threats within organizational settings. Their study on the intersection of organizational identity, knowledge, and practice in the context of strategic change via knowledge grafting has implications for professional identity as well. Professional identity is closely linked to organizational identity, as individuals' sense of self and their roles within an organization are shaped by the collective understanding of the organization's identity. The theoretical model of Nag et al. (2007) shows that when deliberate attempts are made to change knowledge-use practices in an organizational context, power relations become threatened, not only relating to who controls knowledge, but also to how it is controlled and used in the current change situation. Consequently, these threats to the existing power relations lead to attempts to protect the current identity. Changes in knowledge-use practices also prompt efforts to protect the current identity since these behaviors serve as the pragmatic foundation for collective concepts of identity. Changes in knowledge-use practices and organizational

transformation are strongly deterred once identity is challenged and measures to preserve it are made. When change agents react to these deterrents with reenergized attempts to impose change, which once more endanger power relations, the cycle then intensifies (Nag et al., 2007). The alternative outcome, however, would be the development of adapted knowledge-use practices. This can be done by melding the aspects of the original knowledge-use practices with the features of new procedures that make sense to the members of the organization. This allows for the incorporation of new knowledge-use practices while maintaining a sense of continuity for the current organizational identity and the current power bases (Nag et al., 2007). Since sustainability transitions usually require changes in knowledge-use practices, similar responses to (professional) identity threats could occur outside of the organizational context and in the context of STs.

In the context of phase-outs within sustainability transitions, Bogner et al. (2024) offer insight into how various forms of transition pain can prompt distinct coping mechanisms. They organize these coping strategies based on the psychological needs they address— competence, autonomy, and relatedness— and whether they target the context (change the situation) or the self (change one's cognitions). When individuals feel their competence is threatened, they may resort to escape (context), attempting to avoid or mentally withdraw from situations, often resulting in feelings of guilt and self-doubt. Alternatively, they might experience helplessness (self), characterized by passivity and surrendering control without actively supporting change, leading to a sense of resignation. When autonomy is compromised, individuals may react with opposition (context), resisting or demanding changes and expressing frustration. Conversely, they may exhibit submission (self), accepting change while experiencing stress reactions like rumination, resulting in frustration. In cases where relatedness is challenged, individuals might adopt isolation (context), withdrawing socially to conceal the situation, which can lead to shame and self-pity. Alternatively, they might resort to delegation (self), displaying maladaptive behaviors such as dependency and complaining, ultimately resulting in frustration (Bogner et al., 2024). Even though Bogner et al. (2024) do not directly discuss professional identity, their study on losses related to phase-outs in sustainability transitions might be relevant. It suggests that professionals who must abandon their current practices may experience feelings of loss, leading to emotions and coping methods similar to those described in the paper. This implies that their findings provide valuable insights into how professionals might react and cope during sustainability transitions, potentially impacting their professional identity.

Although existing research has examined the impact of transitions on practitioners' professional identity, the role of identity in sustainability transitions has received little scholarly attention so far (Janssen et al., 2022). Furthermore, there remains a gap in understanding the role of emotions within sustainability transitions. While some studies have delved into the emotional responses to identity-threatening situations and to phase-outs in sustainability transitions, scholars such as Martiskainen and Sovacool (2021) advocate for a more comprehensive exploration of emotional aspects in sociotechnical transitions. Moreover, the specific emotions involved in navigating identity tensions, as noted by Cascón-Pereira and Hallier (2012) and Winkler (2018), remain understudied. In addition to that, while coping responses to threats to identity and to transition pain in sustainability transitions have been investigated separately, little research has examined the interconnectedness between these themes. Understanding how emotions arising from threats to professional identity intersect with coping mechanisms in sustainability transitions remains largely unexplored terrain. Therefore, there is a need for research that investigates the link between emotions felt in response to professional identity threats and coping mechanisms within sustainability transitions. This study seeks to address this gap by examining the role of emotions in sustainability transitions concerning professional identity, its threats, and associated coping strategies.

3. Methodology
3.1 Research design

The aim of this study was to find out what typical emotional responses and coping mechanisms are to threats to professional identities in sustainability transitions. The research design of this study is qualitative. A qualitative design allows for an understanding of how people interpret their experiences (Merriam & Tisdell, 2016). Moreover, it allows the researcher to conduct an in-depth study about a broad array of topics (Yin, 2011). Since the aim of this research was to increase understanding of which emotions and coping mechanisms actors employ when their professional identity is threatened in sustainability transitions, a qualitative design was best suited to increase this in-depth understanding. Furthermore, this study took an inductive approach. An inductive approach tends to let the data lead to the emergence of concepts (Yin, 2011). Data collection involved the collection of primary data in the form of interviews (Saunders et al., 2009). Then the Gioia method (Gioia et al., 2013) was employed to ultimately distinguish aggregate dimensions that helped to answer the research question.

3.2 Research context

This study focused on one particular case, namely the case of Dutch farmers. They make up an interesting case for this research, since they are currently going through a sustainability transition, and it is apparent that this comes paired with a lot of emotions.[12] Dutch farmers are very critical of policies that intend to reduce nitrogen emissions, with 46% of all nitrogen in the Netherlands being emitted by animal farming (Van der Ploeg, 2020). To address both the nitrogen problem and the climate crisis, reductions of the national herd seem to be unavoidable. However, farmers often love their jobs, cherish their independence and are proud of the farm they develop (Van der Ploeg, 2020). Hence, the transition to less national herd threatens farmers' professional identity that they are so proud of and therefore, causes strong emotional responses and coping mechanisms, e.g., in the form of protests. The example of Dutch farmers, therefore, provides a clear illustration of how the dimensions of sustainability transitions, identity threats, emotional responses and coping mechanisms interrelate in practice. By taking the case of Dutch farmers and the agriculture industry as the main thread, a solid base was cultivated to study the mentioned theoretical concepts in practice. Particularly, farmers from the region of Twente were studied, since Twente is a region in the east of the Netherlands[3], where a lot of farmers are located.[4] Moreover, farmers in this region have been known to speak up about the nitrogen crisis.[5]

3.2.1 The nitrogen crisis in the Netherlands

To understand the transition that Dutch farmers are currently facing, it is important to have some background information on the current situation regarding the nitrogen crisis in the Netherlands. Nitrogen is a gas emitted from vehicle exhausts and when cows' manure and urine combine. Both cars and farming contribute significant amounts of nitrogen emissions. When released into nature, excessive nitrogen causes imbalances. Plants need nitrogen to grow, but some become 'nitrogen-hungry,' outcompeting other plant species if there is an excess. This affects insects that depend on these plants for food, subsequently impacting bird populations. Fish also suffer as excessive plant growth depletes water oxygen levels,

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[1] See https://www.theguardian.com/environment/2023/nov/16/nitrogen-wars-the-dutch-farmers-revolt-that-turned-a-nation-upside-down
[2] See https://www.bbc.com/news/world-europe-62335287
[3] See https://en.wikipedia.org/wiki/Twente
[4] See https://www.naober.nl/platteland/plattelandsvraagstukken/in-deze-regio-bevinden-zich-de-meeste-boeren-van-nederland/
[5] See https://www.tubantia.nl/enschede/ook-in-twente-gaan-boeren-rijders-en-strijders-vandaag-de-weg-op-d-r-an-met-mekaar~af5b37f8/

affecting aquatic life.[6] The Netherlands is legally obligated by European agreements to protect the nature in 162 Natura 2000 areas designated for preserving nature, and hence, they have to address these environmental impacts. Past attempts to limit nitrogen deposition, like the Programma Aanpak Stikstof (PAS), failed to reduce emissions effectively, leading to continued damage to natural habitats.[7]

This issue gained attention in 2019 when environmental groups sued the government for insufficient action on nitrogen emissions. The court ruled in their favour, demanding immediate reductions with the biggest consequences for farmers. The government presented farmers with three choices: sustainable farm upgrades, relocation away from natural areas, or completely quitting their farming activities. This led to protests as farmers felt unfairly targeted and insufficiently supported.[8] Moreover, farmers were angry about the uncertainty regarding their future. This uncertainty is due to the continuously changing measures imposed on farmers. It is currently about nitrogen, but the regulations concerning barns, phosphate, methane emissions, manure, crop protection, and many other issues also frequently change. As a result, there is no clear future perspective on what a farmer needs to do to sustain their livelihood in ten or fifteen years. Farmers are kept awake at night worrying about this.[9] Furthermore, the government encouraged farmers for years to invest in technological innovations such as air purifiers and low-emission stable floors in an attempt to reduce nitrogen emissions. Many farmers took out substantial loans to construct expensive barns equipped with the latest technology. Consequently, they increased their livestock numbers while appearing cleaner on paper. However, these innovations did not work sufficiently and hence, the problem became worse. More capital was invested in an increasingly unsustainable system. Now, the primary reason farmers claim they cannot downsize is their inability to afford the depreciation of their costly 'sustainable' barns. Moreover, farmers rightly argue that they have been making efforts for decades but that it is still not good enough. This holds true because the proposed solutions fail to address the

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[6] See https://stories.nos.nl/artikel/2432203-wat-is-er-aan-de-hand-met-stikstof-en-waarom-zijn-boeren-daar-boos-over

[7] See https://nos.nl/collectie/13901/artikel/2433131-dit-is-wat-je-moet-weten-om-de-stikstofcrisis-te-begrijpen

[8] See https://stories.nos.nl/artikel/2432203-wat-is-er-aan-de-hand-met-stikstof-en-waarom-zijn-boeren-daar-boos-over

[9] See https://www.zlto.nl/actueel/stikstof-boeren

fundamental issue: large polluting agricultural operations near natural reserves are not possible.[10]

3.3 Sampling approach

Ultimately, fifteen Dutch farmers in the region of Twente were selected to be interviewed. This was done through purposive sampling, where those cases that were particularly informative were selected in order to best be able to answer the research question (Saunders et al., 2009). To answer the research question, it was deemed interesting to speak to a range of different farmers. While livestock, and especially dairy, farmers are most affected by the nitrogen policies, it is also interesting to look at how other types of farmers react to the policies due to the collective emotions that were described in Section 2.3.

The researcher approached the farmers via mutual connections and/or a phone call. Their contact information was found on the internet by looking for farmers in the region. Table 1 shows the type of farmer, their years as a farmer, how they became a farmer and their gender. Most of the interviewed farmers were dairy farmers, which is the most common type of farmer in the region and also the type of farmer most affected by the nitrogen crisis. Most farmers became a farmer through their family. Moreover, there was some spread in the years as a farmer. Although most of the interviewees were male, some of them were female. This spread in characteristics allowed for the representation of different perspectives on the transition.

Table 1 Demographics of Respondents

Respondent	Type of farmer	Years as a farmer	How they became a farmer	Gender
1	Pigs	22 years	Family business	Male
2	Dairy	42 years	Family business	Male
3	Dairy	6 years	Family business	Male
4	Dairy	Almost 50 years	Family business	Male
5	Dairy	40 years + 25 years	Family business + married to farmer	Male + female
6	Dairy	38 years	Family business	Male
7	Broilers	> 25 years	Family business	Male
8	Dairy	17 years	Married a farmer	Female

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[10] See https://decorrespondent.nl/13583/je-hoeft-boerengeweld-niet-goed-te-praten-om-de-wanhoop-van-boeren-te-begrijpen/00ea65d0-67ad-09fd-1b84-dbc5c00d7c72

9	Dairy	Almost 50 years	Family business	Male
10	Dairy	43 years	Family business	Male
11	Calves	4 years	Family business	Male
12	Dairy	6 years	Family business	Male
13	Broilers	32 years	Family business	Male
14	Dairy	49 years	Family business	Male
15	Biodynamic mixed farm	8 years	Family business	Female

3.4 Research instrument and data collection

To address the research question, semi-structured interviews were implemented. This research instrument was selected, since interviews help to depict the complex social world from a participant's perspective and allow concepts to be explored in-depth (Yin, 2011). The interviews were semi-structured, meaning that the researcher had a list of themes and questions to be covered, but that these could vary from interview to interview. Furthermore, the order of the questions could be changed depending on the flow of the conversation, and additional questions could be asked to explore the research question further. At the same time, some questions may have been omitted depending on the context (Saunders et al., 2009).

The data was collected by interviewing fifteen Dutch farmers in the region of Twente. The aim of the interviews was to truly understand the Dutch farmers' position in the transition to less national herd; to understand what their identity as a farmer means to them; to understand how the transition affects their farmer identity; and lastly, what emotional responses and coping mechanisms this provokes for them. The interview guide can be found in Appendix A. The paper written by Kreiner et al. (2006) was used as inspiration during the design of the interview questions. The majority of the interviews was held face-to-face, with five being held online via Microsoft Teams due to preference of the interviewee. With permission of the interviewees, the interviews were recorded to allow for transcribing the data. All personal data that could trace back to the identity of the interviewees was adjusted to ensure anonymity. On average, the interviews lasted around forty-five minutes..

3.5 Data analysis

As a first step for data analysis, the interviews were transcribed in order to be able to analyze them properly. The next step was to analyze the data from the transcribed interviews by using the Gioia method (Gioia et al., 2013). The Gioia method is a qualitative methodological

approach to developing a data analysis that complies with the meticulous standards of trustworthy research (Magnani & Gioia, 2022). It provides a systematic research approach, which involves data analysis through three key stages. The first stage consists of creating analytical codes and categories, brought together into a data structure containing 1st-order concepts, 2nd-order themes and aggregate dimensions. The second stage consists of developing a theoretical model. The third and last stage consists of presenting the study's findings through a detailed data-based narrative, usually using the 2nd-order themes and aggregate dimensions, while often referring to the 1st-order quotations (Magnani & Gioia, 2022).

For the 1st-order concepts, the informant quotes from the interviews were coded without much refinement of categories, as described by Gioia et al. (2013). Examples of 1st-order concepts are: "There is pressure from multiple parties to keep less livestock in the Netherlands", "Some farmers feel as if livestock farming is no longer desirable in the Netherlands" and "Some farmers fear that their will be no future for them when they see the news". In the 2nd-order themes, similarities and differences among the many categories were sought out in order to reduce the many categories to a more manageable number of themes. During this stage, the aforementioned 1st-order concepts were combined in the 2nd-order theme: "Future of the profession is threatened". The next question to ask was whether these emerging themes suggest concepts that might help to describe and explain the observed phenomena. Lastly, once themes and concepts had been identified, these themes were further distilled into aggregate dimensions (Gioia et al., 2013). To illustrate, the 2nd-order themes "Future of the profession is threatened" and "Threat of being unable to keep up with change" were combined in the aggregate dimension "Threat of having to exit the profession".
These 1st-order concepts, 2nd-order themes and aggregate dimensions formed the basis for building a data structure. The data structure provides both a sensible visual aid, as well as a graphic representation of the data analysis process, which is key in demonstrating rigor in qualitative research (Gioia et al., 2013). Table 2 displays the full data structure. In total, data analysis led to fifty-four 1st-order concepts, which were reduced to twenty-four 2nd-order themes, which in turn were distilled into twelve aggregate dimensions. The data structure was divided into three parts: "Identity threats", "Emotions" and "Coping mechanisms". This was done to increase readability of the results of the data analysis. In Appendix B one can find exemplary quotations for all first-order concepts.

In this research, the 3rd-order aggregate dimensions formed the foundation that the answer to the research question was built upon, meaning that they represent the emotional responses and coping mechanisms to threats to professional identity in sustainability transitions. The data structure was used as input to answer the research question through data-based narratives. Moreover, a theoretical model was developed that displays the relationship between threats to professional identity in sustainability transitions, and the corresponding emotional and coping responses. This model was grounded in the data as illustrated by the data structure and shows the dynamic relationships between the emergent concepts that describe and/or explain the topic that the researcher is interested in (Gioia et al., 2013).

Table 2 Data structure

First-order concepts	Second-order themes	Aggregate dimensions	
1a. There is pressure from multiple parties to keep less livestock in the Netherlands	1. Future of the profession is threatened	Threat of having to exit the profession	**Identity threats**
1b. Some farmers feel as if livestock farming is no longer desirable in the Netherlands			
1c. Some farmers fear that their will be no future for them when they see the news			
2a. Farmers are struggling to adhere to new requirements due to the prices and availability of land	2. Threat of being unable to keep up with change		
2b. Farmers feel like it is impossible to comply with everything that is required of them			
1a. Farmers increasingly feel restricted and controlled due to all the regulations	1. Loss of freedom	Threat of having to let go of familiar practices	
1b. Farmers have to spend way more time on paperwork nowadays than they did in the past			
1c. Farmers feel monitored and not free anymore			
2a. Farmers increasingly have to act like entrepreneurs instead of only animal caretakers	2. New qualities are required		
2b. Farmers need to be higher educated nowadays to be able to take over the farm			
1a. Farmers feel unaccepted and like the black sheep of society	1. Profession not valued by society anymore	Threat of profession being viewed in a negative light	
1b. Farmers find it difficult to be considered polluters when farming used to be an appreciated profession			

2a. Farmers feel as if the negative media portrays them as criminals/animal abusers	2. Perceived misrepresentation of the profession		25
2b. Some organizations paint an image of farmers that farmers do not recognize at all			
2c. Politicians say things that are untrue in the opinion of farmers			

1a. Farm is a life's work that would be very sad to give up	1. Experience of grief	Feelings of sadness	**Emotions**
1b. Farming is a way of life that is becoming increasingly difficult due to the number of regulations			
1c. Some farmers have never done anything else; farming is everything to them			
2a. It is difficult to go from an appreciated profession to being perceived negatively	2. Sense of disappointment		
2b. Farmers want to feel accepted, but the feeling of acceptance is gone			
1a. The uncertainty regarding future requirements makes farmers very nervous	1. Scared of the uncertainty	Feelings of fear	
1b. The uncertainty makes it hard for farmers to make adjustments			
2a. Some farmers do not know what else they would do	2. Fear of losing their profession		
2b. The threat of having to quit their profession causes farmers fear			
1a. The mounting demands make it harder to keep the farm afloat	1. Experience of helplessness	Feelings of powerlessness	
1b. In reality, it is not always possible to comply with what the government wants			
1c. Changes happen so fast that farmers struggle to keep up			
2a. Farmers feel as if nothing they do is ever good enough	2. Experience of hopelessness		
2b. There is no consistency in government policy at all			
1a. Farmers are annoyed that their old way of practicing is becoming so restricted	1. Annoyed with the changes	Feelings of frustration	
1b. Farmers are frustrated with the number of changes that they constantly have to make			

2a. Farmers are angry that they have to change whereas other groups do not	2. Angry to be singled out		
2b. Farmers find it unfair that they are the only ones being targeted			
3a. Farmers are annoyed about the negative media exposure they receive	3. Angry about misrepresentation		
3b. Farmers are angry that people spread false information about them			
1a. Some farmers see a lot of opportunities and possibilities for this transition	1. Open-minded about the transition	Feelings of optimism	
1b. Some farmers believe that a different way of doing things is possible			
2a. Some farmers find the challenge exciting	2. Eager to change		
2b. Some farmers do feel like changing			

1a. Farmers are taking initiative to stay ahead of regulations	1. Proactive engagement	Agency	**Coping mechanisms**
1b. Some farmers try to have a dialogue with the government or province			
1c. Farmers need to be creative and look for their own solutions			
2a. Farmers focus on their own situation and what is in their control	2. Possibility-oriented outlook		
2b. Farmers focus on what is possible, not on what is not			
1a. Some farmers open their farm to show people what they are doing	1. Providing transparency	Enhancing public opinion	
1b. By visiting a farm, people can see what is really going on inside			
2a. Some farmers sell their own products to connect with citizens	2. Engaging the community		
2b. The milk tap is actually a stage via which this farmer participates in the social debate about agriculture			
1a. Talking to the people around them helps farmers deal with the situation	1. Talking to others	Having a social support network	
1b. Farmers discuss the situation within study clubs of fellow farmers			
2a. Seeing people outside of the farm helps with putting things into perspective	2. Pursuing interests/people outside of the profession		
2b. Having activities, such as sports, outside of the farm helps with coping			
1a. Some farmers are leaving the sector due to the current situation/changes	1. Leaving the profession	Exiting the identity	
1b. Some farmers sign up for the government's purchase scheme			

4. Results

During the data analysis three distinct threats to professional identity were distinguished, as well as five emotional and four coping responses to these threats to professional identity in sustainability transitions. These results will be described in-depth in the following paragraphs.

4.1 The professional identity of farmers

To better understand the emotions farmers experience when their professional identity is threatened and the coping mechanisms they employ, it is important to first understand what farmers consider as important aspects of their identity.

4.1.1 Growing up on the farm

One aspect that is characteristic for the professional identity of farmers is that most farmers were born and raised on the farm. This was mentioned by the majority of interviewed farmers with only two exceptions where they got married to a farmer instead. Most of the time the farm has been in the family for multiple generations and is considered a life's work that farmers do not want to give up. This is illustrated by R3:

The only difference is that with an employer, if I'm done with it, I can just walk away and say, I'll find something else. See, and here, you don't do that as quickly because it's a life's work. It's been in the family for a long time, you're dealing with family members you work with, and with that approach, you certainly don't build and expand a business. [R3]

Growing up on the farm also meant for a lot of farmers that the hobby and the passion for farming commenced at an early age, as was the case for R5:

I could always be found outside since I was young, in the stables and on the tractor. Of course you never know how things would have turned out differently if you... but well, I've always had a passion for it. [R5]

This is also the reason why for a lot of farmers, farming is all they have done in terms of profession.

4.1.2 Farming as a way of life

Although most farmers mention that there is no one way to be a farmer and hence, the typical farmer does not exist, some common factors could be distinguished. A number of farmers

mentioned that farming is a demanding profession as private and work time cannot be separated and you have to take it into account with everything you do. A very common phrase that was used to describe farming as a profession is "farming is a way of life". This refers to the aforementioned fact that farming goes on 24/7, that it is a life that is determined by the animals and in terms of return on hours spent working, there are a lot of professions that would pay better. R4 explained it in the following way:

You're born and raised with it. It's not like when you're 14/15, you think, 'Oh, I might become a farmer.' It doesn't work like that. No, in fact, you grow up with it. It's the everyday process. That's what being a farmer is. Being a farmer is a different life, you know. That's it. You can't compare it to what your father or mother does. Because they go to work at half past 7, 8 o'clock, half past 9, and come home at 5. And here, it's quite different, it just goes on 24/7. That's the difference. If a calf is born tonight, I won't leave for it. Or if I'm nearby, I'll take my phone with me so I can check on the camera. But I didn't have that [a phone] before, so I would stay home for that [the calving]. [R4]

Since it is not a profession you do for the money, it really has to be a passion. As R3 put it: "Well, you just have to have a lot of love for the profession because the number of hours you put into it doesn't always pay off, so a lot of passion is involved, otherwise, you wouldn't start [R3]." Being a farmer means making long days. A typical farmer has to work hard and get up early: "You always have to keep going. I mean, you don't have the luxury of taking a day off. No, you just have to keep going every day [R12]." Furthermore, multiple farmers mentioned the fact that you have to love animals in order to be a farmer, since you work with animals day and night. R8 illustrated this with the following quote:

You have to be willing to do a lot to do it right, you know. So yeah, it has to be ingrained in your heart and soul that you want to take good care of animals. Because it can happen at any time of day or night that a cow calves or that the vet needs to come. So yeah, you just have to be willing to sacrifice a lot. [R6]

In return, however, farmers feel as if they are doing meaningful work by producing food: "Of course, it's a fantastic sense of purpose to spend the day producing food for others, so that other people can do other things. [R8]"

4.1.3 Farming as farmers' identity

When asked whether farming is something they do or something they are, actually all farmers say it is something that they are or that they do not see any distinction between the two. Some mention that farming is all they know, others mention that it is something that they are since farming is a way of life. As R2 put it: "I am it, and I also do it, and I don't really see a line drawn through it. So yes, the term 'way of life,' that encompasses a lot as well [R2]."

4.2 Threats to farmers' professional identity

In addition to understanding the professional identity of farmers, it is necessary to understand what threats to their professional identity farmers are currently experiencing in order to comprehend the emotions and coping mechanisms that follow these threats. As a result of the data analysis, three distinct threats to professional identity could be distinguished: threat of having to exit the profession; threat of having to let go of familiar practices; and threat of profession being viewed in a negative light.

4.2.1 Threat of having to exit the profession

Farmers fear that the future of their profession is threatened, since multiple parties are advocating to reduce livestock in the Netherlands. R12 described this threat as:

I have the feeling that livestock farming is no longer desirable. And that by having the derogation removed, you actually get a cold restructuring, causing farmers to see no future anymore and say if this is how it's going to be, then we'll stop. [R12]

Moreover, farmers are struggling to keep up with all the new regulations, facing limiting factors such as prices and availability of land. This makes them worry that it is impossible to comply with all the different rules, hence threatening their future ability to execute the profession. R8 described this worry as follows: "And I do think it's somewhat justified that many farmers are resistant because the challenges are truly immense. It's almost overwhelming. The emotion, the anger, the fear, the powerlessness, yes, I understand all of that [R8]."

4.2.2 Threat of having to let go of familiar practices

Furthermore, farmers face the threat of having to let go of familiar practices. Whereas farmers used to feel free, they now increasingly feel restricted and controlled due to the

amount of regulations that they have to comply with. They also have to spend much more time on paperwork nowadays than they did in the past. R4 phrased it like this:

In the past, we were basically almost 24/7 busy with the animals. Now, you have, I would almost say, a day is exaggerated, but you have a lot of paperwork. Much more than before. The paperwork is getting out of hand. [R4]

Additionally, new qualities are required. Whereas farmers' main role used to be that of "animal caretaker", farmers now have to increasingly act like entrepreneurs in order to keep the farm going. R13 explained this as follows:

In the past, you had a typical farmer who was primarily an animal caretaker. […] most farmers love animals and enjoy working with them. And yes, entrepreneurship. That has become increasingly important over the years. You've become much more of an entrepreneur, and alongside that, you're still an animal caretaker […] And yes, that has to do with having to invest more and more, deal with more regulations, permits, and let's not forget insurance requirements. [R13]

Moreover, farmers need to be higher educated nowadays to be able to take over the farm. R3 explained why:

I think nowadays, as a young farmer, you really think 3, 4 times before you start with all the negativity surrounding it. So, I am of the opinion, and I think you can see it in the general trend, that farmers in general are also more highly educated to even be able to start. I sometimes say about farming, when you see what kind of work is involved with discussions with the bank and permits, and well, if you want to do something nowadays, perseverance is one thing, but if you want to expand or start something new, you really need to, nowadays, be quite capable to get that off the ground. [R3]

4.2.3 Threat of profession being viewed in a negative light

Lastly, farmers face the threat of their profession being viewed in a negative light. Farmers feel unaccepted and like the black sheep of society. This is especially difficult to accept since farming used to be an appreciated profession. R5 explained this sentiment:

You hear such a small group being very negative. And yes, they seem to have the upper hand, and that's very difficult because you come from a profession, especially from earlier times,

where we produce food, you're doing something good. To oh, you're a polluter, get out, very, very black and white, so to speak. [R5]

Furthermore, farmers struggle to accept that some organizations paint an image of farmers that farmers do not recognize at all, and politicians say things that are untrue in the opinion of farmers. R7 illustrated this as follows:

We have been under fire for years, mainly by organizations like Wakker Dier. And well, they paint a certain image. Yes, they call it framing, I think, but they create an image that I don't recognize at all. And that's not how a farmer operates, not at all, so that's what I've experienced in this regard. [R7]

Since farmers see farming as something that they are and as their profession is very intertwined with their way of living, these threats to their professional identity as farmers come paired with a number of emotional responses.

4.3 Emotional responses to farmers' professional identity threats

In response to the transition farmers are currently going through, farmers experience a range of emotions. Based on the data analysis of the interviews, five main emotions could be distinguished. These are: feelings of sadness, fear, powerlessness, frustration and optimism.

4.3.1 Feelings of sadness

Feelings of sadness partly come from the experience of grief. For most farmers their farm is a life's work and therefore, it would be very sad for them to have to give that up as a result of the transition. R14 explained this as follows:

And yes, it would be very bitter if you have a business somewhere, right? Also generations old, and then you would have to close down essentially because of government measures, for nitrogen reduction, for example. Yeah, well, that hits incredibly hard, and then it's all emotion, of course. [R14]

Moreover, they grief their old way of working that is now increasingly becoming difficult due to the number of regulations that farmers have to comply with. As R15 said: "But sometimes it can be very difficult for farmers, because it is a true passion, coming from the heart, and there are many regulations imposed, making it very challenging to execute things the way they would like [R15]." Additionally, feelings of sadness are caused because farmers

do no longer feel accepted and appreciated by society. This used to be different when farming was still an appreciated profession. R5 phrased this feeling as: "You want to be accepted in society, and that feeling was gone, so to speak [R5]."

4.3.2 Feelings of fear

Furthermore, farmers experience feelings of fear. The uncertainty that they are currently facing, makes them nervous and makes it hard for them to commit to any significant changes. R2 described this as: "A very high degree of uncertainty. And you have that with a lot of rules nowadays, how does it turn out for your business [R2]?" On top of that, some farmers do not know what else they would do and the threat of having to quit their profession causes them fear, as was the case for R5: "I don't know how it would have turned out if I didn't come from the farm, you know? I think it's also a bit of who I am, I wouldn't know what else to do [R5]."

4.3.3 Feelings of powerlessness

Feelings of powerlessness emerge, because farmers increasingly feel as if they cannot comply with everything that the government wants, even when they want to. The demands are mounting, and changes happen fast. As R2 mentioned:

Sometimes it [receiving new regulations] goes at such a fast pace that you can't keep up with it. And most farmers find that very difficult. Because you've focused on it a certain way, right? You've arranged it this way, and then suddenly the government says, bam, it has to be different again. [R2]

Moreover, they start to feel hopeless, since government policy is not consistent at all and nothing they do ever feels good enough. As R2 said: "And that's the difficult part, there's not really any stability in it, and you do start preparing for it. Yeah, and all of a sudden, it's different. Yeah, then I wish I hadn't been involved in it [R2]."

4.3.4 Feelings of frustration

Farmers experience feelings of frustration since their old way of practicing the profession is becoming very restricted and they constantly have to make new changes. R13 explained this sentiment as follows:

They're constantly coming up with new things, and as a farmer, you sometimes get tired of it. You think, 'Well, is it good like this?' Yeah, that's how it is good, and then you're a year or two further. Yeah, but we also want you to do this. We also want you to do that. It's a never-ending cycle, and that's what makes some farmers very rebellious. [R13]

Furthermore, they are angry that they are being targeted whereas other groups can continue doing what they are doing without making any significant changes. As R9 put it: "I didn't think it was fair that they targeted only the farmers back then. That they had to reduce 50% of the livestock. I was also angry about that. Meanwhile, Schiphol, I mean, all those big companies... [R9]." Lastly, they are frustrated that people spread "false" information about farmers. Information that they do not recognize themselves in. R10 illustrated this by saying:

I really get sick and tired of it, especially that 'Wakker Dier' when they come on the radio with news, with ads. That really wears me out. They keep taking action every time about animals with the calves by the cow or I don't know, cows in the pasture or in the barn, cows and... What are they talking about? [R10]

4.3.5 Feelings of optimism
However, there is also a group of farmers that experiences feelings of optimism when it comes to the transition. This group is open-minded about the transition and believes a different way of doing things is possible, seeing a lot of opportunities and possibilities. As R8 said: "In all this chaos, I also see a lot of room to create a new system in which we produce food. I see a lot of opportunities and possibilities [R8]." Some farmers are even eager to change and find the challenge that comes with it exciting, like R11: "Yes, I do feel like changing. I'm from a relatively young generation, so bring it on [R11]."

To manage their emotions and the threats to their professional identity, farmers employ various coping mechanisms, with certain emotional responses often leading to corresponding coping strategies.

4.4 Coping responses to farmers' professional identity threats
The data analysis of the interviews allowed for the recognition of four different coping strategies that farmers employ in order to cope with the threats to their professional identity

and associated emotions. These are: agency; enhancing public opinion; having a social support network; and exit strategy.

4.4.1 Agency

Some farmers chose to cope by proactively engaging with the situation. They did this through creatively looking for their own solutions, taking initiative to stay ahead of regulations and/or through engaging in dialogue with the (local) government. R14 described their way of coping as: "Well, we're very aware of what's going on in society, and yeah, you respond to that before the government sets boundaries or says this should be different or that should be different, we try to do that [R14]." Additionally, some farmers, like R1, chose to focus on their own situation and what is in their control and/or to focus on what is possible, not on what is not: "But we still have to look at what is achievable in our situation. We shouldn't focus too much on what is not possible, but rather on what is possible [R1]." Coping through agency was often done in response to feelings of fear, frustration, powerlessness and optimism.

4.4.2 Enhancing public opinion

Other farmers tried to enhance the public opinion through providing transparency and/or engaging with the community. They did this either by opening their farm to the public, so people could see what is really going on inside or by selling some of their own products directly to the customer. Like R6 said: "I think you should be willing to occasionally open up your farm to the public so they can see what you're doing, being transparent about your activities [R6]." Coping through enhancing public opinion was often done in response to feelings of fear, frustration and powerlessness.

4.4.3 Having a social support network

Furthermore, most farmers mentioned that having a social support network helped them cope with the situation. They would talk with others around them to help them deal with the situation or seek support within study clubs of fellow farmers. As R8 mentioned:

And also, when you're struggling, to share, because farmers are all isolated islands, right? So, they're not used to admitting when things are tough. You definitely shouldn't tell your neighbor about it because we're all each other's biggest competitors. But we've found that

when you share your struggles, you sometimes get help from unexpected places, precisely
because you're sharing your struggle. [R8]

Some farmers also advocated for seeing people outside of the farm and/or having activities
outside of the farm to help with putting things into perspective, like R3:

It is, of course, an advantage for me that I am also active outside of farming and don't have
blinders on. And that doesn't mean that I agree with everything that's happening now, but I
can sometimes better put things into perspective, and I think that's seriously the biggest thing
that people never leave their farms, and all sorts of negative things are being written. And
then that's all they see. [R3]

Coping through having a support network often happened in response to feelings of sadness,
powerlessness, fear and frustration.

4.4.4 Exiting the identity

Lastly, some farmers coped with the situation by exiting the profession. They did this either
by retiring early or by signing up for the government's purchase scheme. R9 chose this
coping strategy: "Well, that's the reason we're also going to stop. Yeah, I think we'll stop
earlier than we actually wanted to [R9]." Coping through exiting the identity was often done
in response to feelings of sadness, powerlessness, fear and frustration.

Figure 1 presents a framework that summarizes these results in one model. It is a model that
shows which potential threats to professional identity may occur as a result of sustainability
transitions, and which emotional responses and coping mechanisms may follow as a result of
these threats to professional identity. More specifically, the model demonstrates how each
professional identity threat leads to specific types of emotions, which in turn guide the
selection of coping mechanisms. Emotional responses are categorized into three types:
'Accepting fate,' which involves a level of acceptance regarding the professional identity
threat; 'Struggling with threat,' which indicates a lack of full acceptance; and 'Seeing potential
despite threat,' which means acknowledging the threat but viewing it as a challenge rather
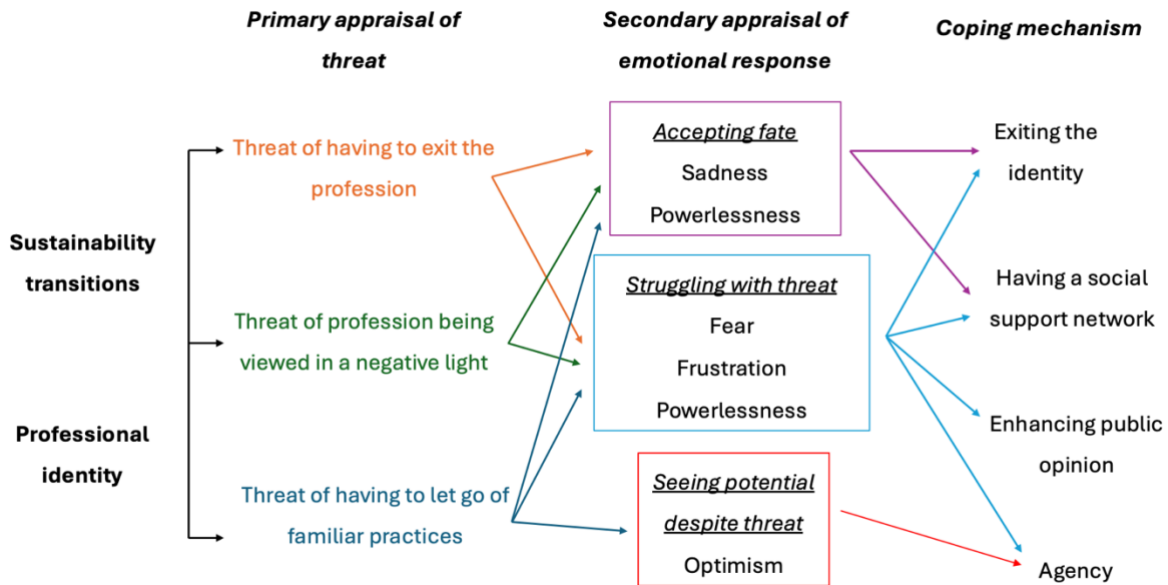than a threat.

Figure 1 Conceptual model of the emotional and coping responses to threats to professional identity in sustainability transitions

5. Discussion

This research set out to answer the following research question: ***How do professionals emotionally respond to and cope with threats to professional identity in sustainability transitions?*** Based on the interviews, we found five different emotional responses to three types of professional identity threat in sustainability transitions, and four corresponding coping mechanisms. These will be discussed below.

5.1 Theoretical implications

5.1.1 How sustainability transitions may threaten professional identity

This research has shown that sustainability transitions may lead to three types of threat to professional identity. Firstly, professionals may feel the threat of having to exit their profession due to the profession no longer being desirable or because they are unable to sufficiently adjust to the transition. Secondly, professionals may feel threatened in their professional identity since they have to let go of familiar practices. This could be because they have to adjust their existing practices to more sustainable practices, which may also require new knowledge. Lastly, professionals may feel as if their professional identity is being threatened when their profession is suddenly viewed in a negative light. This could happen when the profession is seen as "polluting" to the environment as a result of sustainability transitions.

Markard et al. (2020) highlighted that sustainability transitions can threaten existing jobs through phase-outs and reduced consumption. Building on this, Bogner et al. (2024) demonstrated the impact of governance interventions aimed at reducing intensive agricultural practices, such as mandating a 30% reduction in livestock by 2030, on farmers. This research extends their conclusions by showing that as a result of these interventions, professionals may experience the identity threat of having to exit their profession.

Furthermore, previous research has demonstrated that sustainability transitions require individuals to change their practices (Kaufman et al., 2021; Köhler et al., 2019; Markard et al., 2012) and that practice changes can impact practitioners' identities (Janssen et al., 2022). While past studies have separately examined the effects of sustainability transitions on practice changes and how practice changes can affect identity, this research integrates these areas by showing how practice changes in sustainability transitions can threaten professional identity.

Lastly, Bogner et al. (2024) illustrated how reducing intensive agricultural practices in the context of sustainability transitions could cause farmers engaged in large-scale factory farming operations to face threats not only to their financial stability but also to their social role as 'providers of food'. This parallels the notion of the "threat of having to exit the profession" identified in this research, as well as the "threat of the profession being viewed in a negative light." Farmers, who were once valued as providers of food, may now be labeled as polluters or animal abusers. The concept of the "threat of the profession being viewed in a negative light" also resonates with the notion of "status loss" discussed by Kyratsis et al. (2017). They illustrate this with the example of physicians who, after dedicating years to developing specialist skills and knowledge, find their services devalued and feel extremely upset about this. This parallels the sentiment among farmers who now perceive their contributions as undervalued by society, reflecting a loss of status within their profession. More generally, however, this research demonstrates how sustainability transitions can lead to the identity threat of the profession being viewed in a negative light. This builds on existing literature by showing that sustainability transitions may affect the social role and status of professional identities.

Although previous research has looked at threats to professional identity, this research extends the existing literature by looking at the specific context of sustainability transitions. It

has demonstrated which particular threats to professional identity can be expected to occur as a result of sustainability transitions. Hence, this research includes the role of identity in transitions, as advocated for by Janssen et al. (2022). This may increase understanding of why professionals may respond a certain way to sustainability transitions.

5.1.2 How professional may emotionally respond to professional identity threats in sustainability transitions

This research has demonstrated that these threats to professional identity may lead to five different, corresponding emotional responses. Threat of having to exit the profession and threat of profession being viewed in a negative light may lead to feelings of sadness, powerlessness, fear and frustration. Threat of having to let go of familiar practices can lead not only to feelings of sadness, powerlessness, fear and frustration, but also to feelings of optimism.

The emotional responses found in this research bear resemblance to those identified by Winkler (2018) in situations that threaten one's identity. Winkler (2018) lists emotions such as uncertainty, insecurity, fear, confusion, powerlessness, sadness, and loss, as well as excitement and enjoyment. The experience of excitement can be linked to the feelings of optimism observed in this research. Hence, it can be concluded that some of the emotions arising from threats to professional identity in sustainability transitions mirror those in broader identity-threatening situations. Moreover, Martiskainen and Sovacool (2021) argue that sustainability transitions can provoke strong emotions, such as fear or anger, due to the disruptive nature of new innovations. Thus, by combining the characteristics of sustainability transitions with those of identity-threatening situations, the emotional responses uncovered in this research appear to be fitting reactions to the circumstances.

Cascón-Pereira and Hallier (2012) describe how the salience of identities affects the level of emotional response, suggesting that events threatening highly meaningful identities provoke stronger negative emotions compared to less valued identities. In the case of farmers, their professional identity holds significant importance for them. Therefore, this theory can be used to explain the strong emotional responses among farmers facing threats to their professional identity. Hence, one could assume that the more meaningful the professional identity, the

stronger the negative emotional responses will be when this professional identity becomes threatened in sustainability transitions.

Similarly, Bogner et al. (2024) show that farmers who adhere to conventional, intensive farming practices may feel a sense of threat to their established ways of managing their farms. They could view the goals set by policies as unattainable or undesirable. Consequently, they may experience feelings of pessimism, fear, or desperation as they navigate through the transition process. This corresponds to the emotions that farmers expressed in the interviews. Furthermore, Bogner et al. (2024) note that farmers already practicing niche methods, like organic agriculture, may feel less threatened by such phase-out initiatives. This observation may explain the feelings of optimism displayed by some farmers, who, feeling less threatened, are more inclined to regard the transition positively. Hence, the emotional response to threats to professional identity in sustainability transitions may also be dependent on how threatened professionals feel by the transition.

In general, Martiskainen and Sovacool (2021) argue that far more attention from both research and policy needs to be given to the emotional responses in sociotechnical transitions. Since sustainability transitions involve a fundamental restructuring of current production and consumption systems, including deep-structural changes in transport, energy, agri-food and other systems, strong emotional responses among stakeholders are to be expected. Additionally, previous research suggests that the literature could benefit from exploring the specific emotions involved in the experience of identity tensions (Winkler, 2018; Cascón-Pereira & Hallier, 2012). Petriglieri (2011) explores the responses and consequences of threats to individuals' identities, but the emotional responses are missing in her model, although research shows that emotions play an important role in how we perceive our world, organize our memory and make important decisions (Brosch et al., 2013). Furthermore, research has consistently found a relationship between the emotions experienced towards climate change and climate change-related judgments and behaviors (Brosch, 2021). Thus, although important to study, the role of emotions in sustainability transitions as well as the role of emotions in identity threats have not been researched adequately, which suggests a gap in research. This research has tried to fill these gaps in the literature as best as possible by providing insights into why certain emotions may occur in sustainability transitions and as a result of which identity threats.

5.1.3 How professionals may cope with threats to their professional identity and the corresponding emotional responses in sustainability transitions

Lastly, this research has shed light on how professional may cope with threats to their professional identity and the corresponding emotional responses. The results show that in response to feelings of sadness and powerlessness that result from professional identity threats, professionals may choose to exit their professional identity and/or to make use of their social support network. In response to feelings of fear, frustration and powerlessness professionals may either exit the identity, lean on their social support network, try to enhance public opinion of their threatened identity and/or opt for agency. Agency involves proactively engaging with the situation, such as actively looking for solutions as well as focusing on the possibilities and what is in their control. Professionals may also opt for agency in response to feelings of optimism.

The coping response of "enhancing public opinion" bears resemblance to the concept of "positive distinctiveness" outlined by Petriglieri (2011). This response involves individuals presenting identity-affirming information in an attempt to alter the perspectives of the individuals or groups who are posing the threat. In this research this was demonstrated by farmers who opted for opening their farms to the public and directly selling products to consumers in order to improve public perception, thereby mitigating the "threat of profession being viewed in a negative light". Hence, professionals experiencing threats to their professional identity in sustainability transitions may try to enhance public opinion in order to cope with the threat. Furthermore, the coping mechanism of "exit strategy" aligns with Petriglieri (2011)'s notion of "identity exit". This response involves abandoning the threatened identity and disengaging from roles or social groups associated with it. In this research, some farmers chose to abandon their professional identity as a means of addressing the threat. Thus, professionals may choose to cope with professional identity threat in sustainability transitions by exiting their professional identity. Additionally, Petriglieri (2011) suggests that exiting a professional identity is easier when individuals have an alternative identity to transition to. This explains why farmers without clear alternatives, who have never done anything else in their lives, experience heightened emotions of fear and anxiety. Professionals without a clear alternative identity to transition to may therefore struggle more with threats to their professional identity in sustainability transitions. Although Petriglieri (2011) focuses on coping responses to individual identity threats, as mentioned above, the emotional responses are missing from her model. This research, therefore, extends

Petriglieri's (2011) existing research on responses to identity threats by showing in response to which emotions, professionals may employ certain coping mechanisms.

Furthermore, Bogner et al. (2024) noted that farmers could perceive that broader society, policymakers or the media treat them unfairly and choose to withdraw from this unsupportive context. Indeed, this research's findings reflect farmers' sense of unfair treatment by society, policymakers and the media. Hence, professionals in sustainability transitions may perceive that it is unfair that their identity is being threatened by the transition and feel frustrated about this. As a result, they may choose to cope by exiting the professional identity. While withdrawal ("identity exit") is one coping mechanism, it is not the sole response that was observed. Bogner et al. (2024) highlight that farmers feeling unfairly treated may seek consolation in groups, such as with fellow farmers or supportive actors, to share their unpleasant thoughts and feelings—an approach mentioned by multiple farmers in this research and categorized as "having a social support network" in Figure 1. Carminati and Héliot (2022) emphasize that seeking peer support supports individuals in processing emotions and navigating identity conflicts. Hence, professionals going through threats to their professional identity may seek out social support in order to cope with their emotions and the identity threats. Lastly, Bogner et al. (2024) suggest that those feeling unfairly treated may experience heightened negative emotions, such as anger. Anger was indeed seen as a key emotional response to perceived unfair treatment in this research. Although, Bogner et al. (2024) do explore coping strategies in sustainability transitions, they do not specifically look at the role identity threats play in these transitions. Hence, this research contributes to the existing literature by expanding on the role identity threats play in sustainability transitions, and to which coping strategies these may lead.

To conclude, this research is unique in that it combines the dynamics of sustainability transitions with the dynamics of threats to professional identity, aiming to uncover the emotional and coping responses emerging at this intersection. Thus, this research has aimed to fill an important gap in the literature by examining how sustainability transitions affect the professional identity of involved actors. It has outlined how sustainability transitions can lead to potential threats to professional identity. Moreover, it has offered insights into the typical emotional responses triggered by threats to professional identity within sustainability transitions. This increases our understanding of the emotional responses associated with both identity threats and sustainability transitions. Lastly, this research sheds light on the various

coping mechanisms employed by actors facing professional identity threats and the corresponding emotions amidst sustainability transitions. Through this comprehensive framework, this research, thus, uniquely enhances understanding of the emotional and identity-related dimensions inherent in sustainability transitions.

5.2 Practical implications

5.2.1 General implications

Martiskainen and Sovacool (2021) highlight that many low-carbon energy projects have encountered setbacks due to the neglect of negative public emotions, which were not taken into account or even ignored by practitioners, industry players, and policymakers. They argue that it is crucial to consider emotional responses from various stakeholders when making decisions regarding developments like low-carbon energy systems. Expanding on this, Bogner et al. (2024) emphasize the importance of paying attention to the potential responses of individuals and groups across different phases, such as denial, anger, and grief, during phase-out processes. They advocate for emotion-sensitiveness throughout these transitions, as doing so can improve the perception of justice and increase the co-creation and legitimacy of interventions. Moreover, they stress the importance of acknowledging losses beyond economic aspects. For instance, paying out farmers in trying to phase out intensive farming practices can only be part of the solution.

This research supports these notions. By providing insight into the emotional and coping responses that may surface when faced with threats to professional identity in sustainability transitions, it becomes easier for practitioners, industry players and policymakers to anticipate these responses and to take them into account when developing new plans and policies. As seen in this research, sustainability transitions, characterized by shifts toward more environmentally and socially sustainable practices, can threaten established professional identities, leading to a range of emotional responses and coping strategies among professionals. Understanding these responses is crucial for effectively navigating sustainability transitions.

When creating new policies, policymakers can use this information to integrate emotional considerations into their policy design and implementation. This could be done by including provisions that mention that support services and training programs will be offered to professionals who are affected by the sustainability-related policies. Accounting for the

emotional and identity-related experiences of stakeholders, could give a sense of validation and support among those undergoing identity threats.

Moreover, individuals can use the outcome of this research to understand their own emotional and coping responses to threats to professional identity in sustainability transitions. This can help them navigate these threats more effectively. By becoming aware of their emotions, individuals can take more conscious steps towards managing these emotions, giving them a sense of agency. They could do this for instance, by seeking out social support networks or pursuing opportunities for learning that will allow them to transition to an adapted identity more easily.

5.2.2 What we can learn from the nitrogen crisis in the Netherlands

During the interviews, farmers indicated several preferred approaches for handling the transition to more sustainable practices. This feedback can serve as valuable input for enhancing the execution of sustainability transitions. Firstly, farmers emphasized the importance of realistic regulations. They need adequate time to implement changes, as these cannot occur overnight. Many farmers also expressed a desire for clarity and regulatory stability, expressing fatigue with constantly changing regulations. Ideally, changes would be developed in collaboration with farmers rather than being imposed from above. Thus, policymakers should try to engage with affected professionals to design policies that are realistic, stable, and clear for those impacted. Additionally, farmers seek government support in terms of the government thinking along in solutions, providing compensation and explaining why certain changes are required. This approach could serve as a valuable lesson for the government in managing other professions potentially impacted by sustainability transitions. Furthermore, financial feasibility is crucial for farmers to implement necessary changes and something to take into account while planning changes in policy for other professions as well. In conclusion, a practical recommendation is to listen to the concerns and wishes of professionals whose identities are threatened by sustainability transitions and explore collaborative solutions. This approach could reduce feelings of frustration, unfairness, and powerlessness, leading to more effective and harmonious sustainability transitions.

6. Limitations and future research recommendations

Like any research, this research has its limitations. First of all, researcher bias may have occurred during the analysis of the data. This research was based upon the assumptions of one researcher, which could be biased. In further research, this biased could be minimized by including more coders. By including multiple coders in the coding process, reliability of the research conclusion can be enhanced. At minimum only one extra coder is needed for this intercoder reliability process, which would reduce subjectivity (Church et al., 2019).

Secondly, this research focused on the situation of farmers and threats to their professional identity. As seen in this research, farmers attach an incredible amount of value to their professional identity. Since they are usually born and raised on the farm and have little to no separation between their work and private life, their professional identity is especially important to them. This means that the results of this research may have been different if another profession had been studied. Hence, future research is recommended to include different professions to see to what extent these findings can be generalized.

Thirdly, this research was concentrated within the Dutch cultural context. Since culture influences perception and cognition, leading to behavioral differences across cultures (Kastanakis & Voyer, 2014), it would have to be researched further whether these findings extend to other countries. Perhaps cultural dimensions, such as long-term orientation and uncertainty avoidance, could affect the results.[11] Additionally, by comparing diverse cultural contexts, researchers could identify culturally sensitive approaches to supporting professionals through sustainability transitions. Similarly, political and legal contexts are likely to differ across countries and are worth taking into account in future research.

Lastly, future research could include longitudinal qualitative studies. Whereas this research focused on the emotional and coping responses at one point in time, longitudinal data collection allows changes to be captured over time in order to document how things unfold, evolve, and emerge (Patton, 2015). By following participants over time, research could gain more insights into how the emotional responses, coping mechanisms and identity adaptation processes develop over time in sustainability transitions. Bogner et al. (2024) explain how emotional responses are not "static", but that they are likely to change during phase-out

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[11] See https://www.hofstede-insights.com/country-comparison-tool

processes. Hence, they suggest that sustainability transitions research should put a stronger emphasis on understanding how these emotional dynamics unfold over time in transition processes.

7. Conclusion

This research aimed to explore how professionals emotionally respond to and cope with threats to their professional identity in sustainability transitions. While previous studies have examined emotional and coping responses within sustainability transitions and identity threats separately, there has been little research at their intersection. This research sought to address this gap by conducting a qualitative study using semi-structured interviews. The interviews revealed three main threats to professional identity in the context of sustainability transitions: the threat of having to exit the profession, the threat of the profession being viewed in a negative light, and the threat of having to let go of familiar practices. In turn, threats to the professional identity may elicit the following emotional responses: sadness, powerlessness, fear, frustration and optimism. To cope with these identity threats and the corresponding emotions, professionals may employ several coping mechanisms: exiting the identity, having a social support network, enhancing public opinion, and agency. Finally, this comprehensive framework demonstrates that this research significantly contributes to our understanding of the emotional and coping responses to professional identity threats in sustainability transitions. Given the pressing environmental challenges facing society today, such insights are essential. Practically, negative emotions among professionals, such as feelings of frustration, unfairness, and powerlessness, could be reduced by addressing these dimensions, thereby promoting more effective and harmonious sustainability transitions.

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Appendix A: Interview guide

Research question
How do professionals emotionally respond to and cope with threats to professional identity in sustainability transitions?

<mark>The questions highlighted in yellow form the core of the interview guide and are most important to get an answer to. The other questions can be used to ask further if needed, e.g., when a respondent does not provide a sufficiently elaborate answer or if the answer is still unclear to the researcher.</mark>

1. Start with a round of introductions, introduce my research and ask for consent to start recording
   - My name is Stella Breedveld. I am a Business Administration master student at the University of Twente. I was born in Haaksbergen and now live in Hengelo.
   - I am currently researching how people respond when their profession has to change, because of sustainability transitions, what emotions come up and how people deal with this. In my research, I focus on Dutch farmers since they are strongly affected by such transitions.
   - Is it okay for you if I start recording now?

2. General questions to the interviewee → Finding out what they do as a farmer and what their history as a farmer is
   - Can you tell me a bit about yourself and your job as a farmer?
   - What led you to become a farmer? Has farming been in the family for a long time?
   - How long have you been a farmer?
   - What exactly are you doing as a farmer? What are some typical day to day activities?

3. Questions about their identity as a farmer → Finding out how they view their identity as a farmer and how much this means to them
   - Would you give me a few characteristic qualities of what you would consider to be a typical farmer?
   - How are you typical to these aspects?
   - How do you deviate from these aspects?
   - Would you consider yourself a typical farmer?
   - What are for you the most important qualities of a farmer?
   - How much does your occupation define you as a person? Is farming something you DO or is it something you ARE?
   - In general, what does being a farmer mean to you?

4. Questions about sustainability transitions / the nitrogen crisis → Finding out what changes they see happening and how these changes affect their work
   - Would you say that the world of agriculture in the Netherlands is currently in transition?
   - What do you see changing?
   - Which of these changes affect your daily work (most)?

- What exactly will you have to change, do differently, discard? E.g., regarding knowledge and equipment, type of crops, animals.

Only if not mentioned:
- What is your opinion on the current situation in the Netherlands regarding the nitrogen policies?
- How do/will the policies affect your daily work?

5. Questions about the emotional responses and coping mechanisms to identity threats
→ Finding out about how this affects their identity/profession as a farmer and how they feel about this + cope
- What does this mean for you 'being a farmer'? Will these changes affect your profession?
- Does this change the meaning of being a farmer for you? (Refer back to previous question about the meaning) If yes, in what way?
- Which steps have you already taken to implement the necessary changes? / What are your concrete plans for how to deal with these changes?
- How do you feel about all this?
- What do you do to make yourself feel better? Examples: Do you talk to someone, or do you prefer not to talk? Do you actively seek for solutions? Do you engage with a community of farmers?

6. Ending the interview
- Given everything we have discussed, what would be the preferred outcome for you in this change? E.g., would you rather not have to do it?
- If you could make one wish regarding this change, what would it be? E.g., to the government.
- This is the end of the interview. Thank you for your time and insights.
- Is there anything I did not ask but that you do think is important to mention about this topic?
- Explain what I will do with the data: transcribing and coding anonymously.
- Would you like to receive the research report when I am finished?

Magical "questions" that could lead to a deeper understanding of the topic
- Tell me more about that.
- Tell me more about what's happening.
- Help me understand more about this/about what's going on.
- What else?
- What other factors could be contributing to the situation?
- What other ideas do you have?
- Use paraphrases to make sure you understood something, e.g., did I understand correctly that you were saying xxx?

This interview guide was translated to Dutch since the interviews were held in Dutch in order to accommodate the Dutch farmers

Appendix B: Exemplary quotations for all first-order concepts

Table 3 Identity threats experienced by farmers

Identity threats	Description	Exemplary quotations
1a. There is pressure from multiple parties to keep less livestock in the Netherlands	Quotes that illustrate that multiple parties are advocating for less livestock in the Netherlands	Certain political parties are very strong in their opinion that there should be fewer animals in the Netherlands and as a result, your sector is somewhat in a negative setting, actually. [R1] Um, how should I say it, but with some parties, they might actually prefer to get rid of all agriculture or something, you know? That feeling. [R5] We are running into limits in Europe where Europe is forcing us to not keep any more animals. [R6] When you look at the direction of the future, I think we should keep significantly fewer animals in the Netherlands. Yes, and where, and by whom? Well, of course, nobody dares to say. [R8]
1b. Some farmers feel as if livestock farming is no longer desirable in the Netherlands	Quotes that illustrate that farmers feel as if livestock farming is no longer desirable in the Netherlands	Agriculture is in transition. That's for sure. But how far it should go, I question. At some point, it cannot be that society thinks we can do without farmers. [R4] I have the feeling that livestock farming is no longer desirable. And that by having the derogation removed, you actually get a cold restructuring, causing farmers to see no future anymore and say if this is how it's going to be, then we'll stop. [R12]
1c. Some farmers fear that their will be no future for them when they see the news	Quote that illustrates the fear of the future of the profession being threatened	If you then follow the news, you think, 'Well, I have to be organic tomorrow, because otherwise there is no future for me.' Yeah, those are big changes and they do make people fearful. So, it's actually just really sad that it happens like that. [R3]
2a. Farmers are struggling to adhere to new requirements due to the prices and availability of land	Quotes that illustrate how farmers struggle to comply with all the new regulations due to prices and availability of land	You might want to have more land for your company, but it's so expensive and almost impossible to get here, so in that sense, becoming more sustainable is a bit disappointing. [R5] If I wanted to do it right, I would have to acquire more land in the sense of either buying or renting. Only that is not easy to

		achieve. In the sense of, in the current situation, I would have to have an additional 40 hectares of land. In order to no longer have to dispose of manure, I would also have sufficient feed. Yes, for example, one hectare of land costs €75,000. And look, I would have to invest 3 million to farm, as the government would like to see and you can see for yourself. I mean, that's not realistic. [R12]
2b. Farmers feel like it is impossible to comply with everything that is required of them	Quote that illustrates how overwhelming the changes are to farmers	And I do think it's somewhat justified that many farmers are resistant because the challenges are truly immense. It's almost overwhelming. The emotion, the anger, the fear, the powerlessness, yes, I understand all of that. [R8]
1a. Farmers increasingly feel restricted and controlled due to all the regulations	Quotes that illustrate how farmers feel restricted in their way of doing business	But developing your business, that's currently not possible because no permits are being granted in Overijssel. Everything is just completely locked down. [R1] The profession is changing. It's becoming much more capital-intensive, but also due to all these things that are essentially imposed on you and that you have to gradually adapt to. [R2]
1b. Farmers have to spend way more time on paperwork nowadays than they did in the past	Quotes that illustrate the increased amount of paperwork that farmers face	In the past, we were basically almost 24/7 busy with the animals. Now, you have, I would almost say, a day is exaggerated, but you have a lot of paperwork. Much more than before. The paperwork is getting out of hand. [R4] Previously, for example, you could do the accounting for the whole year in half a day. In the beginning. And now, it's about a day per week for paperwork and everything you have to keep track of. [R9]
1c. Farmers feel monitored and not free anymore	Quote that illustrates how farmers experience a lack of freedom	Yeah, almost everyone is watching. I sometimes say, if you let the cows out, it's not good. And if you keep those cows indoors, it's also not good. Everyone has something to say about it, and that's what they say. Well, if you're a farmer, you're free, but it's not anymore. [R9]
2a. Farmers increasingly have to act like entrepreneurs instead of only animal caretakers	Quotes that illustrate that entrepreneurship has become more	And what is a typical farmer? Well, I think it's shifting a bit. In the past, farmers weren't very business-oriented, mainly focused on the animals. Dairy farmers, yes, very emotionally attached to the business.

	important for farmers	You see that more, I think, with dairy farmers than with pig farmers. Pig farmers are often a bit more business-like and find it easier to make decisions. [R1] And, I think that we as farmers also need to consider more that it is a business, so to speak, and that you can also be valuable to society in other ways besides just producing food. [R8] "In the past, you had a typical farmer who was primarily an animal caretaker. They kept animals; most farmers love animals and enjoy working with them. And yes, entrepreneurship. That has become increasingly important over the years. You've become much more of an entrepreneur, and alongside that, you're still an animal caretaker, but you've also become an entrepreneur. And yes, that has to do with having to invest more and more, deal with more regulations, permits, and let's not forget insurance requirements. [R13]
2b. Farmers need to be higher educated nowadays to be able to take over the farm	Quotes that illustrate that nowadays farmers need to be higher educated than before	I think nowadays, as a young farmer, you really think 3, 4 times before you start with all the negativity surrounding it. So, I am of the opinion, and I think you can see it in the general trend, that farmers in general are also more highly educated to even be able to start. I sometimes say about farming, when you see what kind of work is involved with discussions with the bank and permits, and well, if you want to do something nowadays, perseverance is one thing, but if you want to expand or start something new, you really need to, nowadays, be quite capable to get that off the ground. [R3] More and more entrepreneurship is being demanded. And yes, you have to enjoy that. It also requires a certain level, I think. Many farmers have already stopped. In this day and age, yes, you need to have a decent education to be able to handle it all. [R13]
1a. Farmers feel unaccepted and like the black sheep of society	Quote that illustrates that farmers feel like the black sheep of society	And I feel a bit like the black sheep of society. During corona, nobody was allowed to fly, or at least it was very limited, and after corona, everyone started going on vacation again, by plane, and they

		found a scapegoat. That's the livestock farming industry in the Netherlands. It has to ensure that it is emission-friendly, and that's nicely arranged, and then everyone goes back to doing their own thing because we'd rather not give up prosperity. [R6]
1b. Farmers find it difficult to be considered polluters when farming used to be an appreciated profession	Quote that illustrates why it's difficult to now be considered as polluters when farming used to be an appreciated profession	You hear such a small group being very negative. And yes, they seem to have the upper hand, and that's very difficult because you come from a profession, especially you from earlier times, where we produce food, you're doing something good. To oh, you're a polluter, get out, very, very black and white, so to speak. [R5]
2a. Farmers feel as if the negative media portrays them as criminals/animal abusers	Quote that illustrates how farmers are sometimes portrayed as criminals	But it's just like that, it's the negative media portrayal; farmers are criminals, they spread too much manure on the ground. Well, that's so heavily regulated, that doesn't occur to you. [R4]
2b. Some organizations paint an image of farmers that farmers do not recognize at all	Quotes that illustrate how farmers disagree with the image that is being painted of them by some organizations	We are sometimes framed by Wakker Dier and also by the Party for the Animals [Partij voor de Dieren], who believe that the cows suffer because the dairy industry wants milk from them so badly. Well, those kinds of things, yes, we have to defend ourselves against to show that we're actually doing quite well, I mean, the level of animal welfare in the Netherlands is the highest in the world. [R6] We have been under fire for years, mainly by organizations like Wakker Dier. And well, they paint a certain image. Yes, they call it framing, I think, but they create an image that I don't recognize at all. And that's not how a farmer operates, not at all, so that's what I've experienced in this regard. [R7]
2c. Politicians say things that are untrue in the opinion of farmers	Quotes that illustrate how farmers disagree with some of the statements about farmers by politicians	Because I sometimes hear people in the Second Chamber say things that I think, well, that's just absolutely not how it goes. And not here, but also not in, well, 99.9% of the other agricultural companies. [R7] Well, I don't have a problem with changes per se. What bothers me is when politicians just say things about us that are completely untrue, that really aren't true, and then part of the public just blindly accepts that and

		starts saying it too, even on television. They start saying it, even though it's just not true. [R13]

Table 4 Emotions experienced by farmers because of identity threats

Emotions	Description	Exemplary quotations
1a. Farm is a life's work that would be very sad to give up	Quotes that illustrate how for farmers their farm is a life's work that they don't want to give up	The only difference is that with an employer, if I'm done with it, I can just walk away and say, I'll find something else. See, and here, you don't do that as quickly because it's a life's work. It's been in the family for a long time, you're dealing with family members you work with, and with that approach, you certainly don't build and expand a business. [R3]

If we had a son or a daughter who wanted to continue on the farm, then I would have a huge problem in the location where we are now, close to a Natura 2000 area. [R6]

But also for the environment where you live and work, it's a sort of stewardship, with your land that you have to take care of. And well, you want that too, and that's also part of it. This is an old estate, it goes back to around the year 1200 or so. And well, when you count that back and you count how many generations have been rooted here, but also born here, and have passed away here. Yeah, then my piece of land in that time is of course very small. And then I still have to make sure it's passed on well to the next generation, so in that sense, we're very careful with it. [R14]

And yeah, it would be very bitter if you have a business somewhere, generations old, and then due to government measures, essentially, due to nitrogen reduction, you would have to close down. Yeah, well, that hits very hard and then it's all emotions that you have. [R14] |
| 1b. Farming is a way of life that is becoming increasingly difficult due to the number of regulations | Quotes that illustrate how for farmers it is hard that they cannot execute their job the way they want anymore | But more and more is being asked of us. In addition to the work you are doing now, would you also like to look at the CO_2 footprint or what the government is asking for now, would you also like to take another look at the nitrogen emissions. All those things are added. And that sometimes makes |

		me feel gloomy about it, like, how will it all work out? [R6] It's just a way of life, how you do everything. And that's getting increasingly difficult because of all the rules. [R9] But sometimes it can be very difficult for farmers, because it is a true passion, coming from the heart, and there are many regulations imposed, making it very challenging to execute things the way they would like. [R15]
1c. Some farmers have never done anything else; farming is everything to them	Quotes that illustrate how some farmers have only known farming their whole lives	That partly comes, I think, from the negativity, but also partly from farmers who have only done one thing their whole life and have become a bit stuck in their ways. And if you suddenly have to make them change. Yeah, I don't know about your parents, but I see that with my parents too, that changes are difficult at a later age. Considering that the majority of farmers are actually over 55 or 57, I can really understand that. [R3] Yeah, I've never done anything else. It's my way of, well, working, and it always has been. [R9]
2a. It is difficult to go from an appreciated profession to being perceived negatively	Quotes that illustrate how farmers struggle with the external negativity towards farming	Two years ago, with all those demonstrations, emotions were running very high, I think, you know? And you're also very occupied with all those messages and all that negativity that comes your way. [R5] There are often negative reports in the news. Livestock farming and the agricultural sector receive quite negative press. I think that's a shame. Because yes, we all have to eat, right? [R11]
2b. Farmers want to feel accepted, but the feeling of acceptance is gone	Quote that illustrates how farmers want to feel accepted but don't	You want to be accepted in society, and that feeling was gone, so to speak. [R5]
1a. The uncertainty regarding future requirements makes farmers very nervous	Quotes that illustrate how farmers are experiencing a lot of uncertainty at the moment	So that's still a bit like the sword of Damocles hanging over us. And that's still an uncertainty; in my life, I've had many uncertainties, but this is still one of the biggest. [R2] That MB permit is legally solid, they can't do anything with it. If they want to throw it

		away or undermine it or whatever, they'll have to come up with something really substantial. That's a legal matter. It's very stable. A PAS notifier doesn't have that, and they're in just as much uncertainty as I am with that stream. Because I already have everything set up, and they also have everything set up. [R2] A very high degree of uncertainty. And you have that with a lot of rules nowadays, how does it turn out for your business? [R2] Well, I notice with myself, and I'm, yeah, I'm going deep into that. That strip still evokes a lot of emotion. I lost two nights of sleep over it in the beginning. [R2] The problem is that it's all still not really clear, you know? What exactly the requirements are going to be, and how long a process will take, and what is allowed and what is possible. And that has caused a lot of uncertainty for a long time. You know? And it's still a bit like that. [R5] Well, a bit uncertain, not knowing exactly what's coming. Now, that's true of all, or well, it's true of more times. But I do experience this now as one big change, especially that we have to become emission-friendly, and they also impose a lot of requirements on water quality. [R6]
1b. The uncertainty makes it hard for farmers to make adjustments	Quotes that illustrate how farmers are hesitant to make changes due to the amount of uncertainty	However, yes, if a PAS notifier wants something now and goes to the bank, and says I want to do something more, then they won't get any money. He can forget about that. You hear that everywhere now: Yes, because it's such a big question mark what's going to happen, we're not going to invest any more money into it. [R2] But they are smaller steps so far. Not one big change. Yeah, well, there's still too much uncertainty about which direction it's going for us, you know? [R5] The reason why farmers are cautious, stubborn, or reserved is because they are

		afraid of having to adapt once again and that it will not turn out well. [R12]
		I also notice that there is a lot of uncertainty and people are just waiting, farmers are waiting to see what others will decide for them and then what they will do about it. Yes, it's like what I said earlier, I see a lot of that dependency. [R15]
2a. Some farmers do not know what else they would do	Quote that illustrates how some farmers don't know what else they would do	I don't know how it would have turned out if I didn't come from the farm, you know? I think it's also a bit of who I am, I wouldn't know what else to do. [R5]
2b. The threat of having to quit their profession causes farmers fear	Quote that illustrates how the threat of having to quit the profession affects farmers	But the whole nitrogen issue can have a considerable effect on our business operations. So, various measures have been suggested where at one point we could basically shut down our business, and the last time, far from that, so that definitely has an impact on you as an entrepreneur. [R3]
1a. The mounting demands make it harder to keep the farm afloat	Quotes that illustrate how farmers feel overloaded with external demands	And if they suddenly say, 'Well, (respondent's name), it's all well and good what you've been doing in recent years, but you have to surrender 20% of the cows now, and that's it.' Yeah, that might not necessarily evoke sympathy, people will be a bit, well, I think they'll be quite disheartened. [R3]
		It's sometimes a stressful life. In one word. That's it. Yeah, just with all the regulations. You have to comply with everything. You have to apply for everything by certain dates, you have to do everything by certain dates, so. It's constantly looking at what do I need to do today, what do I need to do tomorrow. This and that must be done, so. That's agricultural life nowadays. [R4]
		You do want to continue and provide a future for the next generation, but then there must be a viable business model. And I do see that change is needed, so we're also trying various things ourselves, on how things can be different. But yeah, ultimately money has to be made, otherwise it quickly ends, and that's not sustainable either. [R5]
		But I also notice a kind of resignation among my colleagues, thinking like, what are we

		actually doing, wanting to work so many hours and working with narrow margins, because you simply have a family business that you want to keep afloat, and they keep asking for more." [R6]
1b. In reality, it is not always possible to comply with what the government wants	Quotes that illustrate how for farmers its' not always realistic to comply with every regulation	And you actually want to do things that the government would like, like transitioning to organic farming. But in fact, it's just not possible because my emissions would increase significantly. [R1] So, you might start sowing herbal mixtures, but you only get half the yield compared to conventional crops, and then you're back to square one. So, the intention is there, but the wallet also plays a role. And you have to find your way around that. [R2] It's like, you might think that the fastest way is to reduce the number of cows by half, but as I mentioned earlier, you've already built a barn and everything for them, so your loans, your repayments per month, that's still quite high. So if you have to do it with a hundred cows or with fifty, you better do it with a hundred cows. They produce more milk in a month than fifty cows, so you can't just completely overhaul the entire agriculture industry at once. It's just not possible. [R12]
1c. Changes happen so fast that farmers struggle to keep up	Quote that illustrates that the fast pace stresses farmers out	Sometimes it goes at such a fast pace that you can't keep up with it. And most farmers find that very difficult. Because you've focused on it a certain way, right? You've arranged it this way, and then suddenly the government says, bam, it has to be different again. [R2]
2a. Farmers feel as if nothing they do is ever good enough	Quotes that illustrate how farmers feel as if nothing they do is good enough	And so you're forced to; you want a lot, you also have the equipment, but you can't, it's a powerlessness. And that's not taken into account. And it's like that with many other things too. And in the agricultural calendar, there's no listening to each other. For one, it has to be done this way, for another, you get fined. That's the whole bitter part of it. You listen to it; you do what you have to do. [R4] What I just said, about if you let the cows out, it's not good, and if you keep the cows indoors, it's not good, so I... Yeah, I found it... Not that I've had trouble with it, but still,

		I just thought, when do you actually do it right? [R9]
2b. There is no consistency in government policy at all	Quotes that illustrate the lack of consistency in government policy	And that's the difficult part, there's not really any stability in it, and you do start preparing for it. Yeah, and all of a sudden, it's different. Yeah, then I wish I hadn't been involved in it. [R2] Since I left school, it has changed every time, and then you have to do this, and then you have to do that, and then you have to do it like this. Every four years it's different. There's never, there's absolutely no consistency, I think. [R10]
1a. Farmers are annoyed that their old way of practicing is becoming so restricted	Quotes that illustrate farmers' frustration with the regulations	So I disagree. I find it completely out of control. Especially the statements from judges in recent years about permits that are no longer valid, those kinds of things. [R1] And then, because the government didn't have its affairs in order, the sector itself is the victim. And yeah, I don't think that's fair, so I'm quite upset about it. [R1] You see that it's increasingly being restricted and there's much more control over it. And accounting, well, that's actually the annoying part. [R7] But I'm done with it. Age. And yes, and yes. What should I say? Those regulations, you're being monitored to the extreme. [R10]
1b. Farmers are frustrated with the number of changes that they constantly have to make	Quotes that illustrate farmers' frustration with the constant changes	Yeah, all those regulations, they exhaust me completely. And today it's like this, then you have to stay away from the ditches. Buffer zones again. And then they come up with this you have to do again and that again, and I refuse. No, I'm not up for that. [R10] They're constantly coming up with new things, and as a farmer, you sometimes get tired of it. You think, 'Well, is it good like this?' Yeah, that's how it is good, and then you're a year or two further. Yeah, but we also want you to do this. We also want you to do that. It's a never-ending cycle, and that's what makes some farmers very rebellious. [R13]
2a. Farmers are angry that they have	Quotes that illustrate how	I have a bit of a feeling like we're a bit the black sheep of society. If we can blame it on

to change whereas other groups do not	farmers are angry that only farmers have to make changes	that, then we'll keep flying. A typical example of this is Schiphol, which has bought up several livestock farming companies in the area, and apparently they managed to get a nature conservation permit all of a sudden. Yeah, I find it absurd, I, I can't, I get angry about that. [R6] I didn't think it was fair that they targeted only the farmers back then. That they had to reduce 50% of the livestock. I was also angry about that. Meanwhile, Schiphol, I mean, all those big companies... [R9]
2b. Farmers find it unfair that they are the only ones being targeted	Quotes that illustrate that farmers find the way they are being targeted unfair	At the moment, I really believe that this is not being looked at entirely fairly, because ultimately, well, if you look at the number of animals, it has decreased since 1980. Nitrogen from agriculture has also decreased by 60%. But the number of cars and airplanes has multiplied by I don't know how much. Yes, they also emit nitrogen, but that is not taken into account for such a large extent, so yeah, I find it difficult. [R3] We have to work together, and when you see the problem together and everyone tries to find a solution, then it feels very different, you know? But I did get the idea that agriculture was being looked at very one-sidedly at that moment. [R5] Yeah, and everything just keeps going. Look at agriculture, it's been almost 40 years since it's been restricted. Can't add more cows, chickens, or pigs. Because they decided back then, 'Guys, we have to stop this, otherwise it'll get out of hand.' That's when they introduced milk quotas and animal rights, so you can't keep more animals. Sure, you can keep more animals if you buy those rights from a company that stopped, but overall, it's only shrunk over the years. Well, it's been going relatively well, but the rest of our economy... Yeah, the economy has to grow, right? If there's no economic growth, then Holland's in trouble... [R13]
3a. Farmers are annoyed about the negative media	Quotes that illustrate that farmers are annoyed with the	I sometimes struggle with. Well, what you sometimes hear is 'It has gone too far, It has been going on for too long,' while in my

| exposure they receive | negative talk about them | perception, we have been working on sustainability for 30 years already. [R5]

I really get sick and tired of it, especially that 'Wakker Dier' when they come on the radio with news, with ads. That really wears me out. They keep taking action every time about animals with the calves by the cow or I don't know, cows in the pasture or in the barn, cows and... What are they talking about? [R10] |
|---|---|---|
| 3b. Farmers are angry that people spread false information about them | Quote that illustrates that misconceptions about farmers annoy the farmers | I think 70-80% of people have no idea how things work on a farm. They all have the idea that it's dirty and messy, it's not good, farmers mistreat the animals. [R4] |
| 1a. Some farmers see a lot of opportunities and possibilities for this transition | Quote that illustrates how some farmers see this transition as an opportunity | In all this chaos, I also see a lot of room to create a new system in which we produce food. I see a lot of opportunities and possibilities. [R8] |
| 1b. Some farmers believe that a different way of doing things is possible | Quotes that illustrate how some farmers believe in a different way of doing things | I do think there are a lot of projects and initiatives aimed at demonstrating that it can also be done in a different way. [R3]

Because I do this precisely to show that it is possible in this way and that you can also be an inspiration for others, and that others join in and that we in the Netherlands are simply going to take steps towards a different kind of agriculture. [R15] |
| 2a. Some farmers find the challenge exciting | Quotes that illustrate that some farmers like the challenge | I do enjoy challenges. Often, what feels like a threat to others, I try to turn it into an opportunity, let's put it that way. [R14]

It actually doesn't bother me that much. I have more of a mindset like, Oh well, bring it on. I'll just keep doing things my way, how I like it, and I actually find the challenge exciting, I need that. [R15] |
| 2b. Some farmers do feel like changing | Quotes that illustrate that some farmers do want to change | I don't think I'm a stereotypical farmer, and neither is my husband. So, one of the things I always say is that we accept the challenges that come our way. I also believe that with our farm, we should contribute to the improvement of nature. We should contribute to biodiversity, water quality improvement. I am genuinely convinced of this myself, and I feel responsible for it. [R8] |

		Yes, I do feel like changing. I'm from a relatively young generation, so bring it on. [R11]

Table 5 Coping mechanisms utilized by farmers to cope with the identity-threatening situation

Coping mechanisms	Description	Exemplary quotations
1a. Farmers are taking initiative to stay ahead of regulations	Quotes that illustrate how some farmers take initiative to stay ahead of the situation	But you think, well, we'll just keep going gradually. Sometimes I try things, for example, we have some fields with more herbs in them now, and we no longer use artificial fertilizers on them. And then you think, will this work? We're trying to investigate it ourselves in those steps. [R5] Well, we're very aware of what's going on in society, and yeah, you respond to that before the government sets boundaries or says this should be different or that should be different, we try to do that. [R14] But I notice that now it's actually only the frontrunners who are doing that, right? Who just say "I'm going to do it differently now" and "I don't want to be dependent anymore" because I think it's mainly that dependency that prevents you from taking the steps you need to take. [R15]
1b. Some farmers try to have a dialogue with the government or province	Quotes that illustrate that some farmers engage in dialogue in order to cope with the situation	But I have hope that both farmers and citizens remain open to dialogue and conversation. I think that helps a lot because I continuously notice that when you tell a story, you often get positive feedback on it, and people often think, 'Well, that seems like a reasonable story.' And as a farmer, I think you should have the same approach; you should also show understanding for the other side and ask yourself, 'Hey, what am I actually doing? Can't I do that better?' So, that's what I hope for. [R3] Otherwise, I'll just get in touch with one of the political parties if I disagree. But that doesn't happen very often. [R7] I'm not one for protesting either, and I haven't been on the tractors to The Hague or anything like that, but I do try to engage in some sort of dialogue, also with authorities or the province. [R14]

1c. Farmers need to be creative and look for their own solutions.	Quotes that illustrate how farmers try to be creative in order to cope with the situation	There will be a solution eventually. You have to follow the rules and be creative in terms of thinking of solutions. And yes, I think having an open mind, keeping your eyes open for opportunities, and staying positive is important. [R12] And in those kinds of situations, you also have to be creative yourself, I think. And you have to find a way or maybe have someone next to you who can critically look at it and see which steps you can take, right? [R15] I have rules that, yes, I find annoying, but I try to think around them and figure out how to deal with them and how to see the positive aspects and benefits of them, even if I may also find the rule ridiculous. [R15]
2a. Farmers focus on their own situation and what is in their control	Quotes that illustrate how some farmers choose to focus on what's in their control to cope with the situation	I deal with changes that fit within the company. I'm not going to take drastic measures to completely switch things around. Because that just costs way too much money. And I don't know how it will turn out. [R2] But just getting back to work, with my own farm, at least I can do something with that and with the tangle of politics that calls for one thing today and another tomorrow, well, I can't do much with that. [R11]
2b. Farmers focus on what is possible, not on what is not	Quote that illustrates how some farmers choose to focus on what is possible, not on what is not possible in order to cope	But we still have to look at what is achievable in our situation. We shouldn't focus too much on what is not possible, but rather on what is possible. [R1]
1a. Some farmers open their farm to show people what they are doing	Quote that illustrates how some farmers open up their farm to the public for transparency	I think you should be willing to occasionally open up your farm to the public so they can see what you're doing, being transparent about your activities. [R6]
1b. By visiting a farm, people can see what is really going on inside	Quotes that illustrate how visiting a farm helps citizens to	And also what I'm saying, about negative information, I always have this feeling like, come and look in the farm, we have nothing to hide. We have school classes here, everything comes here. Come and see.

	see what really goes on inside	Because you can shout that certain things are not right, but if you want to see it, come. [R4] That's also the reason why you started with the dairy. Because you think you still need to show people more and you need to tell more and provide more transparency. That it's very important, you know? [R5]
2a. Some farmers sell their own products to connect with citizens	Quotes that illustrate how some farmers connect to citizens by selling products directly to the customer	We also have a small dairy processing facility. So, we have a lot of customers who come here to the farm, who buy yogurt and all sorts of things, which shows that people are not nearly as negative about farmers as the media sometimes makes it seem, you know? [R5] I also sometimes sell some of my own meat, directly to consumers in the region and they are always very positive, so that is a completely different picture than what is presented in the media. [R11]
2b. The milk tap is actually a stage via which this farmer participates in the social debate about agriculture	Quote that illustrates how this farmer uses a milk tap to act as a platform for social debate about agriculture	And that's something I really started in 2017 with the opening of the milk vending machine. It's a physical milk tap on our farm. But actually, it's more the platform through which I want to actively participate in the societal debate about agriculture, about all the transitions that are coming our way. [R8]
1a. Talking to the people around them helps farmers deal with the situation	Quotes that illustrate how farmers find support in talking to others	And then I let it go. Talked about it with many people, and yeah, kind of so and so. And now I'm letting it slide off me. [R2] Yes, indeed, you often discuss it with a spokesperson or, within the family, with your wife or partner, or with your parents, or with the feed advisor. Or within the existing relationships that are there. [R7] And also, when you're struggling, to share, because farmers are all isolated islands, right? So, they're not used to admitting when things are tough. You definitely shouldn't tell your neighbor about it because we're all each other's biggest competitors. But we've found that when you share your struggles, you sometimes get help from unexpected places, precisely because you're sharing your struggle. [R8]

		Yeah, well, like I said, as long as it's fair. Yeah, if it's not fair. Well, then, yeah, I talk about it with my sons during dinner, you know? And if I meet another farmer, we catch up, or maybe at a meeting with other farmers. Yeah, then it comes up in conversation. [R13]
1b. Farmers discuss the situation within study clubs of fellow farmers	Quotes that illustrate how farmers like to discuss the situation with fellow farmers	I go to parties. I attend study clubs. Just yesterday afternoon, I went to a study club for cattle farming, a very old study club, we've been together for 30, 40 years. You compare yourself to others there. How is it going for someone else? How are you doing yourself? And the concerns I have or the things I've done, they're not much different for someone else. But then you're reaffirmed for a moment: 'Oh, they have that too, well then it's not going so bad for me.' And they have that, 'Oh, I've had that too,' so it's not so bad after all. [R2] A sounding board group, a study club with poultry farmers, so plenty of opportunities to express dissatisfaction. [R7]
2a. Seeing people outside of the farm helps with putting things into perspective	Quotes that illustrate that meeting people with a different perspective can be helpful	You should make sure that you continue to speak to people outside of your business, and occasionally, just take a moment to reassess and ask, 'What do you think about this?' And often you'll find that many people are quite realistic, but they also realize that certain things need to change. Well, and that's not so bad at all. So, I think the biggest thing is also to keep speaking to people outside of the sector and not just confine yourself to your own bubble. [R3] You also have to eventually move forward together and see opportunities. And yes, then it's useful if you become more broadly informed and can see other perspectives, you know. Otherwise, you'll have a difficult time, you know. [R5]
2b. Having activities, such as sports, outside of the farm helps with coping	Quotes that illustrate that leaving the farm at times can be helpful to put the situation in perspective	It is, of course, an advantage for me that I am also active outside of farming and don't have blinders on. And that doesn't mean that I agree with everything that's happening now, but I can sometimes better put things into perspective, and I think that's seriously the biggest thing that people never leave

| | | their farms and all sorts of negative things are being written. And then that's all they see. [R3]

Sometimes going for a bike ride and I love ice-skating. I do it every week, and then it's just nice to get off your farm for a while. I think that's also a very important thing, right? At least, it helps me a lot. [R5] |
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| 1a. Some farmers are leaving the sector due to the current situation/changes | Quotes that illustrate that some farmers decide to quit as a result of the situation | Yeah, to be honest, if you follow the news and you're 19 now, you also think, 'Well, I'll just find another job, because there are plenty of them.' Yeah, I think so. [R3]

Well, I'm saying goodbye to the sector, so I'm focusing on other things. I will be partly involved in innovation through an innovation platform to help dairy farmers further. [R6]

Well, that's the reason we're also going to stop. Yeah, I think we'll stop earlier than we actually wanted to. [R9]

I have the feeling that what I see a bit here and in the surrounding region, because there are a lot of dairy farmers here. I have the feeling that many farmers are thinking about quitting, but they find it very difficult and struggle with it a lot. [R15] |
| 1b. Some farmers sign up for the government's purchase scheme | Quote that illustrates that some farmers decide to join the government's purchase scheme | I have signed up for the purchase scheme. Look, I mean, that's not yet, but that's not certain yet, that I can participate. Because I'm done with it. [R10] |