Dutch dairy farmers' experiences of the nitrogen crisis

Emotion and affect in the politics of sustainability transitions in the agri-food system

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Abstract

Dutch agriculture faces socio-economic and environmental challenges, which pressures the sector to transition towards sustainability. Since 2019, the Dutch nitrogen crisis event marks a peak in pressure on the Dutch livestock sector to become more sustainable by reducing nitrogen emissions to the environment. The government's efforts to address nitrogen emissions were answered by mass protests by farmers in 2019 and 2022. Sustainability transitions are considered to be political processes. However, despite the well-known role of emotion and affect in political processes, scholarship on sustainability transitions has paid little attention to this dimension of politics. This thesis aims to answer the question how Dutch dairy farmers experience the nitrogen crisis in terms of emotion and affect. In this way it contributes to a broader understanding of the role of emotion in transition processes. The researcher took an ethnographic approach to answering the question, using participant observation, semi-structured interviews, organizational and body mapping as methods. The nature of ethnographic research is that it is context-specific, and findings cannot be extrapolated to a large population. This approach revealed how dairy farming is associated with a variety of meanings, including joyful experience of various tasks involved in caring for cows, autonomy, community life, food production for others, and creating place and heritage. Dairy farming in its various meaning is what is at stake in the nitrogen crisis. With the potential of farm termination looming in the future, the dairy farmers experience anticipated loss of dairy farming in its wide meaning. Additionally, affective relations shape the dairy farm system and affect the farmer's capacity to act. The community, collegial and professional relations in the dairy farm facilitate the dairy farmer in his every-day work, and work to enable the farmer's capacity to act, as well as the continuation of the farm. In contrast, Dutch dairy farmers experience frustration in the affective relation to government, citizens and nature organization. Through unreliability, generic knowledge and undervaluation, the farmer's feel hindered in their ability to take action (for sustainability). The perspective of emotion and affect reveals how sustainability transitions are felt in the body in two ways. First, the politics to address the nitrogen crisis do not include what is really at stake, and the technical approach excludes the politics of affective relations that shape the dairy farm. Second, the perspective reveals how affective relations influence farm-level action for sustainability, and points to the importance of creating enabling affective relations in favor of sustainability action by the farmers at farm or inter-farm level.

Contents

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Chapter 1

Introduction

The sun is beating down on us. I am walking with my friend in a long parade of people towards the field. It feels as if we are heading for a festival, if it weren't for the protest signs that surround us. The way to Stroe had been an adventure in itself. I was passenger in the van of my friend. We left early so as to be in time. Our small vehicle got stuck in a traffic of tractors twice. I felt like David among Goliaths as the tractors towered over us. Being stuck in the parade, the drivers of the tractors got out of their cockpits and started to socialize on the road. As an outsider to the agrarian community, I did not feel courageous enough to join. We noticed a small exit splitting of the road just ahead and made our way towards it passing the spontaneous hangout. Over the country roads, we turned our way through the landscape. After two hours of driving, we step out of the van. We are parked next to a black Nissan with a red handkerchief tied to the wiper at the back. We join into the line. The people before me have a large flag stuck begin their backpack, the national flag upside-down. I feel tension through my whole body. I am nervous that I might be caught as a stray green, lefty. What would happen if they found out I voted for Groenlinks? Some protestors had made a coffin for the party leader. The agricultural representative of the D66 party had been advised to stay away from Stroe, for his own safety. After about one kilometer of walking - passing an accident between a car and tractor - the field comes into view. It's the pasture of a farmer who facilitated the demonstration. We meet another friend who biked here. The three of us step through the trees onto the terrain. I am amazed. It actually seems like a festival. Feels like one too. A mass of people has gathered. Only difference is the rows and rows of tractors stretching out left and right as far as the eye can see. They hoist signs, and more upside-down flags. Blue, white, red. In my mind, the flags signal of antigovernment sentiment. Is this a violent group? I wonder. So far it's just people milling around. We pass a line of market stands, and a giant air-filled pig. We walk into a large crowd; lots of young adults, predominantly men, many dressed in work or company clothes, wearing similar boots. Across the field I see a truck of Agrifirm. On another side a truck of ForFarmers. The field is lined with food trucks, and spreads a smell of barbecue. It's not what I had expected. The atmosphere seems convivial, 'gezellig' – though also a bit tense. After waiting an hour, a man steps onto the stage and riles the audience. Online, my friend and I find the line-up, which lists no less than 16 speeches from representatives of farmer's organizations. The program title: 'we turn our backs to The Hague!'[1] *Bart Kemp, frontman of action group Agractie, opens the day. He speaks with anger and resentment, calling out a war between farmers and government. But the crowd does not seem to get so riled up in the anger. My friend and I walk around the terrain to scope the crowd. Here and there is raised a sign of anti-covid activists. One man brought a cart displaying the true facts about nitrogen. He is not a farmer himself he tells us. We continue and end up at the hamburger truck where it's busy. At some point, a song is sung about cows to*

[1] See https://www.vee-en-gewas.nl/artikel/483610-organisatie-protest-stroe-maakt-programma-bekend/

the tune of hallelujah creating an atmosphere of melancholy. In the front, some voices singing along arise above the crowd, but the people next to us are in conversation. The program is set to end with a performance of a famous rural rock band. But we do not make it that long, just like with many others. The heat got the best of us. It requires us to go home earlier.

The story above describes my experience of the farmer's demonstration in Stroe. Together with some friends, we attended the protest out of curiosity, intrigued by the event of the nitrogen crisis and previous mass-mobilization of farmers in 2019. I personally wanted to see and experience the atmosphere at such a gathering, to gain a better understanding than just reading the news. My interest concerned how this particular mobilization manifested as a resistance against government policy to address nitrogen pollution from agriculture. I deliberately wrote emotion to feature in the story, found in the angry and passionate speeches of the speakers on the stage, in the melancholy of the cow's song, in the convivial atmosphere on the terrain. Emotion plays a significant role in political processes and social mobilization (Goodwin et al., 2001). The goal of my research is to better understand this political movement, based on farmer's experiences of the nitrogen crisis.

While the agri-food sector in The Netherlands achieves high production levels, food quality and trade balance, it simultaneously faces socio-economic and environmental issues (Frison, 2016; Marsden et al., 2019). One of these issues is pollution of the environment with excess nitrogen caused by the high density of livestock and levels of application of manure to Dutch soils (J. W. Remkes et al., 2020). To address the manifold of negative effects of the agri-food system, calls are made for a sustainability transition in agriculture. Sustainabilitiy transitions are understood as long-term multi-actor processes in which an unsustainable socio-technical regime system, made up of interlocking elements that stabilize the system, becomes destabilized and moves towards a more sustainable state (Köhler et al., 2019; Melchior & Newig, 2021). The research on sustainability transitions is in turn concerned with the dynamics between a large variety of actors, over an extended period of time, and the processes of change within regime systems, as well as interactions with innovations and the systems they are embedded in (Köhler et al., 2019).

Sustainability transitions are also considered to be contested, open-ended and co-evolutionary processes, making them inherently uncertain and political (Köhler et al., 2019). Sustainability transitions are political processes in several ways. For example, the definition of sustainability is an outcome of negotiation between different actors (Bengtsson Sonesson, 2017; Meek, 2016; Wigboldus et al., 2021). Furthermore, the direction and process of the transition is influenced by various actors and their interests (Avelino et al., 2016; Dutt, 2022; Hielscher et al., 2022; Köhler et al., 2019). Avelino et al. (2016) understand a regime as a socio-political constellation that influences what socio-technical system is dominant. The power of the socio-political regime needs to be addressed in transition processes, as well as in research to understand the dynamics of change (de Boon et al., 2022; Dutt, 2022; Raj et al., 2022). Emotion and affect are important in politics. Emotions play a role in shaping motivations to take action, and in shaping and reproducing social movements, as part of group dynamics (Goodwin et al., 2001). The outcomes of political processes are felt emotionally, such as (in)justices (Hegtvedt & Parris, 2014).

Politics in agri-food sustainability transitions are mainly approached from a political-economic or discursive perspective (Meek, 2016; van der Ploeg, 2021; Wojtynia et al., 2021). Frankowski et al. (2021) point out that the transition process (decline) evokes (negative) emotional responses in incumbent actors as they face uncertainty and loss – which, if not dealt with, can lead to resistance. Thus, the role of emotion and affect in political processes also suggest the need for attention to these and for an approach that considers the body and people's experiences of transitions. However, attention to emotion and affect in transition contexts specifically is thus far limited (Martiskainen &

Sovacool, 2021; Rohse et al., 2020), more so in the agri-food system transition. One example of a perspective on the personal-political is the work of Janssen et al. (2022) who point to the role of identity and attachments to landscape in hindering change in the Green Heart region in the Netherlands (Janssen et al., 2022). Another example is from Puupponen et al. (2022), who explore the experiences of Finnish dairy farmers from a justice perspective and reveal what themes are important for farmers, being farm profitability, blaming farmers and use of peatlands. Yet, no research exists with a personal-political approach with specific attention to emotion and affect in the agri-food transition.

The Dutch government aims to address the nitrogen crisis by reducing nitrogen pollution from agriculture. In 2019 and 2022, farmers mass-mobilized to protest against the proposals for nitrogen regulation in agriculture, which included calls to half the number of livestock in The Netherlands (Nieuwsuur, 2019; Winterman, 2019). In this way, the sustainability transition in The Netherlands is politically contested. I aim to contribute to the understanding of emotions and affect in the context of the sustainability transition in the agri-food system. To do so, I explore Dutch dairy farmer's experiences of the nitrogen crisis. I draw on the concepts of emotion and affect to study Dutch dairy farmer's experiences of the nitrogen crisis. Thus, the central research question this thesis aims to answer is:

> *"How do dairy farmers in The Netherlands experience the nitrogen crisis in terms of emotions and affect in the context of the agri-food sustainability transition?"*

Emotions are relational, embodied phenomena in that they are located in the person's body and evoked in relation to an object which is perceived and evaluated by the respective individual (Barrett, 2017; Bericat, 2015; Nussbaum, 2003; Slaby & von Scheve, 2019b). In literature, the words of emotion and affect are often used interchangeably (Robinson & Kutner, 2019; Rohse et al., 2020), this thesis understands affect as distinct from emotion, specifically referring to the emotional experience of power, as the changes of a body's capacity to act. This understanding of affect finds its source in the works of Baruch Spinoza and subsequent Deleuzian readings of Spinoza (Deleuze, 1988; Robinson & Kutner, 2019; Ruddick, 2010; Slaby & von Scheve, 2019a). These readings locate affect in the immanent power in relations among people, objects and more-than-human. The concept affective relations, affective subjectivity, or affective arrangements are derivatives of the theory of affect, and aim to understand how relational entities are colored with emotions and produce arrangements and behavior of subjects.

To answer the main research question, the following sub-questions are formulated, informed by the theoretical perspective of emotions and affect:

1. What emotions do the farmers experience?
2. Wat are the objects they are related to?
3. What affective relations is the dairy farmer embedded in?
4. How are these affective relationships experienced emotionally?

The answers to the first two questions bring an understanding of the type of emotions experienced, and of the reason why they are evoked (Nussbaum, 2003), describing the objects of value in relation to which farmer's emotions are evoked. The answers to the latter two questions bring attention to another form of embodied experience: the experience of being in relation to other actors. Dairy farming is a relational practice, and being in relation entails the operation affect between the relating bodies. The answer to this question helps understand how farmers experience the nitrogen crisis as a result of the type of relationships that they are embedded in, as part of a dairy farming system. In order to answer these questions, I adopt an ethnographic research design. I incorporate research methodologies that collect qualitative information, and which are committed to deep engagement, trust relations, storytelling and listening. Fieldwork was conducted between October 2022 until January 2023.

The thesis is structured as follows: I begin with the discussion of theory on emotion and affect, and describe the conceptual framework the underpins the study (chapter 2). Next, I elaborate on the research process, describing the participants and methodologies, as well as a reflection on positionality and other shortcomings in the process that impact the study. In chapter, 5, 6 and 7, I describe the findings of the research. In chapter 5, I show how dairy farming, and the dairy farm are objects of value through a variety of meanings attached by the farmers to the work and place. In chapter 6, I show how the relationships between the dairy farm and others (community, professional and societal) affect the capacity to act of the dairy farmers. Finally, in chapter 7, I describe experiences of dairy farmers specifically in relation to the nitrogen crisis. I end the thesis with a summary of the main findings, a discussion of the findings and what these mean for the politics of sustainability transition, and make recommendations for practitioners and future research on sustainability transitions in agriculture.

Chapter 2

Conceptualizing Emotion and Affect

In this chapter, I elaborate on the conceptual framework that shapes the perspective taken to understand farmer's experiences of the nitrogen crisis. I draw on the conceptualizations of emotion and affect in the fields of sociology and philosophy. My conceptualization of affect is drawn from a Deleuzian reading of the philosophy of Baruch Spinoza's philosophy, and subsequent applications in a variety of the fields: feminist political ecology, geography, organizational studies, and the sociology of emotions. These fields have incorporated emotions and affect to develop theories of labour, subjectivity and assemblage. In what follows, emotions and affect as concepts are elaborated as distinct analytical tools, and discussed in relation to each other. In this thesis, I make an analytical distinction between emotion and affect (cf. Clough, 2008; Rohse et al., 2020), in that emotion occurs in the individual body and is evoked by the individual's perception and evaluation of objects, while affect is operates virtually in the relation between bodies, and subsequent dynamics of power and the emotional experiences of this power.

2.1 The 'affective turn' and agri-food studies

Scholars on emotion and affect speak of an 'emotional turn' or an 'effective turn' that occurred in the social sciences in recent decades (Clough & Halley, 2007; Greco & Stenner, 2013; Lemmings & Brooks, 2014b). While emotions and affect have been subject to academic scrutiny throughout history (Dixon, 2003; Van Krieken, 2014), the social sciences and humanities are characterized by a recent trend of increased interest in and consideration of what emotions are, what they do to people and how they influence behaviour and social organization (Greco & Stenner, 2013; Lemmings & Brooks, 2014a). The emotional or affective 'turn' in social sciences signifies an effort to reclaim emotion and affect and break the dominant claim of psychology on the study of emotions. With the 'reclamation' of the study of emotion and affect in the social sciences beyond psychology, one focus of scholar was not so much on "what emotions are" but instead more on "what they do" (González-Hidalgo & Zografos, 2020). In this way, the study of emotion and affect expanded into various fields, including sociology (Bericat, 2015; Collins, 2001), geography (*Embodying Emotion Sensing Space: Introducing Emotional Geographies*, 2004; Kearney, 2009; Matthee, 2004; Pile, 2010; Rohse et al., 2020; Sultana, 2011), political theory (González-Hidalgo & Zografos, 2020; Laszczkowski, 2019). In these fields, emotion and affect are approached in their productive or performative dimension, shaping social experiences, interactions and processes. The 'affective turn' has also influenced agri-food studies. For example, in the field of emotional geography, Matthee(2004) researched the embodied dimension of food-making among female farm workers of colour in South Africa. [add more?] More recently, Carolan (2023) examines affective dynamics in the narratives of agribusiness promotional media, which play into desires of farm continuation and future aspirations, influencing the views of current and future farmers on new technologies.

Making a distinction between emotion and affect

The concepts of affect and emotion have been applied in a various ways in the social sciences. This has contributed to the development and re-examinations of existing concepts, for example, subjectivity (Nightingale, 2011; Singh, 2017), labour (Foster, 2018; Singh, 2013; Sony & Krishnan, 2023), arrangements(Slaby et al., 2017), resistance (Hynes, 2013; Laszczkowski, 2019) and politics (Ahmed, 2013; Slaby & Bens, 2019). Among these developments, the lines between the meaning of emotion and affect are blurred, with the term emotion and affect(s) being used interchangeably at times (Greco & Stenner, 2013). For example, Ahmed (Ahmed, 2004, 2013) refers to specific emotional states (e.g., hate, fear) in her work, but uses the term affective economies to characterize how emotions emerge and spread through circulation of meanings among people. Another example is Wetherell (2015), who

puts forward the concept affective practices to understand how emotional expressions and experiences are considered culturally and socially mediated processes. In these works, the term 'affective' becomes an umbrella term which refers to the embodied, feeling dimension of human life and sociality. Specifically, 'the affective' refers to a broad range of feelings in social processes, and aims to recast the human being and collective as feeling *and* thinking, in contrast to the understanding of the human being as purely reasoning (thinking), as such prioritizing the mind over the body. The dichotomized view of mind and body as separate parts of the human has dominated the social sciences for a significant time, based on Descartes' dichotomy between mind and body (Clough & Halley, 2007; Damasio, 1994; Greco & Stenner, 2013).

In this work, the use affect in the above works or in 'the affective', does not by default refer to the felt experience of changes in the body's power to act. A different strand of literature, which is relevant for this thesis, views affect as the changes in a body's capacity to act (Pile, 2010; Rohse et al., 2020; Slaby & von Scheve, 2019a). This strand of scholarship is grounded in the Spinozist-Deleuzian lineage of philosophical thought on affect and politics (Robinson & Kutner, 2019; Ruddick, 2010). Here, the concept of affect is understood differently than affect as emotion, as it relates to power and the body in dynamics of relationships (Rohse et al., 2020). The Spinozist/Deleuzian understanding of affect is also taken up in some field of social science, particularly feminist political ecology (Singh, 2013).

Finally, before moving to the operationalization of emotion and affect used in this thesis, it's necessary to note that there is a wide variety of theories on emotions in the field of psychology and neurosciences, and debates between different perspectives on what emotion is, how they are constituted, and why people experience emotion (Scarantino, 2016). With the 'reclamation' of emotion by the social sciences from these domains, the question no longer pertains just to the nature of emotion, but also "what emotions do", specifically in social contexts (Ahmed, 2013). It is beyond the scope of this thesis to elaborate on the details of the variety of emotion theories. In general, I position the approach in this thesis as more concerned with the latter question. In the following, I discuss emotion in terms of those elements where consensus has formed: namely that emotions are co-constituted in the body and mind, that they relate to evaluations of the body and environment, and have function in social processes, particularly in politics.

2.2 Emotions

In this section, I elaborate on my conceptualization of emotion. Drawing from the fields of emotional geography and sociology, "emotion" is characterized as embodied, relational, and social.

Emotion is an embodied phenomenon in that emotions occur in the individual body in the form of physiological changes and processes. For example, emotions come with bodily processes such as the production of tears or laughter, increase of heartrate or in the tensing or relaxing muscles. Emotions are distinguished conceptually from feelings or sentiments based on the duration of the experience. Emotions are understood as momentary bodily experiences, which constitute an emotional event. Consequently, an individual is able to experience many different emotional states throughout a day. In turn, feelings are considered to be the interpretation of the emotional states. Lastly, sentiments or moods are considered to be more enduring emotional states, that last longer periods of time (Slaby & von Scheve, 2019b). Furthermore, the experience of an emotion is transformational for the body and the subject, as the experience is carried into the future; historical emotional experiences inform future decisions and experiences (Lerner et al., 2015). Due to the cognitive process of appraisal, and the shaping of life experience, emotional experiences should not be considered irrational, since they play a key role in decision-making processes ((Clough & Halley, 2007; Lerner et al., 2015; Nussbaum, 2003)).

Next, emotion is a relational phenomenon in nature because they are constructed based on the relation of an individual to their environment. The individual continuously perceives their body and their environment and evaluates their respective states, referred to as appraisal (Ellsworth & Scherer, 2003;

Slaby & von Scheve, 2019b). Emotional experience occurs based on the appraisal of these states because the brain constructs a meaning in this appraisal process, and subsequently associates an emotional experience with this meaning. In this way, it is important to note that emotions are not passive reactions to the states of the environment and the body, but active constructions of the individual's world (Barrett, 2017; Damasio, 1994, 1999). This construction of emotions also involves a normative dimension. For Bericat (2015), emotions "constitute the bodily manifestation of the importance that an event in the natural or social world has for a subject. Emotion is a bodily consciousness that signals and indicates this importance" (Bericat, 2015, p. 493). Balderson (2022) likewise understands emotion as "moral reasoning" (Balderson, 2022, p. 3, following Sayer, 2011). Similarly, Nussbaum (2003) posits that the object has a particular kind of value: "the object of the emotion is seen as *important for* the role it plays in the person's own life" (Nussbaum, 2003, p. 13, emphasis in original). In this way, emotions are 'eudaimonistic', they are "concerned with the person's flourishing" (Nussbaum, 2003, p.13). According to Nussbaum, another characteristic of appraisal and eudaimonistic emotion is the process of identifying a responsible cause for the affect. In this way, a triangular relationality emerges: the valued object and the appraising person, as well as a possible third party in an affective relationship with the valued object. As such, emotional experiences indicate and give meaning to how a person relates and is embedded in their world. Persons perceive the environment, value certain aspects of it, appraise these aspects and consequently experience emotions based on these appraisals.

The objects that an individual relates to, values and assesses can take many forms, material or immaterial. Robinson (2008) offers a typology of different objects of emotion, which Martiskainen & Sovacool (2021) bring into the context of the energy transition. The framework distinguishes 6 types of emotions based on their objects: 1) emotions related to object properties, 2) future appraisal emotions, 3) event related emotions, 4) self-appraisal emotions, 5) social emotions, 6) catheted emotions. This categorization is used in this research to understand the objects in relation to which farmer's emotions emerge in the context of the nitrogen crisis. Thus, emotions are relational by being evoked in an appraisal of a material or immaterial valued object in the environment by an individual. The relationality of emotion signifies that emotional experiences do not emerge 'out of nowhere,' nor are they innate to the feminine, a perspective on emotion that contradicts with the way emotions were historically commonly understood (Lemmings & Brooks, 2014a).

Next to being relational, embodied phenomena, emotional experiences are social phenomena. The social dimension of emotions is twofold: emotional experience is socially mediated, and emotions shape social structure and interactions. Regarding the former, the cognitive process of appraisal and valuation of things is socially mediated processes through cultural socialization and communication (Bericat, 2015). Additionally, the expression of emotions is understood functionally, as a means for communication (Wetherell, 2012). Regarding the latter, the expression of emotions is subject to social norms about emotional regulation. Norbert Elias was one of the founders of the study into emotional regimes (Van Krieken, 2014). Similarly, Hochschild (1979b) identifies feeling rules as governing appropriate emotional expression and creating distinction between social classes. Thus, there are social rules regarding the appropriate expressions of emotions, which are gendered and associated with social class and status (Hochschild, 1979a; Nicol, 2011; Tonkens, 2012; Van Krieken, 2014). Furthermore, emotions are shared among people in groups (Balderson, 2022; Goodwin et al., 2001), or circulate among a population through attachment to signs such as images and speech (Ahmed, 2013) Both shared emotions and circulation of emotions play a key role in social movements and political mobilization (Goodwin et al., 2001). In the first instance, emotions are considered intertwined with motivation for action (Goodwin et al., 2001). Furthermore, emotions play a role in politics in that politics conflict revolves around objects of value (Janssen et al., 2022; Meek, 2016; Nussbaum, 2003). In turn political processes, such as procedures and distribution are emotionally experienced (Hegtvedt & Parris, 2014; Puupponen et al., 2022). Furthermore, emotion influences group dynamics, creating cohesion or conflict, and shaping movements (Ahmed, 2013; van den Berg et al., 2022; Wetherell,

2015). To conclude, while emotional experience is subjective to individual bodies, and pertains to individual cognitive and physiological processes and particular relations to the environment, they are social phenomena. Emotion is social because emotional experiences and expressions are subject to socialization, function as communication and can be shared among individuals (Bericat, 2015; Nussbaum, 2003; Rohse et al., 2020; Slaby & von Scheve, 2019a).

2.3 Affect

In this section, I describe the theory of affect based on a Deleuzian reading of the philosophy of Baruch Spinoza. Affect as a concept that makes a connection between power and emotion. I begin by elaborating on the theory of affect and how this concept is understood to present a theory of power. This is followed by a discussion of how this concept was developed further in other fields such as political philosophy, feminist political ecology and geography. Some of these concepts are applied in the research to understand and describe the affective relations that make up the farm assemblage in conventional dairy farming. The concept of affect is used in this research to analyse the dairy farm system as a system of affective relations, through which participating bodies are mutually affected in their power to act.

2.3.1 Spinoza's theory of affect

The theoretical framework of this thesis draws upon the philosophy of Baruch Spinoza, particularly his work in "Ethics," which presents a profound challenge to the Cartesian dualism between mind and body. Spinoza's philosophy posits that mind and body are not distinct entities but rather attributes of the same substance, fundamentally intertwined in the composite individual (Brown & Stenner, 2001; Greco & Stenner, 2013; Robinson & Kutner, 2019). Baruch Spinoza developed this philosophy in the 17th century. His major work, the *Ethics* and the *Political Treatise* presents a particular thesis on how humans can ethically relate to each other, as an individual or as a collective (Deleuze, 1988; Ruddick, 2010). While his ideas were disapproved at the time, they are respected today. In the late 20th century, Spinoza's philosophy was 're-examined' by present-day philosophers, among whom Gilles Deleuze (Casarino & Negri, 2004; Deleuze, 1988; Ruddick, 2010). Since this re-examination, the ideas on affect were further developed in a wide range of scholarships. Gilles Deleuze's particular reading of Spinoza, and subsequent developments, form the basis of the conceptualization of affect used in this thesis (Rohse et al., 2020; Singh, 2013; Slaby et al., 2017).

The theory of affect within Spinoza's framework makes a connection between emotion and power, located in the power dynamics within relationships. Affect, in this context, refers to an awareness of changes in one's 'power to act' while in relation to others (Deleuze, 1988; Robinson & Kutner, 2019; Ruddick, 2010, 2017). Sad passions (i.e., negative emotion) arise when the body's power to act is diminished, which happens in instances of dominating power, referred to as 'potesta.' Conversely, joyful passions (i.e., positive emotions) emerge when the body's power to act is augmented, referred to as 'potentia'. This correlation between affect and power underscores the interplay between emotional experiences and the dynamics of empowerment and disempowerment within relational social contexts.

Central concepts to Spinoza's philosophy are the notion of the conatus and the composite individual. The *conatus* refers to a body's striving to persevere and increase its power to act (Deleuze, 1988; Robinson & Kutner, 2019; Ruddick, 2017). In the words of Ruddick (2017), conatus entails an "innate tendency of all things to 'persist in' in their own being, and to enhance their capacity to act" (Ruddick, 2017, p.122). The conatus represents a mode of power which is immanent, generative and creative, contained within each body. The conatus works to maintain and enhance the body's capacity to act in its relations, particularly in collaborations with other bodies (Deleuze, 1988; Ruddick, 2010, 2017). Second, Ruddick's (2017) conceptualization of the body as a *composite individual* postulates that all bodies are constituted in relationships. In principle, human body is composed of relations between molecules, cells, organs, etc. and not isolated from its environment, which means that the maintenance of constitutive relations entails relating to others, that is, to be affected by other bodies. For example,

at a basic level, a human body requires consumption of water and food from its environment. And as a social being, humans are also constituted in relations to other humans and other beings, and requires these relationships to keep existing, and to increase their power of acting (Ruddick, 2010). The conatus is a striving to maintain these constitutive relationships.

The understanding of the body as a composite individual is foundational to the premise that each body has the capacity to affect and be affected (Deleuze, 1988; Ruddick, 2017; Singh, 2013). The capacity to affect and be affected refers to the way that a body's 'power to act' is shaped in its relations (Deleuze, 1988). The body's power to act can be enhanced or diminished, respectively characterized as positive or negative affect. In the case of positive affect, the two or more bodies affect each other in a composing, synergetic manner, and increase the bodies' power to act. In the case of negative affect, the bodies affect each other in a decomposing, discording manner, and diminishes (one of) the bodies' power to act (Deleuze, 1988). In the words of Slaby and Mühlhoff (2019), affect is to be understood "as *relational dynamics* between evolving bodies in a setting, […] designat[ing] specifically those encounters between bodies that involve a change – either enhancement or diminishment – in their respective bodily *capacities* or micro-powers" (Slaby & Mühlhoff, 2019, p. 27, in Slaby & von Scheve, 2019, emphasis in original).

For Spinoza, all bodies (human and non-human) have the capacity to affect and be affected by other bodies and vice versa, though to differing degrees. Whether a the body is positively or negatively affected in a relation with another body, depends on whether these bodies 'agree with each other', which for Deleuze (1988) refers to the extent to which the bodies are affected in their constitutive relations (Deleuze, 1988). Mühlhoff (2015, 2019) proposes the concept of affective resonance to refer to how affective experiences are produced in social interactions, through resonance that occurs between individuals. When individuals are in resonance, a dynamic of "mutual modulation and influence" occurs during which the respective power (to act) of the individuals is changed. With the concept of resonance, This change in power can go towards empowerment or disempowerment, the latter case being referred to as dissonance (Mühlhoff, 2019).

In this way, a Spinozist understanding of affect is considered to have a dual understanding of power, by distinguishing between power as potentia or potesta, with the former representing a generative, creative power that increases a body's capacity to act, while the latter denotes a constraining, debilitating power that diminishes it (Casarino & Negri, 2004; Ruddick, 2017; Singh, 2013). For one, the conatus' striving is considered a generative power. Furthermore, those instances in which two (or more) bodies enter into relations and enhance each other's capacity to act are considered to be of potentia, in other words, empowering. In contrast, those instances in which bodies enter into affective relations and diminish each other's capacity to act, they are considered to be of potesta, that is, disempowering. Anthonio Negri (in Casarino & Negri, 2004) considers the power as potentia as a theory of 'power from below,' placing it in contrast to theories of power 'from above' held in conceptions of power such as Foucault's disciplining or sovereign power (Casarino & Negri, 2004).

A final central concept in the philosophy of Spinoza is that of the *inadequate idea*. With this concept, Spinoza postulates that the human consciousness to be unable to perceive true cause, but only effect. Regarding the experience of affect, this means that the human consciousness does not perceive the true mechanism by which the body's capacity to act is affected in its relations, but only the effect of the relation, i.e., the *changes* in the body's power to act (Deleuze, 1988; Robinson & Kutner, 2019; Ruddick, 2017). As Ruddick (2017) explains, "affect marks our awareness of the passage between greater and lesser capacities (Ruddick, 2017, p. 123). In the words of Hynes (2013), "affect involves a transition in the *capacity* to affect or be affected, which gains at least an analytical autonomy from the *subject's experience* of the variability of his/her power" (Hynes, 2013, p. 561). With the notion of the inadequate idea, the connection is made between emotional experience and experiences of power. The body's capacity to act is the object under evaluation by the self, the perceived changes in the power to act evoke emotional experience. In this line, for Slaby & Von Scheve (2019b) "emotions are the

predominantly realizations and conceptualizations of affect" (Slaby & von Scheve, 2019b, p. 44). Changes in the body's power to act are perceived and subsequently experienced emotionally. To get a sense of this connection between power and emotion, I suggest that affect can be understood in the metaphor of the cycling in the wind, which can either hinder or support the cyclist. In case of the former, the body is affected negatively in its power to act which is experienced as frustration. In the latter instance, the body is affected positively, and this increase in the power to act is experienced as joyful. In other words, affect is the emotional experience of empowerment or disempowerment. The mechanisms of (dis)empowerment is translated into emotional experience, where empowerment leads to feelings of joy and disempowerment to sadness. In this way, emotions and affect are understood as distinct analytical categories, while at the same time highly intertwined in dynamics.

2.3.2 Further conceptual developments of affect

The concept of affect has been adopted and further developed in relation to various other concepts. In this part, I will briefly discuss some conceptual developments of affect, particularly subjectivity and politics (Nightingale, 2011; Slaby & von Scheve, 2019a), labor (Singh, 2013; Sony & Krishnan, 2023) and arrangements (Schuetze, 2021; Slaby et al., 2017).

The political dynamics of affect are related to politics concerned with (re)producing relational entities, and First, affect shapes "the ultimate point of politics," i.e., 'the Political' (Slaby & Bens, 2019, p. 340). Slaby & Bens. (2019) characterize affective politics as a 'politics of relations' – the point of politics is the negotiation of affective relationships, that is, affective relations are what is at stake in the process of politics. Spinozist ethics revolves around the creation of positive affective relations, the pursuit of active passions (Armstrong, 2019; Deleuze, 1988; Ruddick, 2010, 2017). In other words, the point of politics is affective relations; politics revolves around shaping particular dynamics of affect in relations. Second, affect influences the political processes, where affect becomes a means or target in processes of governance and resistance, for example by building collectives or shaping imaginaries. According to Slaby & Mühlhoff (2019), affects play a crucial role in the formation of the subject. For them, affect is embedded in the "material and ideational relations" between bodies, where in the moment of the interaction enhance or diminish the body's power to act. Over time, the affective relations constitute the subject because these relations "establish and subsequently modulate – make, unmake, remake – individual capacities and dispositions" (Slaby & Mühlhoff, 2019, p. 27). As an example, For example, Carolan (2023) draws on Ahmed's notion of affective economies showing how on the circulation of affect among farmers and agroindustry creates farmer's subjectivities and political stances in regard to technology adoption.

Nightingale (2011) uses the concept affective subjectivity, to refer to the human as a subject which relates to their environment in an embodied, feeling manner. She positions affective subjectivity in a discussion to challenge the assumptions about subjectivity that underpin the development environmental regulations, which are based on views of the human as a rational (i.e., purely rational) subject, to argue that the human subject should be considered a thinking-feeling being. Similarly, Singh (2013) suggests that bodies, affects and emotions play a role in shaping environmental subjectivities. Drawing on theories of affect she challenges ideas of environmental subjectivity developed by Agrawal (2020) based on Foucauldian concept of governmentality. Mühlhoff (2020) introduces the notion of affective disposition to refer to how an individual's capacity to affect and be affected in a present situation is shaped by previous life experiences of affecting and being affected, and is at the same time shaped by the relationality of the specific situation. In this way, Mühlhoff aims to connect the capacities of an individual to structural power, coming to understanding of people's subjectivities as situated.

Furthermore, Hynes (2013) and Laszczkowski (2019) take the concept of affect to reconceptualize the notion of resistance. Both see value in the concept of affect to study resistance. For Hynes, it brings the analysis beyond the study of the actions of resistance (e.g. every-day resistances), toward the

"virtual forces that produce its emergence" (Hynes, 2013, p. 566). She critiques the tendency of sociologists of resistance to describe resistance as action following the will of the consciousness. Instead, she argues for more attention to the fact that a body is "sensate, movig matter" from which it follows that there is no pre-determined subject position for body's to occupy in response to power, but rather that a subject position (of opposing resistance) emerges out of the forces embedded in affective relational structures. Similarly, for Laszczkowski, using affect to conceptualize of resistance means "locating the impulse to resist quite literally on and under the skin, in the emergent spaces within and across bodies" (Laszczkowski, 2019, p. 504).

Lastly, the concept of affective arrangement is developed to understand the working of affect in particular social situations. Slaby (2019) define an affective arrangement as "an array of persons, things, artifacts, spaces, discourses, behaviors, expressions or other materials that coalesce into a coordinated formation of mutual *affecting and being-affected*" (Slaby & von Scheve, 2019a, p. 109, emphasis in original). For Slaby (2019), the affective arrangement concept goes in step with a methodological perspective referred to as arrangement thinking. The concept provides a tool for researchers to map social situations and explore the manifold affective relations that make up a social system to "come to terms with ongoing affective relationality in various settings, in particular where actors with different positions, roles, histories, dispositions, or habits engage and interact" (Slaby, 2019, p. 109).

Affect is further discussed with regard to conceptualizations of labor and labor processes. Hardt & Negri (2005) use the term 'affective labor' to refer to labor that engages affects (emotions) and produces immaterial objects such as ideas and knowledge, images and visions, relationships and networks, and affects. They argue affective labor has become the hegemonic in post-Fordist economies of services and networks, replacing the hegemony of labor in the industrial sector (Hardt & Negri, 2005). The concept of affective labor is useful to understand labour beyond its material dimension: it views labor as involving both body and mind, "engage[ing] at once with rational intelligence and with the passions or feeling" and also producing more than the material product (Hardt, 2007, p. xi, in (Clough & Halley, 2007). Singh (2013) notes how scholars have described forms of affective labour in the past, without explicitly using the term in their work. She finds an example in the work of Ingold (Ingold, 2012, 2021) who writes of human's engagement with their environment as a form of labour that entails "establishing the conditions for growth for plants and animals" through mothering, nurturing, assisting, cossetted and helped as if they are raising children (Ingold, 2021, in Singh, 2013). Building on Ingold, Singh finds an example of affective labor in the activities of people working to restore and maintain forests in Odisha, India. Singh describes how the people are engaged in activities to protect forests through "everyday intimate practices of environmental care and nurturance", which she presents as "the affective labour of "growing the forests"" (Singh, 2013, p. 193). Van den Berg et al. (2022) use the concept of affective labor to bring attention to the body and its affects in context of sustainability transformations, deeming it particularly relevant in mobilization processes for agroecology. They understand affective labor as labor of agents who "deliberately cultivate or manipulate bodily sensations to encourage people to change" (van den Berg et al., 2022, p. 51). They observe affective labour in the agroecology movements' efforts to organize encounters between peasants, and to organize storytelling and fostering of community practices within the movement. With regards to the discussion on the distinction between affect and emotion, the understanding of affect in the work of Van den berg et al. (2022) and Singh (2013) seems to refer more to emotions involved in the labour process, or produced as the product of labour (in line with Hardt & Negri's 'immaterial labour'), rather than the emotional experience of empowerment or disempowerment by bodies involved in encounters during the labour process.

To conclude, I deploy the concepts of emotion and affect as distinct analytical tools to explore embodied experience in relation to specific aspects of the nitrogen crisis (emotion) and to examine the dairy farming system as an affective arrangement, mobilizing Spinoza's affects to illuminate how

human experiences of emotion are intricately intertwined with embodied experiences of power dynamics in the multiple relationships people are embedded in. Affect is understood as the 'enhancing or diminishing of 'a body's power to act' *in its relation to other bodies*. Affect is a productive concept, as affective relations impact the capacity to act of an individual, or bodies in interactions, and as such produces subjectivities. I deploy affect, understood as emotional experience of (dis)empowerment, to consider how affect is productive, producing a subjectivity in a social being that relates to their environment in a feeling and embodied manner. The concept of affective subjectivity entails an understanding of the human being as thinking-feeling (Escobar, 2019; Singh, 2017) and brings the affective dimension of humans into human rationality (Nightingale, 2011, 2012). The concept of affective arrangement helps trace and understand affective relations and draws attention to mechanisms of empowerment or disempowered and the emotional experience of this in interactions between people and non-human entities as they enter into relation. The affective arrangement concept is applied in this research to examine interactions between the people and other elements involved in Dutch dairy farm systems. It helps illuminate the affective relations that make up dairy farming and observe which affective relations are enhancing or diminishing the power to act of people involved, and what interactions create instances of potentia or potesta. The concept of affective labour is understood as the particular effort of a body in interaction with other (material or immaterial) bodies, and produces immaterial outcomes: ideas, emotions, and relationships. In this thesis, I add attention to the (dis)empowerment of these bodies in the process, and the embodied experience of this effort (joy or sadness). In this research, the concept of affective labour puts a perspective on dairy farming that pays attention to the emotional experiences and (dis)empowerment of the bodies in the every-day practices of the farmers.

Chapter 3

Ethnography of dairy farmers' emotional and effective experiences

The research reported took place in the context of a Master Thesis assignment for the completion of the International Development Studies program at Wageningen University by the author. The data was collected using methods as part of an ethnographic research design. The fieldwork took place between October 2022 until January 2023. In this chapter, I characterize the recruitment of the participants, the methods and, I reflect on ethics, positionality and affectivity, and some of the shortcomings in the sampling and methods and their implications for the interpretation of the information and subsequent conclusions of this thesis.

The farmers and their families were approached for participation using a purposive, snowball sampling method through personal contacts. A total of 8 dairy farm systems were included in the study, located in the province of Frysia, Drenthe or Utrecht. All participating farmers work on a family farm, meaning that the farm is the location where the farmer and kin live, and is a significant part of the family, passed on through heritage throughout time. Within the report, all participants' names are replaced with fictitious ones to assure anonymity of the participants.

The methods consisted of participant observation at conventional dairy farms in The Netherlands for varying periods of time, ranging from a week to a day or several day-parts. This was complemented by 12 semi-structured interviews with the respective dairy farmers, and some with their successors, and in informal conversations during farm walks, farm tasks or the breaks. Some of the interviews incorporated a discussion of the farm network, and a body mapping activity as an arts-based research strategy used to elicit a discussion of emotional experiences in relation to specific aspects of the nitrogen crisis. All data collected using these methods is in Dutch, and subsequent analysis was also performed in Dutch. Subsequent data analysis entailed the identification of themes through manual inductive and deductive coding with use of the Atlas.ti 23 software. Notes and statements have only been translated into English to the purpose of reporting. Within this process of translation, I have tried my best to stay true to Dutch sayings by finding English counterparts. In some cases, the original Dutch quote is noted for the reader to consult. During the writing process, I made use of the ChatGPT to assist in improving structure and vocabulary of the text. Never has a text been directly copied from the AI software.

3.1 Intermezzo: On studying emotion and affect among Dutch farmers

Before moving further in the description of the research process, I want to briefly reflect on the implications of using emotion and affect as concepts for the research design chosen to study dairy farmers' experiences of the nitrogen crisis. When emotion and affect became incorporated into the social sciences beyond psychology, questions arose to what extend this phenomenon can be empirically studied by social researchers. As Kahl (2019) points out, "It is anything but trivial to empirically observe emotions and affective dynamics" and they observe that the social sciences have less clear methodological strategies for researching the affective (Kahl, 2019, p. 7). There is debate regarding the ontological conception of emotion and affect, as well as the ability to study these phenomena empirically and accurately. The particular conceptualization of emotion and affect influences what research methodologies are deemed suitable to empirically observe or study these phenomena.

One debate revolves around whether emotion and affect are conscious or subconscious phenomena, and subsequently, to what extent people can fully account for them if they occur in the subconscious. To start, it is Spinoza himself who also placed affect in the register of the non-conscious, with his notion of the inadequate idea: the causal mechanism of affect is beyond perception (unknowable);

humans can only perceive the affects in the changes of their body's power to act, rather than the actual mechanism that causes this change. In this way, the causal mechanism of affect cannot be empirically studied, only the emotional experience of affect is perceivable to the subject, and could therefore also be studied by a researcher. Building on Spinoza and others, some scholars therefore argue that emotion/affect is non-representational, for example Thrift (2008) and Massumi (2021). For example, Massumi conceptualizes of affect as potentials that are harbored by the virtual, that is, the realm beyond reality, which holds the infinite potential of realities that can realize in the unfolding the future (Slaby & von Scheve, 2019a). These scholars emphasize the transformative power of affect, as the human in affective relations can create different modes of being and relating (Singh, 2013). Kahl (2019) critiques the non-representational understanding of affect, including Massumi who present affect as "non-symbolized, pre-conscious, and pre-discursive intensity" and "invisible glue that that holds the world together" (Kahl, 2019, p. 8). They argue that in this conceptualization affect is unresearchable since it is unobservable.

In this thesis, emotion is conceptualized as an embodied, relational and social phenomenon. Affect is in turn distinguished analytically from broader emotional experience, and defined as the emotional experiences of changes in the body's capacity to act. In this way, emotions are studied in the personal accounts of the participants of their perception of their environment, their experience of their bodies, and the meanings they attach to these bodily experiences. In turn, the concept of affect brings the analytical focus to the relationships that the participants find themselves in as part of the dairy farm system, and their experiences of these relationships. This conceptualization of emotion and affect for this thesis is grounded in a representational idea of consciousness, subsequently assuming that people are able to perceive, reflect and give meaning to their body and their emotional experiences, and can therefore be studied empirically, in observations and verbal accounts. In this way, the concepts emotion and affect function in this thesis to "bridge theory and research" and used in an deductive manner. Deductive analysis entails making sense of the empirical data using the concepts. As such, the concepts shaped the focus of attention in the field, methods and data analysis.

Second, what further complicates the matter of studying emotion is the cultural and social influence on emotional expression. Norbert Elias (cf. Van Krieken, 2014), Arlie Hochschild (1979b) and Wetherell (2015) have pointed to how cultural norms exist around the appropriate ways to express emotions, leading to regulation strategies. Furthermore, the meaning ascribed to situations and subsequent emotional experiences are constructed in the context of cultural and social repertories. This aspect of emotional experience has implications for the extent to which a researcher can accurately account for emotional experience in observation, and also to the importance of language to capture the diversity of emotions in verbal accounts and the participant's capacity to reflect or recall their emotional experiences in conversation. An important note I want to make to this thesis is that at the time of entering the field, though I had explored theories of emotion, I had not fully attuned my methods and my focus in the field to be sensitive to these social dynamics of emotion. Throughout the fieldwork, I noticed that there were patterns, but also diversity among farmers about their openness about emotional experience, and the extent to which they managed to deal with the situation. Literature on cultural norms among Dutch farmer's regarding emotions is limited, and if it is covered, it is linked to farmer's wellbeing (Kuijk et al., 2022) or communication processes (Weerkamp & Zeinstra, 2013). Kuijk et al. (2022) conducted explorative research into the mental health care and wellbeing of farmers, and found that farmer's do see the benefit of talking about mental health more. In international research in western contexts find that farmers can be a vulnerable group to suffer in mental health due to stigma, taboo and cultural norms regarding masculinity, because of which, farmers are inclined not to talk about emotional experience, and there is a tendency to hide behind the work ((Fraser et al., 2005; Hagen et al., 2022; Lunner Kolstrup et al., 2013).

3.2 Research design, participants and methods

The approach taken in this thesis research is the ethnographic approach. Ethnographic research is characterized by a commitment to closeness to a particular group's lifeworld and esteem the idea of 'walking a mile in the shoes', and is therefore an approach in which the researcher immerses into the daily life of the research group, and participates in the daily activities of the research participants (Madden, 2022). This research strategy is based on long-term engagement with the field, prioritizes building rapport and fostering personal connections. The immersion endures for an extended period of time and makes use of a variety of techniques to gather field data (Atkinson, 2007; Creswell & Poth, 2016; O'reilly, 2012). Creswell & Poth (2016) characterize ethnography as research with a specific focus on a (culture-sharing) group of people with the aim to study the social behaviors and beliefs within this group. Specifically, the researcher looks for patterns in human activity in the form of beliefs, ideas, behavior or organization. In ethnography, theory is used as a tool to provide a particular focus into the study of the group (Creswell & Poth, 2016).

The ethnographic research design for this thesis draws on three research methods to collect the data on emotional experiences and affective relationships of Dutch dairy farmers. These are participant observation, semi-structured interviews and two forms of mapping: body mapping and network mapping. The mapping strategies were applied to elicit accounts on the experience of emotion in the body, and of affective relationships of the dairy farming system. The data gathered through these methods was stored in field notes and audio recordings, and subsequently processed into digitalized extensive field notes and transcripts.

3.2.1 Research participants

In an ethnography, the 'object of study' is usually a culture-sharing group of people, and within this group of people the researcher takes care to come to a representative sample by searching diversity and counter-perspectives (Creswell & Poth, 2016). To approach the dairy farmers to participate in the research, I used a snowball sampling strategy by making use of personal contacts to get in touch with farmers. This choice was made based on two considerations. The first is my positionality as an outsider to the (dairy) farming community, which meant accessing the field might provide a challenge. Making use of shared contacts to reach dairy farmers thus provided a level of convenience that allowed for timely organization of fieldwork. The second consideration is that the sensitive nature of the research topic - emotional experiences of the nitrogen crisis - relied on levels of trust that could be better achieved through shared contacts that would have been possible in cold-calling dairy farmers. Indeed, with a shared contact, the ice with the farmer's was broken already as we could first talk about our mutual acquaintance.

The snowball sampling strategy was purposeful in the sense that I aimed to get in touch with dairy farmers in conventional farming systems, i.e. non-organic dairy farmers. This was based on the idea that these systems are commonly understood as the farms that need to transition to sustainability (i.e., circularity) in government policies and scholarship on sustainability transitions and agroecology (El Bilali, 2019; Wezel et al., 2014; LNV, 2018), and therefore the expectation was that these would be most seriously affected by the nitrogen crisis. In the end, I also stayed at one organic dairy farm, which became useful to gain a better understanding of the differences between these farming systems and the respective farmer's perspectives. Throughout the research, I learned quickly that withing non-organic dairy farming systems, a lot of diversity exists in the small details of the farm system. Though I had learned in the classroom that diversity within the agricultural sector is the norm, in the field the insight clicked in regard that it is the farmer and the system's particular relational embeddedness that shapes the farm system in an contingent, unfolding manner, guided by the farmer's preferences and resources.

Ultimately, eight dairy farm systems were part of this research. The farms are diverse in terms of size (ranging from 40 to 200 cows, and from intensive to extensive), and the farmers pursued different farming styles (e.g., 'cow farmers', mechanized farming, organic, or peasant-like (cf. van der Ploeg et

al., 2009)). Table 1 gives an overview of the farmers and some characteristic of their farm systems. I interviewed dairy farmers (N=8), and their successors (N=4) if they were present, and spoke to other family members in informal conversations. Additionally, I spoke to one agrarian coach, Linda, who shared her insights about the experiences of the farmers she supports in transitions to sustainable practices. This interview took place on December 16, 2022, and lasted one hour. One shortcoming of the snowball method was that it did not lead me into contact with dairy farmers who are in a 'PAS-melder' situation (see chapter 4). Their experiences are likely to have been very different from the farmer's that I spoke to. Additionally, I conducted research with participants from Frysia, Drenthe and one female farmer in Utrecht. Regional variation in experiences of the nitrogen crisis probably exist, as the N pollution levels are most pressing in Gelderland, Brabant and Overijssel, and cultural repertoires in terms of emotional expression and social construction of meaning likely exist. The sample size of this thesis is also small, and the findings should therefore be taken as contextual and subjective, and the thesis should be read as an explorative study into the role of emotion and affect in agricultural transition processes.

As a first step, I visited the dairy farmers for a coffee to talk about the idea of the research project, and to talk about their preferred way of being involved. In this way, I took care to practice prior, informed consent, by informing the farmers fully about my role and purpose, and gained consent for their participation. The farmers differed in the extent to which they would allow me to stay on the farm, where some were happy to host, while others preferred I visited once or a couple times. With the exception of Teun and Sytse's farm, I spend at least a day on the farms and participated in various activities. Throughout, I learned also the very different day rhythms between farmers with a mechanic milking system or an automatic milking system (AMS, commonly referred to as a milking robot). With the latter farmers, the activities were more diverse, and less connected to the cows. This also impacted the conversations we had, as I was usually able to ask a lot of detailed questions during the milking sessions, which was a bit more difficult in the other visits.

The first visit entailed a week's stay at Johanna's farm. Johanna lives with her husband Peter, who is a retired a pig farmer. She became part of the farm after marriage, and currently milks her cows three times a day. I stayed with them for one full week. Johanna has a relatively small farm, with around 40 dairy cows, and some young. She owns the land close to the farm and tenures from the local estate organization. She also had a bull among the cows, which was a bit exciting to walk amongst. Due to my non-farming background, I had to learn everything about dairy farming from scratch. It was the first time that I walked among dairy cows, or got to see how cows are cared for, how to milk them, what their feed looks like and what information systems are used on the farm. I also learned from scratch about the large web of connections that make a dairy farming system, with links to businesses, or inputs, output and advise, advisors, vets, monitoring practice like agencies like RVO and Friesland Campina.

The week's stay on Johanna's farm was insightful but overwhelming in terms of information. I left with questions remaining than I came with. I realized one week on a dairy farm not nearly enough to get to the full nitty gritty of the whole system. This is an issue I encountered time again afterwards, as the subsequent stays on farms were shorter. Nonetheless, I was able to build rapport and talk about emotional experience in the work of being a dairy farmer, and in the context of the nitrogen crisis, as well as reflect together with

Afterwards, I stayed in a Frisian village, at my mother's house that is surrounded by dairy farmers. I spend time at the farms of Jorrit, Teun and Sytse, and of Fokke and Jelle. I visited their farms by bike, and tagged along for a day or part of a day in their activities. At Jorrit's farm, I tagged along for three dayparts spread over a week. Jorrit's farm was large in contrast to Johanna's, and completely different. He installed two AMS a few years earlier, and cared for a herd of about 115 dairy cows and many young. He feeds them a mix of silage grass, concentrates and maize, along with some supplements. He lives on the farm with his family, and his parents moved into the village but still help him in his work.

He also employs a couple others, mainly for feeding and managing the land. He described himself as more of a cow-farmer. During my first visit, we walked across the farm and did some maintenance work for the milking robot. On the second day, we collected cows for the milking robot, and had a visit from the veterinarian. I observed as Jorrit and the veterinarian worked to vaccinate cows and check one' uterus. This was followed by a coffee moment in the office with the farm workers. At Jorrit's farm, I learned that dairy farming with a robot is very different from manual milking that has fixed milking times.

At the farm where Fokke and Jelle's live and work I participated in the labour of the farm for one day with Fokke. The family lives on the farm, in a house the leads onto the barn. Fokke explained that they built it themselves after taking over from his father. The barn houses around 60 dairy cows and around 15 young. He has three kids, of whom Jesse is the most expressive of potentially wanting to take over. I arrived at 6:15 am, just after the birth of a calf. After 'taxying' the calf to a separate box, I participated in the morning milking round. We fed the cows, and I helped collecting cows from the pastures – which were grazing within a Natura 2000 site. After lunch, I had an interview with both Fokke and Jelle, and later on Fenna (wife and mother) also joined in the room.

Teun's farm was a step up in the scale of dairy farming, as he works in companionship[2] with his brother and nephew, with whom he takes care of almost 200 dairy cows and many young. They house the young and pregnant cows in different barns. They installed three milking robots, for which Sytse was happy to have for when his uncle and father retire. Teun is a chatty farmer, and I spoke quite some hours in his office – his favorite place – about the sustainability of farming, about the farm, about politics. I only participated one afternoon in his routine. Afterwards, I had with Sytse at a separate moment.

The first weeks of December, I took a break from fieldwork. I found that I was quite affected by the intensiveness of participant observation, and the energy to filter information. During this time, I worked on data processing and resting before continuing fieldwork at the other farms. After Christmas, I stayed at Douwe's farm for 4 days. Douwe's farm lies very remote in the north of Frisia. He has a barn that houses around 50 dairy cows, and around 15 young in a different barn. I participated in the routine of Douwe. He started to work on the farm at a very young age, and is relatively close to retiring, though he does not know yet when the moment comes. He lives on the farm, in his parent's house. His routine was very relaxed for me, probably due to time of winter and the weather being very drowsy. We would milk, and spend time to clean the stables, care for the cow's claws, and also did a lot of reading and resting in between. Yfke is his niece, who is in the business with him and will take over the farm in the future. In the afternoons, Yfke would do the milking for him. Occasionally, he would have a friend over, who has a passion for woodworking. Douwe lends some space for his activities, while the friend accompanies him in dairy activities as well.

In the new year (2023), I stayed at three more farms. I stayed at the farm of Willem for one week around mid-January. Willem has around 80 dairy cows, and is soon retiring. His son Jesse was there for two day-parts as well. He was set to take over the farm in May 2023. I participated in the routine of milking, feeding and taking care of the stables. We also went out to care for the (alder) trees that make up the scenic landscape of windbreaks. The farms of Daan and Daniel are located in the East of Drenthe. At Daan's farm, I participated for one full day and an evening. Daan has a milking robot, so manual milking was not part of the routine. Instead, we took a 'farm walk' and visited the Natura 2000 site about 5 kilometers from his farm. After dinner, he took me along with his wife Cato and their daughter Mies to an information evening hosted by the regional veterinarian clinic. We listened to a presentation about cow health care, and were the audience of a farmer's cabaret.

[2] In Dutch: maatschap.

That same evening, I traveled with Daniel and his wife to their farm. They have an organic farm, and lives there with his wife and youngest daughter. One of his daughters, Tina, is in school and hopes to take over the farm. Tina and Daniel enjoy engaging in the breeding process together, which Tina is really passionate about. The family moved to the farm when Daniel was obliged to move from elsewhere. He had taken over a farm that was completely bewildered at the start. The transition to organic was completed around 5 years ago. Daniel is currently working to also keep calves on the farm, so as to not have to hand them over to the calf industry. I participated in activities the full next day and the morning after. At the start of the first day, Daniel was preparing a walkway for his cows into the pasture. The construction work entailed placing concrete slabs with a wage-worker, which took most of the day. Next to that, I helped him in the milking routine. I also assisted his wife with caring for the calves. On the final day, I joined Daniel to a meeting that brought together the province, local water company and the farmers who work on land that is part of a groundwater protected area. The meeting regarded the crisis in the continuation of a measuring network for nitrate in ground water, which was threatened due to farmer's intentions to leave the network as a result of the abolishment of the derogation (see chapter 4). After the meeting, we took a farm walk. I concluded fieldwork at the end of the morning.

Table 1. Overview of Research Participants

	Fieldwork	# Cows	Province	Successor	AMS
Johanna & Peter	03/10-6/11	40 cows incl. some young	Utrecht	No	No
Jorrit	15/11, 17/11, 18/11	~ 115 dairy ~ 65 young	Frysia	Unknown	Yes, 2
Teun & Sytse	16/11, 24/11, 25/11	~ 200 dairy	Frysia	Sytse	Yes, 4
Fokke & Jelle	26/11	~ 60 dairy ~ 15 young	Frysia	Jelle	No
Douwe & Yfke	27/12-30/12	~ 50 dairy ~ 15 young	Frysia	Yfke	No
Willem & Jesse	15/1-	80 dairy 44 young	Frysia	Jesse	No
Daan & Mies	9/12, 26/1	88 dairy ~ 15 young	Drenthe	Mies	Yes, 2
Daniel & Tina	9/12, 27/1	80 dairy 40 young 20 calves for meat	Drenthe	Tina	No

3.2.2 Participant observation

The main data collection technique within ethnographic study is participant observation (O'reilly, 2012). This entails deep engagement with the field through immersion into the life worlds of research participants by participating in everyday activities to understand their experiences. Field notes are taken during and after participation on observations, statements of participants and encountered artifacts, as well as the researcher's personal experience of the activities (Musante & DeWalt, 2010; O'reilly, 2012). In my notes, I attempted to document the experience in a multi-sensory way to get an enriched account of work and life at the farm (Pink, 2015). Participant observation was chosen to get close to the people, the objects and the events that the farmer encounters and values in the dairy farming system in order to understand the emotional and affective experiences of the nitrogen crisis. Another benefit of participant observation is that it foster rapport, which is essential for exploring sensitive topics like farmer's emotions. Participant observation facilitates interactions and the researcher's close experience of activities, and contributes to deeper, focused conversations, building trust and respect. Holloway et al. (2021) write of a 'walk and talk' method to gain insights into farmers embodied physical and emotional experiences, and into sentiments of belonging. Similar to this, my participant observation strategy could be referred to as a 'work and talk' method, as I worked along with the farmers in their activities where possible, and talk about the respective activity and other aspects of the dairy farm system in relation to these activities. Participant observation as a method asks

for a lot of open-ness, willingness and time on behalf of the research participants. It was not always be possible in the case of some farmers to stay overnight on the farm. In this case, farm visits were the alternative, during which I tagged along in activities and I would ask for a 'farm walk' and other favourite places of the farm.

3.2.3 Semi-structured interviews

Semi-structured interviews were the second method applied in this research. In ethnography, interviews are often conducted to complement participant observation (O'reilly, 2012). Semi-structured interviews are interviews that are characterized by open questions, a relatively structured progress through direction of the conversation along certain topics or themes, and keep room for emergence of new topics and asking follow-up questions to get deeper into a topic. Semi-structured interviews generate information that is fundamentally different from interviews in quantitative studies. This is due to the focus on quality of the data rather than the quantity of interviews conducted and their similarity. As such, qualitative interviews are characterized by context-specificity, the interpretive nature, and comes with the acknowledgement of the fact that each interview is different since the research participants are different as well as the settings (O'reilly, 2012).

The experiences and observations from participant observation were subsequently used to prepare the semi-structured interviews, i.e., to finetune questions or add themes to address in the conversation. In this way, the conduct of semi-structured interviews provided the opportunity to go deeper into the topics that emerge from my participant observation and to check with the farmers my interpretation of the observations I have made. Chronologically, these interviews will therefore took place at a later stage while engaging with a dairy farming system. One exception to this was with Daan, for plans for participant observation were moved due to weather considerations. Most interviews with the head farmers took two hours, and covered some of their personal history, the farm system's development, how they work with other people on the farm and concluded sometimes with a body mapping activity. The interviews with successors were a bit shorter, usually because the conversation revolved less around history, while actually including a bit more talk about their future aspirations.

3.2.4 Mapping of the farm and farmer's bodies

The third key method applied in this research were various forms of mapping, with body-mapping taking the main priority among them. Martin (n.d.) distinguishes between different types of ethnographic mapping, among which the traditionally used spatial mapping, historical mapping, organizational mapping. In this thesis, multiple mapping strategies were tried in the first visit at Johanna's farm, but ended up quite time-consuming and not so relevant. The historical and spatial maps were less relevant. Organizational mapping was conducted to visualize the organization of social structures can be made visual. It helps identify key actors and can also make the relationship between actors visual. This type of mapping is relevant for this research in order to better grasp affects between actors, as it takes the relationship out of the virtual existence into a visual existence and can serve as an elicitor of reflection on the affective relations with my participants. During the interviews, the organizational map provided an useful tool to discuss the farms relations with the farmers. In addition to organizational mapping, body-mapping is regarded as a valuable method in anthropological research due to its ability to bridge between physiological systems, popular knowledge and lived experiences. It provides also a different way for participants to share embodied knowledge (Boydell, 2020; Coetzee et al., 2019; Cregan, 2006; De Jager et al., 2016; Orchard, 2017). During this activity, I asked the participants to make visual emotional experiences of the body. During the mapping, I asked the participants to draw their reactions in relation to a set of situations or scenarios related to the nitrogen crisis and dairy farming, including in order: 1) favorite activity, 2) reaction to the May 2019 ruling, 3) the government policies, 4) the publication of the map, 5) farm termination, 6) reduction obligation. After my stay at Johanna's farm I added a 7th: seeing the video of farmer Koos Cromwijk. In practice, it turned out that the participants found it difficult to make visual their body experiences. Instead, rather than giving insight in the subjective bodily experiences of the participants, this form of

mapping provided useful to elicit reflection on embodied experiences of emotions and affect, to spark verbal accounts of feelings and associated cognitions. The implementation of body mapping was not consistent, however, as it was not included in every interview. I conducted a body mapping activity with Johanna, Jorrit, Douwe, Willem and Jesse and Daan. The other interviews were different in circumstance and seemed unfit to do a body mapping, like the case of Fokke and Jelle, where they were together in the conversation and limited in time, and in the case of Teun and Sytse, where the interviews were mobile. In the end, the body mappings took place with the farmers with which I engaged multiple days, or who agreed before the interview to do the activity.

3.3. Positionality and research affectivity

The nature of qualitative research is that it is influenced by the researcher, who is simultaneously the designer and the research instrument, as well as the participants (Madden, 2022). I will reflect on how my person influenced the research (positionality) and how it was influenced by the research which in turn again affected the research (affectivity).

The notion of positionality of researchers refers to the way the researcher relates to the social field and the participants, often described using specific qualifiers that characterize the researcher's body, such as sex/gender, age, and socio-economic markers such as education, cultural background or political ideology (Koot et al., 2020). On top of this, I will include some reflections based on the notion of 'affectivity' which Massumi (Massumi, 2021) uses to draw attention to the dynamic character of research process in shaping the researcher and in turn the research process. Brian Massumi (2021) critiques the notion of positionality as a static and unchanging approach to the human being, drawing attention only to the unchanging characteristics of the body. He considers human bodies are actually constantly in motion and constantly feeling. Similarly, Sultana (2015) writes about the emotional process of doing research, and how this shapes the interactions, interpretations and as such, plays a central role in social research. Therefore, any account of the process of qualitative research that has emotion, affect and the body as the object of study would not be complete without a discussion of emotion, affect and the body of the researcher and their relations to the research participants. Thus, next to reflecting on a 'static' positionality, i.e., the categories ascribed to my body which are unchanging such as my gender, age, background and ideology, a reflection on affectivity includes the dimensions of motion and feeling throughout the ethnographic research. For my being as a person performing research was influenced during the research process, affecting my reflections and my questioning during the encounters with the participants. Thereby committing to the idea that all bodies have the capacity to affect and be affected, and are thus changing and not static, I will try to be transparent about this personal development throughout my research.

As a researcher, acknowledging my positionality and affectivity is crucial in understanding the dynamics of the research process and their implications for the final outcome of the research. In terms of positionality, I identify as a young adult woman, who studied at Wageningen University. I grew up in an urban environment, and therefore my position in relation to the research group is that of an outsider to the agricultural community, despite years of theoretical engagement in the topics and issues of rural and agricultural development, and recent membership of the Boerengroep (farmer's foundation) in Wageningen. As an urbanite, I do not share with the dairy farmers or rural population a history of 'dwelling on' and 'growing into' a farm, small village or rural life. Nor did I possess knowledge on the intricacies of dairy farming, what it means to take care of cows and to relate to society as a farmer. My being an outsider, and beginner in the field of dairy farming, it initially took quite some time to become sensitive to what the 'object of study' – the dairy farming system – actually was. I needed to cover a lot of ground with the farmers about their farm and work, to learn the dairy farmer language, before being able to go deeper into the topic of research. I expect that, had I been more familiar with dairy farming, it would have been possible to ask the relevant questions earlier in the process, and might have been able to better assess what I saw and heard, though it also gave me that ability to *question everything*. This ability decreased over time, as indeed, some things start to

become taken for granted. As Johanna noted, “when you ask these questions, I really have to check with myself. How does that work again.. what is that called? I don’t always think about these things” (Johanna, Fieldnotes, 1 November, 2022).

Next, I also was unaware before going into the field of the importance of historical events returning in the experience of the nitrogen crisis of the farmers, most notably the previous experience of the phosphate policy implementation in 2018. The importance and impact of this policy change only became very evident later in the field work, and I was not able to fully delve into with the experience of this episode with all participating farmers. Another theme that was not fully delved into during this research is the financial performance of the participating farm systems. One reason was that farmers would keep this information private, but another is that the importance of financial performance became clear later on, as the farmers pointed out that this really influences the way a farmer can navigate difficult situations, affecting the resilience of the farming systems and the farmer. Finally, a topic that emerged in the field was farmer’s wellbeing and the occurrence of suicide. here, the importance of affectivity becomes clear. This issue was also not on my radar before I started field work, and would pop up here and there in conversations.

In the conversations, I found myself affected by my research particularly by the people I encountered and their stories. I also encountered farmer Coos (chapter 7) through Johanna, and found myself moved by his display of emotions and story. Particularly, I was affected by how the theme of suicide would pop up in several conversation. This issue is very sensitive and emotional, and the time spend in some of the dairy farm systems was not enough to build the connection or trust needed to really engage with it deeply. Being touched by the stories, the awareness shaped my view of the dairy farming community, and probably influenced the way I interpreted the information that I gathered during my stays on the farms for the purpose of this report. Another way I was affected was through participating in the daily activities of the dairy farmers. I experienced flow during the manual milking sessions, had to learn to be confident among cows, experienced the strolling through the pasture when picking up cows. The rhythm of working, having a break, working, and the diversity that comes with the daily routine. My personal enjoyment of farm life, and getting comfortable with the systems (though diverse, still regular in their patterns) affected my observation and questioning of the farmers during the day. My affective experience of the taste of dairy farming that I got, which was mainly positive (no major crises occurred while I was on the farms), is reflected in the forthcoming presentation of dairy farming. The nature of ethnography; immersion in daily lives, and personal experience while being the ‘research instrument’ influenced my interpretation. The highly subjective nature of bodily experience can have the risk that I confound my own personal experience with the experience of the farmer. To account for this, I have tried to stay close to the farmer’s own words, and expressions about dairy farming.

Chapter 4

Development of dairy farming in The Netherlands

The topic of this research is Dutch dairy farmer's experiences of an event referred to as 'the nitrogen crisis.' In this chapter, I will provide context to this event through an account of the historical developments in the Dutch dairy farming sector and with an elaboration on what is understood as 'the nitrogen crisis.' This chapter serves to contextualize the research period, which ranged from October 2022 until January 2023.

4.1 Post-war developments in dairy farming in the Netherlands

In 2022, dairy farming is the largest branch within the livestock sector of The Netherlands. Dairy farming takes place at around 14 thousand farms, employs around 33 thousand people, and uses around 1,2 million hectares of land for grazing and fodder production (Agrimatie, 2023b, 2023d; Berkhout et al., 2022). Dutch dairy farms house around 1,6 million dairy cows, on average around 110 per farm (Agrimatie, 2023b). Regarding nitrogen emissions from agriculture, dairy sector is the main emitter of ammonia, originating from manure storage in stables and manure application on land (Berkhout et al., 2023; Remkes et al. 2020). The dairy farming sector is declining with a rate of about 2,1% per year. In 2022, around 300 farms terminated, which is about 3,7% reduction, much higher than the 2,1% long-term average. This was the result of a policy for farm termination to bring down the phosphate emissions of the sector. This brought the number of dairy farms to around 13.600 farms (Berkhout et al., 2023)

The state of dairy farming today is the outcome of an agricultural modernization project after the second world war. In this modernization of the sector, dairy farms specialized, scaled up, intensified and mechanized their systems, and subsequently achieved tremendous increases in production levels and labor productivity (Bieleman, 2008). This process was supported by government policy: shortly after the second world war, the minister of agriculture, Sicco Mansholt, instigated a transformation project for Dutch agriculture based on the principles of efficiency, specialization, scale increase, land reform and technology adoption (Bieleman, 2008; Bruchem et al., 2008). As a consequence, the number of dairy farms decreased from around 200.000 to 29.000 between 1950 and 2000, with the average number of dairy cows increasing from 7,4 to 51. At the same time, area of the land used for grass and fodder production remained stable at though the cultivation practices changed drastically with the introduction of silage maize and different mowing machines (Bieleman, 2008). From the 1970's, Mansholt continued this work at international level in the European Economic Community (EEC), with the implementation of the Mansholt Plan. The Mansholt Plan "aimed to optimize the area of land under cultivation [and] merge farms into larger units" (*Timeline - History of the CAP*, 2023). In the process of modernization, the productivity of farms increased about 20 times, with the consequence of a reduction in production costs and decrease of food prices (van Sonsbeek et al., 2023). While the wage per hour increased across the whole Dutch economy, likewise in the agricultural sector, the increase in income of

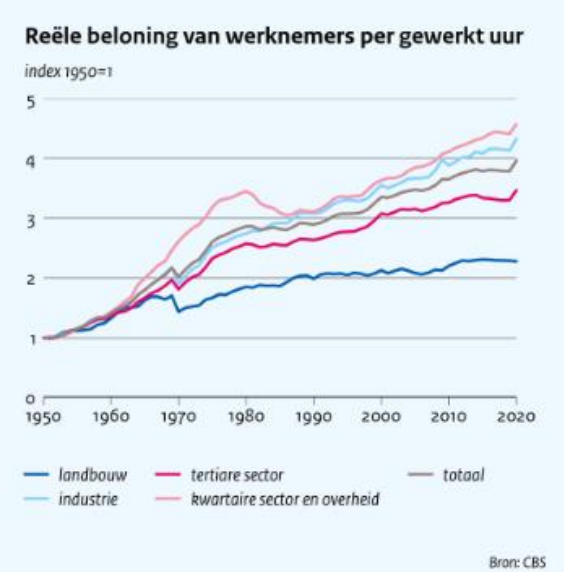

Figure 1. Development of wages in The Netherlands, blue line indicating agriculture.
Source: van Sonsbeek et al., 2023.

agrarian workers fell behind significantly compared to the other sectors in the economy (van Sonsbeek et al., 2023), see figure 1.

The modernization project had several environmental and economic consequences. Most importantly, the environmental pollution caused by nitrogen (N) and phosphorous (P)[3] excess from agriculture became an issue on the EU public agenda, specifically pollution resulting from manure practices. To address this issue, he Dutch government introduced policies for the regulation of pollution, with the aim to reduce run-off from manure application (Boers, 1996; CBS, 2017; Kuipers & Mandersloot, 1999; Oenema & Roest, 1998). Additionally, due to land reform and intensification, the landscape changes drastically, with consequences for biodiversity (Koomen et al., 2007). There were also economic consequences of the increase in production and productivity. By the 1970's, there was an oversupply of dairy products in western Europe. To address the oversupply of dairy, the EEC introduced a milk quota system in 1984 (Bergevoet et al., 2004). The quota system attributed a certain number of milk production rights to a dairy farm, and these rights could only be transferred through land purchases. As a result, scale increase became dependent on the exit of close by farmers, thus slowing down the process (Jongeneel & Tonini, 2008). Additionally, under the milk quota regime, the herd sizes of farms were stabilized, or even decreased as milk production per cow increased (requiring less cows to fill the quota) (Huettel & Jongeneel, 2011). Another measure to regulate nutrient emissions came as a consequence of the EU Nitrate Directive, which prescribed a maximum amount of nitrogen to be applied to land via manure, that is, 170 kg per hectare. From, 2006, dairy farmers in the Netherlands could get an exemption from this in a derogation, which allows farms with 80% grassland to apply 250 kg of nitrogen per hectare (Klootwijk et al., 2016).

The most notable recent changes in environmental regulation of the dairy farm sector, before May 2016 entailed: the abolition of the milk quota system in April 2015 and the implementation of a phosphate quota system in 2018. The milk quota system was abolished in order to allow the dairy sector to respond to growing international demand for dairy products (Jongeneel & van Berkum, 2015). The result was an increase in dairy cows on farms, as some dairy farmers anticipated it would be an opportunity to grow their farms. However, in 2014, the Dutch government also adopted the 'Dairy Act', which led to phosphate quota system in 2018 as the new system to regulate emissions from dairy farms (Klootwijk et al., 2016). The implementation of this policy was problematic for some farmers. The issuance of these rights was based on the number of livestock on the farm on 1 May 2015, three years before the implementation of the system. Additionally, the quota system included an additional reduction, which required farmers to give up a number of cows. As a result, a number of dairy farmers were negatively affected because they invested in farm expansion before the abolishment of the milk quota system, which became difficult to pay back. Farmers intended to repay the investments based on bigger herd stocks at the farm. However, the reference date of 1 May 2015 for the phosphate rights counted fewer animals were allowed on the dairy farm than upon which the calculations were based.

4.2. Specific issue of nitrogen pollution

Since 1985 the nutrient emissions (N and P) from agriculture have been greatly reduced (Bruchem et al., 2008; Van den Ham & Luesink, 2014), which reductions of ammonia surpluses over 50%, and of phosphate surpluses by 85% as a result of the environmental regulations (Van den Ham & Luesink, 2014). However, the surplus of nitrogen is remains an issue as water quality and biodiversity are affected by too high concentrations in surface water and soils. Since 2010, the emissions of ammonia from agriculture have been relatively stable, and reduction has stagnated (Agrimatie, 2023e; Fraters et al., 2020).

[3] In agriculture, the use of the term phosphate is standard when talking about manure and manure policy. Phosphor is bound with oxygen to make phosphate which is a main ingredient in manure and artificial fertilizers (Fraters et al., 2020).

Nitrogen pollution in the environment is a complex issue due to the nature of the reactive nitrogen molecule (Nr), it is highly mobile and appears in diverse forms with different effects on its surroundings (Galloway et al., 2003). Two appearances of reactive nitrogen, ammonia (NH_3) and nitrogen oxides (NO_x), are the targets for new regulations to replace the PAS (Remkes et al., 2020). Additionally, nitrate in the environment (NO_3^-) is a particular target of the EU Nitrate Directive and the EU Water Directive. While nitrogen oxides (NO_x) originate mostly from industrial and transport activities, the agricultural sector is one of the main sources of ammonia emissions. Particularly, the agricultural sector accounts for 88% of ammonia emissions (Berkhout et al., 2022). Subsequently, the agricultural sector is considered to be responsible for 46% of nitrogen dispositions[4] on N2000 sites (Berkhout et al., 2022; J. W. Remkes et al., 2020). Remkes et al. (2020) and Berkhout et al. (2022) identify the livestock industry as the biggest source of emissions, with animal manure from dairy farms as the biggest source of nitrogen emissions (Remkes et al., 2020, p. 33; Berkhout et al., 2022, p. 118). Ammonia emissions originate from manure in animal housing, and application to land. Specifically, 47% of emissions originate from the stables in the form of ammoniac (NH_3), 35% from run-off after manure application on soil and 3% from outside manure storage (Remkes et al., 2020, p.34).

4.3. The event of the nitrogen 'crisis'

The particular event of 'the nitrogen crisis' was instigated by a ruling of the Dutch council of state in May 2019, which ruled the governmental policies on nitrogen regulation as noncompliant to the European nature protection laws (Raad van State, 2019). In particular, ruling concerned the *Programmatische Aanpak Stikstof* (PAS)[5] of the Dutch government. At the time, the PAS was effective as the policy mechanism to regulate nitrogen emissions from economic activities, and address nitrogen pollution in the environment. Specifically, the ruling issued the regulatory approach taken in the PAS as in conflict with the EU Habitat Directive (Raad van State, 2019).

The EU Habitat directive was adopted in 1992 as a part of the EU's nature conservation efforts (European Commission, n.d.). Since then, EU member states registered specific geographic sites as Natura 2000 (N2000) areas. The process of designation of N2000 sites in The Netherlands was a difficult process with years of delay in comparison to other EU states (Beunen et al., 2013; Ferranti et al., 2010). Figure 2 shows the current distribution of the 161 N2000 sites in The Netherlands. By the law of the directives, the Dutch government is obligated to ensure a "favourable conservation status[6]" for the N2000 sites (Ferranti et al., 2010; Remkes et al., 2020). In practice, this means that the government is responsible for assuring that the protected species and habitats within these sites are not exposed to harm. The majority of the 161 Dutch N2000 sites are vulnerable to harm from exposure to nitrogen dispositions (J. W. Remkes et al., 2020). As such, under the EU Bird and Habitat directives, the Dutch government is tasked with reducing the levels of nitrogen significantly and the dispositions on these sites. In order to reduce dispositions of nitrogen on N2000 sites, the government is tasked with addressing emissions from the sources, so as to reduce the total amount of reactive nitrogen over the country.

[4] The issue of responsibility is contested: a justified question that has been raised by the farming community is the extent to which individual farmers can be held responsible for the *dispositions* on N2000 sites, while they can only control fully their *emissions* and most of the emissions of a farm deposit within close proximity of the farm. After years, it is becoming acknowledged that the farmer can only be responsible for reducing the total emissions of their farm, and close-by dispositions, whereas reducing the 'blanket' of nitrogen from which nitrogen dispositions on N2000 sites originate is the responsibility of the government (Erisman et al., 2023).

[5] Programmatische Aanpak Stikstof can be translated to Programmatic Approach Nitrogen.

[6] This means that the conditions needed for a species or habitat to survive are either maintained (they cannot worsen) or improved (Ferranti et al., 2014)

While the issue of nitrogen pollution has been around for decades, the issue became a ‘crisis’ as a result of the consequences of the May 2019 ruling. The consequence of the ruling was that the PAS regulatory system could no longer be used to grant permits for economic activities, such as construction or agricultural expansion. As a result, the development plans of many actors (including the government) could not continue and the country was ‘locked down’ (Rutten, 2019). In the new situation, a permit can be granted if the parties involved can assure that emitted nitrogen in the activity does not lead to harmful effects on the N2000 sites.

Another immediate consequence appeared particularly for the agricultural sector. Under the PAS, some farmer’s developed their farms on the basis of a so-called ‘PAS-melding’ (PAS-notification). Farm activity and developments were approved based on a notification of activity, and the activity was exempt from the permit requirement. This approach to approving farm activity was rendered unlawful through the ruling, and about 3637 farmers who used this procedure were rendered illegal in their farming activity. At the time of research (fall 2022), the issue of the *PAS-melders* (PAS-notifiers) is still pressing as the government struggles to find ways to legalize their activities (NOS Nieuws, 2022a).

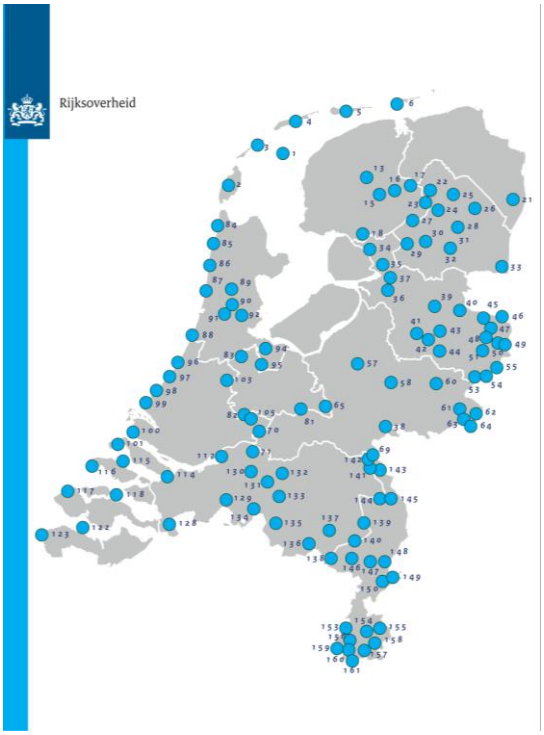

Figure 2 Natura 2000 sites in The Netherlands. © Rijksoverheid

4.4. Subsequent government developments since May 2019

After the ruling of the Council of State, a series of events ensued, which made a dynamic context at the time of fieldwork. In this section, I elaborate on some events that were most relevant to the fieldwork context. For a more detailed overview of government’s actions, I refer the reader to the timeline on onslevendlandschap.nl (Levend Landschap, n.d.-c).

In response to the ruling in May 2019, the Dutch government faced the challenge of developing a new mechanism for nitrogen regulation. A public and political debate ensued around how to achieve this task. Calls were made to significantly reduce the number of livestock in the Netherlands. The process was characterized by polarization between nature-advocates and agrarian collectives. In the fall of

2019, many protests were organized by farmer's organizations, starting with a mass protest on October 1 in The Hague, which blocked the city (NOS Nieuws, 2019), in part sparked by calls by a D66 political party member to cut the livestock numbers in half (Winterman, 2019)

The government set up an advisory committee (Committee Remkes) to explore options. The Advisory Committee concluded that a reduction of 50% of nitrogen emissions is necessary by 2030 to reduce dispositions on N2000 sites sufficiently (J. W. Remkes et al., 2020). To institutionalize this goal, the government passed the Nitrogen Reduction and Nature Improvement Act in July 2021 (in Dutch: Wet Stikstofreductie en Natuurverbetering). This act records the nitrogen reduction goals for the upcoming years. In 2035, the goal is to have 74% of N2000 area exposed to levels of nitrogen disposition which are below the "critical disposition limit" (Dutch: Kritische Dispositie Waarde) (LNV, 2022). Notably, each N2000 site requires different levels of reduction of nitrogen disposition, with the consequence that local measures need to be different. Therefore, the government's approach comprises both national generic measures, and regional (provincial) specific measures (Levend Landschap, n.d.-a; *Startnotitie Nationaal Programma Landelijk Gebied*, 2022).

The Cabinet Rutte IV was installed in January 2022, bringing a new coalition into government. This coalition changed the goal for emission reductions from 2035 to 2030 (*Omzien Naar Elkaar, Vooruitkijken Naar de Toekomst. Coalitieakkoord 2021-2025*, 2022), a change which became later subject to debate within the same cabinet (NOS Nieuws, 2022b). The installation of the Cabinet Rutte IV included ministerial reform: the traditional Ministry of Agriculture, Nature and Food Quality became led by two ministers instead of one: the minister of Agriculture and Food Quality, and the minister of Nature and Nitrogen. The latter minister was made responsible for resolving the nitrogen crisis and nature recovery, while the former minister remained, as before, responsible for food quality, and the structural development of the agricultural sector. In the context of the nitrogen crisis, this minister was made responsible specifically for developing 'long term perspective' for the agricultural sector.

At the national level, the implementation of the Wsn takes place under the policy framework "Nationaal Programme Landelijk Gebied" (National Program Rural Territory, NPLG), which was developed by the succeeding minister of Nitrogen of Rutte IV[7]. Under this framework, the government developed an array of measures to reduce emissions and to improve nature at the N2000 sites (for an overview, see Levend Landschap, n.d.-b). To implement the emission reduction policies for the agricultural sector, the government budgeted 7 billion euros until 2030, of which 3,7 billion is ear-marked for nitrogen reduction. Additionally, the cabinet Rutte IV budgeted another 24,3 billion euros in a Transition Fund to fund achieving the other existing goals for nature, nitrogen, water and climate (i.e., obligations beyond Natura 2000 goals), to foster integral policies that address multiple challenges (van der Wal-Zekkelink, 2022). Next, the national government instructed the provincial governments to develop a "Provinciaal Programma Landelijk Gebied" which details the regionally, context-specific measures to address multiple environmental challenges, including nitrogen emissions and dispositions. At the time of fieldwork, these plans were still in development, as the deadline is set for July 2023 (van der Wal-Zekkelink, 2022).

The publication of the NPLG plan took place on June 10, 2022. This day was long looked forward to, as both ministers would publish respective plans to address the nitrogen emissions from agriculture, and the linked future perspective for agriculture. The minister of Agriculture published a letter to parliament describing the future perspective of the agricultural sector (Staghouwer, 2022). However, this letter was snowed under by the simultaneously published plan of the minister of Nature and Nitrogen of the preliminary plan for the NPLG (van der Wal-Zekkelink, 2022). The document included a map detailing the geographical distribution of nitrogen reduction goals (see Figure 3).

The publication of the map sparked mass farmer's protest in June 2022, the second mass protests since May 2019. The map made a significant impact on farmers, which they expressed in the protests. Following the protests, and critique from both farmers and environmental interest groups, the map was retracted, 'taken off the table'. However, the damage had been done: the trust between government and farmers was severely damaged. In September 2022, the minister of Agriculture stepped down and was succeeded by another (NOS Nieuws, 2023a). Additionally, the cabinet tasked Remkes for a second time, to speak with the agricultural organizations about their concerns, and to repair trust. In October 2022, he published a report detailing that the farmer's experience uncertainty and worry about the future, as well as a proposed pathway out of the nitrogen crisis. One of the advised actions was to establish an 'agricultural agreement' in a wide selection of stakeholders would be involved to decide on the future of Dutch agriculture (J. Remkes, 2022). The new minister of Agriculture became responsible for achieving the 'agricultural agreement', which in early 2023 kept on delaying in progress (de Witt Wijnen & Uijtewaal, 2023).

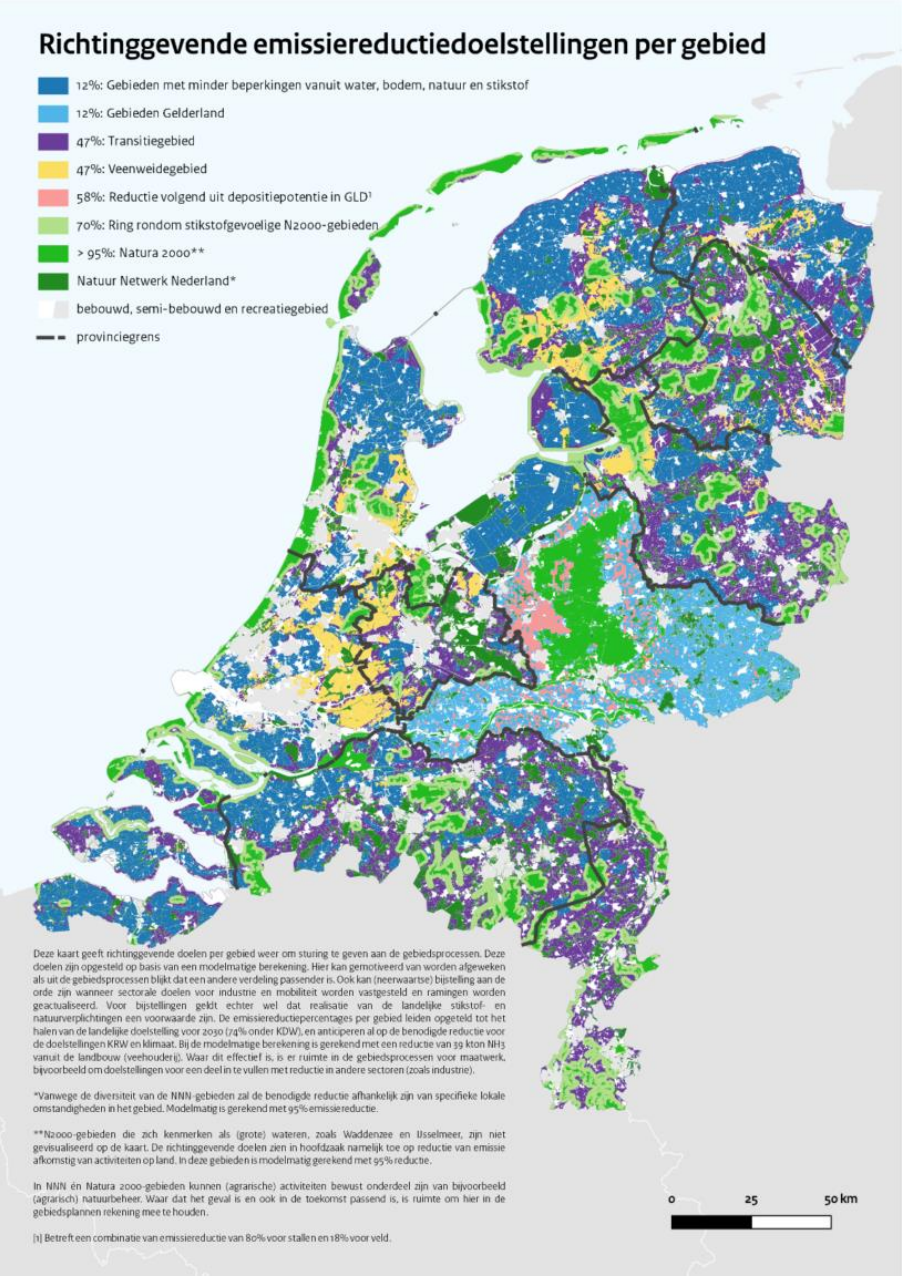

Figure 3. Nitrogen reducation goals in the twelve provinces. (Van der Wal-Zeggelink, 2022).

On the advice of the Committee Remkers, one of the main pillars of the nitrogen reduction strategy is to buy out livestock farms that are marked 'piekbelasters' (peak polluters), i.e., farms that emit high amounts of nitrogen and put pressure on nearby N2000 sites (J. W. Remkes et al., 2020; Rijksoverheid, 2022). At the time of the first protests, a study by I&O Research commissioned by the newspaper *de Volkskrant* explored what the views of the livestock farmers are regarding the nitrogen crisis and what they would like by means of a survey. The study found that farmers feel misunderstood, and that most would be open to changing. Regarding buy-out of their farm, about 60% of the respondents were not open to selling their farm. The rest of the respondents indicate being open to negotiation, and preferred to retain ownership of land, or the ability to decrease the number of livestock with support, in order to keep farming (Kanne et al., 2021). In November 2022, the minister of Nature and Nitrogen announced she intended to offer these farmers a 'deal they cannot resist' to buy out the farms. At the time of research, it was yet to become clear what the deal was, and what farms are considered peak polluters. In the end, the deal entailed an offer of 120% of the farm's worth. For the whole buy-out program, the cabinet budgeted almost a billion euros (NOS Nieuws, 2023b).

Another significant event was the discontinuation of the derogation, the abovementioned exemption under the Nitrate Directive granted by the EU. In September 2022, the agricultural sector and the cabinet were surprised by the EU Commission who announced it would not continue derogation for manure application from 2025 onwards. Since 2006, the Netherlands was exempted from the norm for nitrogen application on land, allowing farmers to apply more animal manure: 230-250 kg N instead of 170 kg N per hectare. The reason for abolishing this exemption is based on the long-term non-compliance to the goals of the Nitrate Directive, through transgression of norms for surface-water pollution. As a consequence, farmers are obliged to reduce their N application from animal manure by 2026. In some specific areas, such as drink water extraction areas, the new norms for N application in animal manure (170 kg) went immediately into effect (Bloemberg-Van der Hulst, 2023). As a consequence, farmers that could otherwise apply all their manure on their land face rising costs for commercial manure disposal. Another expected result is that the landscape will change as incentivized to transform grassland into maize fields, and that farmers will apply higher amounts of artificial fertilizers, resulting in higher indirect carbon emissions (WUR, n.d.).

Finally, the provincial elections were planned for spring 2023. The political landscape was changed by the emergence of the new political party 'BoerBurgerBeweging' (BBB). This party grew out of the resistance movement in 2019, and had as its main points the termination of nitrogen policies (i.e., buy-outs, the KDW and the 2030 deadline for N emission reduction). The part is led by a former representative of the pig industry (Ordelman, 2017) and has a lot of former CDA members. One farmer, Koos Cromwijk, gained fame in the media after an emotional display during a debate on the nitrogen policies in (RTL, 2022). With the emergence of the BBB and ensuing debate on the nitrogen policies, the cabinet Rutte IV faced a challenge to continue. The debate on the deadline for achieving the nitrogen reductions posed a great challenge to the stability of the cabinet Rutte IV. The coalition (VVD/CDA/D66/CU) initially agreed on moving the 74% goal forward by 5 years, to 2030. Later on their term, the party CDA faced electoral challenge from the BBB for the provincial elections, which had the resistance to the nitrogen policies as its core theme. In facing their political opponent, the CDA party changed their perspective on the deadline, as such challenging the coalition agreement and shaking the foundations of the cabinet.

Chapter 5

The meaning of dairy farming

In this chapter I describe the meanings of dairy farming. These 'meanings of dairy farming' are *what is at stake* in the nitrogen crisis: dairy farming as a practice, and the associated experiences of dairy farming activities, are the valued objects that are appraised by the farmers in the context of the nitrogen crisis. I describe what dairy farming means in every-day life, characterizing dairy farming as cow care, as emotional, embodied labour and as food production. I highlight how experiences of joy feature in the everyday practices. For this enjoyment of dairy farming, two aspects are central: cow-care and variation in activities. The aspects are interconnected: the large variety of activities that make up the practice of dairy farming revolve around one goal: care for the cow. First, the overall variation between the activities is one of the aspects that is experienced as joyful. In turn, the activities in themselves, e.g. milking, mowing, feeding calves or improving farm infrastructure, involve embodied knowledge and experience. I highlight some of the main activities of cow-care and how they are experienced by the farmers. Central is the trinity of farmer, (grass)land and cow: the farmer, cow and land are interconnected, as the cow's health depends on the food from the land, and the farmer's wellbeing is equated with the cow's health.

5.1 Dairy farming as cow care

> *"What do I like about cows? Well… cows are of course just really beautiful animals to see. And they make…. my money. So if you take good care of them, then they give back, and you notice that. You just notice that cows appreciate it when you take care of them well. They're very cuddly. You can just walk among them, and that is nice to work with. No need for gloves; they don't bite. So just working with cows is fun. Just…. You can see when you take care of them well, then they give more."* (Daan, Interview, 9 January 2023).

The above quote illustrates that, indeed, dairy farming involves caring for a particular animal: a cow, who *gives* milk after birthing a calf. Part of the enjoyment of dairy farming is the engagement with dairy cows, for the farmer's appreciate the cow's nature (Jelle, Interview, 26 November 2022). The meaning of dairy farming as *cow-care* strongly comes to the fore in Daan's explanation. The farmers view their relationship to cows primarily in terms of care.

Ingold (2021) points out that in farming, it needs to be considered that food is not simply 'made' nor 'found ready-made' by people in their external environment. Instead, it is *grown*, through the labour of the gardener (or farmer) which is engaged in establishing the conditions for the growth of plants or animals (p. 85, emphasis in original). In the case of dairy farming, dairy farmers create the conditions for the raising of dairy cows and calves. In creating the conditions for raising cows, as such caring for them, the farmer acts similar to a composer who creates a musical piece: they bring together different instruments and attune them to each other, so that "*everything has to be right*" (Jorrit, Fieldnotes, 17 November 2022).

The process of raising calves to cows is a particular experience for farmers, as seen in the statements of Jorrit:

> We sit on our knees next to the tubes of the milking robot. Jorrit pulls at the hose to remove the inner tube. *"What is so nice about farming for you?"* I ask him while I

watch. He takes a moment to think, *"Yes… good question… I think the work with cows, and the life that you experience, from start to end."* He has managed to remove the tube. I hand him a new one, *"What do you mean by that?"* He works to put the new one the hose, *"Well… You reap what you sow. Every time a calf is born, you create life. And that calf, you raise to grow up. That is the cycle of life. That is beautiful to experience. And yeah… sometimes a calf dies. But that is also part of life."* (Jorrit, Fieldnotes, 17 November 2022).

Creating the conditions for raising and caring for dairy cows, involves a large variety of activities. This variation is what all participating farmers mentioned as one of their favourite aspects of farming (Fokke and Jelle, Interview, 26 November 2022; Daan, Interview, 9 January 2023; Johanna, Interview, 4 November 2022; Jorrit, Interview 22 November 2022; Jesse, Interview, 19 January 2023; Mies, Fieldnotes, 25 January 2023; Teun, Interview, 23 November 2022; Sytse, Interview, 25 November 2022). The execution of many different tasks and the variation that it brings is, next to being self-employed, associated with being autonomous. Farmers find enjoyment in (the freedom) that they can switch between different activities, as well as decide upon their own schedule, goals and the effort they want to put in dairy farming (Johanna, Interview, 4 November 2022; Jorrit, Interview, 22 November 2022; Fokke, Fieldnotes, 26 November 2022; Jesse, Interview, 26 November 2022; Teun, Interview, 25 November 2022). This is illustrated by the account of Sytse,

> *"Look, it's still relatively much freedom that you have. You can decide for yourself how you do something, how you solve something. And you can decide for yourself what you get out of it. You have those who are more laid-back in everything. But if you put more [effort] in, you also see the result. Even though that gets less and less. And there are a lot of different things to do. It's always something else; then you are a cow farmer, then you are mechanic, then you are a veterinarian, then you are [like] a wage-worker. It's always something different, and that is very nice."* (Sytse, Interview and Fieldnotes, 25 November 2022).

In everyday life, cow-care entails tweaking, attuning and maintaining the different components of the dairy farm system, such as grassland, fodder, cow-beds, milk machinery, and larger farm infrastructure, all in service of caring for the cow. If the cow is well cared-for, she will return the favour to the farmer by *giving* milk. The health of the cow is assessed by the volume and quality of the milk that she produces. For a large part, the health of the cow, and her milk production depends on the food she is given, which in turn connects the cow health to the land's health. By extension, the health of the cow is also equated with the health of the farmer (Daan, Fieldnotes, 25 January 2022; Sytse, Fieldnotes, 25 November 2022). The health of the farmer and the dairy cows are intricately intertwined. This is a finding which is confirmed by Hansen & Østerås (2019). In the practice of cow-care, the land, cow and farmer are intertwined and can be considered as a trinity around which the rest of the system is constructed by the farmer's labour.

5.2 Dairy farming as embodied, situated labour

It is a quarter past six in the morning. I stand next to Willem in the milking pit. The radio is making up for our drowsy silence. Willem had already collected the cows, who are now waiting packed up before the gates of the milking parlor. He also already put the feed in the feeding alley. I had found him as he dismounted from the tractor. "I couldn't see anything!" he exclaimed. The cold air had made the windows fog up. He approached me and asked, "The feed is smelling, do you smell it?" I picked up a handful and brought it to my nose to smell, "it smells a bit sour.

But that is because of the maize, right?" "It is a mix of silage and maize, yes. But the maize has started to grow moldy… You can smell that slightly."

I turn around. One feisty cow has put her head between the pillars of the pit's exit. If I would stand before her, she would push me over again like yesterday. Willem prepares the tube that brings the milk towards the tank, which runs from the floor to the ceiling. He presses three blue switches, and the buttons on the milk machine hovering above us. The red stripes in the little displays will soon show to the cows numbers. Below the machine, the milk claws are still hanging limply on their ropes. I walk along the machine to draw them up, pressing the upward button. With a swoop they are raised to cows-height. Except for one which is stuck. It lets me know with a shriek that gives me goosebumps. I quickly release it to make it stop. Willem pulls the handlebar, clunk. The feeding trays and fences come down with a dunking sound. The gate opens, and the first ten cows walk in. The floor has an anti-slip mat, so the trample of their hoofs is quiet. The feisty cow rushes in first – there is always a group who comes first, and those who are slow at the end. The ticketing of kibble is similar to hail on a roof as it is released into the trays.

We both grab a cloth and stick our hands between a cows legs to rub the utters clean. They stand is above shoulder height for me, so it takes quite some force to remove dried poop. We do this one by one, along the row of cows, for some efficiency. I push with all my strength, which is not much, to shake the utter and activate the lactation. Willem does the same; I know that he is more attentive than me in this task – with the touch of his hands and his eye he checks the condition of each utter and he is able to spot or feel infections. To me all utters feel equally firm… After cleaning, the milking cups are attached to the utter, with a mind for the hoofs so as not to get stepped on. I hold the claw in my right hand and with my left, I attach the cups to the teats one by one. With a sucking sound they attach. Soon the first row is done and we move to the second, repeating the procedure. By the time the second row is done, we wait. The milk machine, in this case a DeLaval, will pull back the milk claws automatically. In the meantime, I try to be mindful of any cow that might decide to poop or pee. They don't pay any heed to anyone's presence.

It seems like waiting, but it's not. I see Willem check the red numbers, looking at the amount of milk coming out. "It is good to see when the cows are giving the milk as they should." I look and see a heifer who gives 17 Liters. The others are more around 12 or 15. At the end of the row, I notice a red number is blinking. Willem checks it out. "Oh… The machine has not read the collar correctly. This one now got the feed of that one." When the first cows are done, Willem picks up a sprayer filled with the brown liquid that treats the teats, protecting against infections. He makes sure to spray all utters. When he is done, he turns to me and nods. I pull the handlebar, and with a thundering sounds the fences are lifted up and the fodder trays sink. The cows are released. Slowly, they follow their familiar path out the parlor, led through the hallway that leads them to their food. I hear Johanna's voice resounding in my head, "cows are never in hurry. People think they don't want to move. But they are just not in a hurry." Willem spurs them on with a "Sssss" and a pad on the legs. Trusting me to welcome and tend to the new

group, he turns to the other side, feeling the utters of the last cows to check if the milk is all out." (Willem, Fieldnotes, 16-17 January 2023).

Milking manually, touching the cows

There are recurring daily activities which intimately connect farmer, cow and land. The activity of milking connects farmer and cow intimately, which the fragment above illustrates. Willem is able to assess the condition of the utter through touch. And in reading the milk volume, he assesses the cow's general health. Here, it becomes apparent that the process of milking is not mere milk collection, but also as a check-up on the cow's health. During the various cow-care activities the farmer exercises embodied labour as 1) the work involves the senses of smell, touch and hearing, next to vision; and 2) the work is associated with particular emotional states. If the farmer milks cows manually, the activity that connects farmer and cow most intimately is during the daily milking (every morning and afternoon). Other, less frequent connections are during the insemination, or during trimming of the tails or the claws (Willem, Fieldnotes, 20 January 2023; Douwe, Fieldnotes, 30 December 2022). Next to involving the sense, the activity of milking is experienced emotionally. For Johanna for example, the time of milking is quiet time, and a relaxing experience. The repetitiveness of the process can lead to a state that could be understood as flow (Nakamura & Csikszentmihalyi, 2002). This can be observed in the statement of Johanna below. While I was milking with the farmers, I personally experienced this flow-like state occasionally, where time would fly by and the idea of being working would leave my awareness.

> *"I've always liked milking. […] But why? I don't know exactly. I find cows just very nice animals, and if you milk them, well, then you have seen them all. […] And I find it a very soothing activity."* (Johanna, Interview, 4 November 2022).

Some farmers utilize a miking robot, also known as an Automated Milking System (AMS), which automizes the milking process and simultaneously collects data about the cows such as the amount of milk they give, cell count, number of visits, etc. In the Netherlands, about X% of farmers have an AMS (source). In this study, Jorrit, Teun and Sytse, and Daan and Mies are among those who utilize an AMS. The AMS replaces the mechanized milking session to assess cow health with a shift to data-driven monitoring of the cows and their health, and as such changes the cow-farmer relationship, as also noted by Deturche (2019). They show, however, that this does not always farmers experience more distance between the them and the cow, but rather a change in the rhythms in daily routine of the farmers. With the introduction of the AMS, new affect is produced in the relation between the farmer, robot and the cow. The farmer is enhanced in his capacity to act as the AMS frees up time and energy previously spent on milking for other activities, as in the experience of Daan, who also engages in council work alongside farming. Yet, Daan pointed out, this positive experience depends on the AMS requiring minimal maintenance (Daan, Interview, 9 January 2023). While the AMS enhances farmer's power to act by liberating them in time, energy and obligation, it also demands immediate attention when it malfunctions, potentially leading to experiences of disempowerment, as in Teun's case. He expressed that the robot can also be stressful as it can call him at any time (Teun, Fieldnotes, 16 November 2022). Hansen et al. (2020) find that the monitoring process can also occupy more mental space for farmers, who now can monitor real-time data, and at times be overwhelmed by the amount of data. The tasks in cow-care are also changed when an AMS enters the trinity: health assessment shifts from touch and visual information to quantified digital information. The maintenance of the robot also requires new skills and techniques. This is illustrated by Jorrit's comment while repairing the machine: "sometimes I feel more like a mechanic than a farmer. If I hadn't been a farmer, I probably would have been a mechanic (Jorrit, Fieldnotes, 17 November 2022).

Growing grass, being in the pasture

A second main activity of cow-care is that of feeding the cows. In this activity, the land and cow are intricately connected through diet requirements. The production of fodder is a form embodied labour and an emotional experience, and involves a variety of activities that are experienced in diverse ways.

First, creating food for the cows is a practice of land management. To create good conditions for growth, the farmer monitors the vegetation and manipulates the conditions with water drainage (or irrigation) or fertilizer application. Land management relies on the senses and on embodied, intimate knowledge of the land. Assessing the quality of the land and grass-growth is an activity that draws on vision, touch and smell. For example, Daan and Sytse are both careful to observe how the grass grows over the year and on the weather (Daan, Fieldnotes, 25 January 2023; Sytse, Fieldnotes, 25 November 2022). Another example of intimate knowledge I find in the moment when I was in the pasture with Fokke to check the water drainage. He was able to find the exact spot of the water drainage within a moment, while it is unobservable to the unknowing person (Fokke, Fieldnotes, 26 November 2022). Through sensation, observation and learning, the farmer develops intimate knowledge of the soil, landscape, and the insect and plant communities. The vignette below describes the 'farm walk' I took together with Daan, and illustrates how he relies on his senses to observe the weather and the grass-growth.

I step onto the brittle grass, following Daan. The pasture is delineated by the farm behind me, the road on the left, and a tree line across. On my right hand, the grassland stretches a few hundred meters to the back. "This piece is younger grass, do you see? I's lighter in color," Daan points out. I look in the distance, and notice that that the field I am standing on is lighter than the fields further back. "It's just ryegrass here, which was just sown," he continues.

We cross the field diagonally, leaving the barn behind us. In the middle, after about 200 meters, Daan stops. "This is herbaceous grassland, but it's also young." Daan explains he is experimenting with adding diversity into the mix and sew in the herbs in 2021. The plants still need to establish. "Look, there it's much darker." He points further back to another field, "that's an old pasture, I have not ploughed it in a long time." Daan squats down to look more closely and I follow suit. He gently runs his fingers through the grass, which must be cold. It's a freezing day today, I feel the wind cutting my face. "There's clover in there, and plantain, and chard and chicory and yarrow." He finds another small plant we both don't recognize. We get up from our crouches again and walk on to the older patch of land. The transition is almost unnoticeable to me. There are no more clues to it except the color of the grassland as you zoom out. But Daan knows exactly where it is.

As we walk on, I start to see it. There are more large plants of various kinds in it. In one patch, the soil is bare. We walk toward it. "Here is bitter dock. That's a nasty plant." I look at the young leaves, would easily mistake it for chard or plantain. "Bitter dock make the soil bare around it." The ground around the plant is indeed bare, there is hardly any grass. We walk on, until we are across the meadows. Daan continues, "my plan now is to leave the pasture like this for an extended period of time." We reach the windbreak forest and walk a few hundred meters following a winding path. "This forest is a windbreak. They planted this in 1969. I used to manage it, but Staatsbosbeheer bought and took it over a few years

ago. They had different plants for it." For a large part of our walk, Daan makes his complains about the mismanagement. "If I still managed it, I would take care of this part. It is too bushy…"

At the end of the forest, we make our own path between some bushes, and emerge onto the back of the property. The soils here is bare and rough, from the potato harvest. As we make our way back to the barn, Daan comments "This part is being worked more intensively. I'm going to sow grass here again, but there's also going to be some fertilizer on it. That's for the silage for next winter." We arrive at the grassland. "You're actually not here at the right time. you should actually come back in the spring when everything is blooming. Now it's not and it's not that exciting. Farm walks I do in the summer to keep an eye on everything. How the grass is growing, how it looks, where it's improving. How it reacts to the weather. Where I'm taking the cows tomorrow...". We stop briefly to look at the clover, Daan pointing out the tiny plants. "Clover grows in the fall and late spring ... It's not an easy ... it's hard to maintain" - clover as a legume is very nitrogen sensitive. If a soil is heavily fertilized "you lose it in no time." (Daan, Fieldnotes, 25 January 2023).

Daan is experimenting with incorporating herbs and grass-clover into the grass. From the story above, it becomes clear that enabling the growth of grass-clover requires different conditions in comparison to monoculture ryegrass pasture. In the diversification of grassland, the farmer is required to also attend to the needs of particular plants, such as grass-glover. The farmer develops the skill to recognize the needs of diverse living beings and looks to create the conditions for their growth.

The goal of land management is produce as much roughage (grass or maize, etc.) of 'good quality' as possible, which means that the sugar and dry matter content in the grass or silage is balanced to provide the proteins and sugars that the cow needs, in addition to other minerals. In this way, the cow's nutritional needs are intertwined with the wellbeing and the livelihood of the farmer. This is reflected in Sytse's account below. The quality of the land as a result of land management strategies is a reflection of the cow's and the farmer's needs in terms wellbeing, and livelihood.

"I really enjoy viewing the land. And the grass that grows on it. It's really nice, when you have nice grass. Then it is good food, and you will have healthy cows. I find that very important, to have good food, and healthy cows. […] You want to have healthy cows, you don't want sick animals. I love animals, and I really don't want animals that are ill. That is good for nobody. If a cow is sick, she will give less milk. And if a cow is sick, it costs more, and you have a lot more work. Then the joy is gone quite quickly…. […] And, I enjoy walking the land, you see two hares, or a bird flies past, that is the most beautiful thing there is. […] We have natureland, and a part of the land is sown with grass clover. And we fertilize with our own manure. We don't use artificial fertilizer or the like here. […] I find it important to have cows in the pasture. Then they really get healthy, and you see that: they shine, and they can walk, lie down and go where they want. Or they bump their heads – crazy cows, they're a bit crazy sometimes, especially the first week. But that is nice. A cow belongs in pasture it seems to me…" (Sytse, Fieldnotes, 25 November 2022).

Second, creating the feed mix is a process of finetuning and balancing components and nutrients to influence the milk production and to maintain the cow's health. The farmer assesses the quality of the fodder daily with their senses (smell and touch) and observation of the cow's milk production (Teun,

Interview, 29 November 2022; Jorrit, Fieldnotes, 17 November 2022). The amount and quality of roughage varies per season. To deal with this variation, any shortcomings are complemented with supplements and concentrates. In this study, only Daniel fed no concentrates as part of his organic farming strategy. Instead, he relies on procurement of regional organic fodder to mix into the silage (e.g., sugar beets) (Daniel, Fieldnotes, 26 January 2023). For finetuning the fodder mix, the farmer can get detailed information about the composition of the roughage throughout the year from farm advisors and sampling (Jorrit, Fieldnotes, 17 November 2022). Based upon these assessments, the farmer decides on a feeding strategy, and on how to complement any shortcomings. Since the fodder is often a composition of different elements, these have to be carefully mixed. It is common to use a mixing wagon that is powered by a tractor (Fieldnotes, 28 December 2022, 25 January 2023; Interview, 26 November 2022). The farmers make the knowledge of this particular mix their own, as becomes clear in Mies' statement: "once you realize it, and understand why the proportions are in that way, then it's pretty logical and easy to remember" (Mies, Fieldnotes, 25 January 2023). The effects of this composition are again observed and evaluated (Jorrit, Fieldnotes, 17 November 2022).

Third, the farmers expressed that being in and working on the land is a generally very pleasant experience for them, both when walking in the land to pick up the cows, or during farm walks (Daan, Fieldnotes, 9 December 2022; Daan, Interview, 9 January 2023; Sytse, Fieldnotes, 25 November 2022), or when working the land with the tractor during mowing (Jesse, Interview, 19 January 2023). When it is the right time – when there is no rain, mowing is contractually allowed, and the grass is long enough – the first step creating roughage is mowing. Some of the farmers experienced mowing, collecting and silageing as one of the best times of the year. Mowing, collecting and silageing is predominantly done using a tractor and machine linked to the back of it. In itself, mowing is an emotional experience and involves the senses. This is illustrated by Johanna as she tells me of her experience of mowing,

> *"I always find that it smells so nice, and just be on the tractor like "YES! It's spring again! We are going mowing!" That is such a moment, when you think winter is over. New year. New harvest… That… Yes, [then I'm] very happy. About the end of April, or start of May. […] It's just… my moment. And I think all the farmers have this when it's spring. When the grass is green, and it grew. A new year, new chances."* (Johanna, Interview, 4 November 2022).

For Johanna, mowing – especially the first cut – is a joyful activity; she is experiences a pleasant mood associated with the season, and enjoys the smell of the mown grass. Likewise enjoying the mowing process, Jesse explains the particular experience he has when on a tractor:

> *"At my boss' [farm], I will be on the tractor. […] On the tractor, it's always… you don't have to think too much. You just have a nice song playing, and yeah, just pondering over things. Like, how will I approach this?" Yeah, it's just like a hobby sometimes. […] When you walk through a stable, then you are always busy. Same principle: oh that one is crippled, or that one might be fertile. You are always onto the next task, always thinking. Or you walk on the property and notice some junk, need to clean. Or this or that. You don't have that when you are on the tractor, on the land. There you just have one task. Mowing, or raking, or… there you are just busy, and don't need to think about it. That is the difference."* (Jesse, Interview, 19 January 2023).

For Jesse, driving the tractor is a moment of quiet time; to think and to relax. In contrast, some farmers dislike this activity for its simplicity, like Teun (Teun, Interview, 29 November 2022) or Fokke, who used to be a fan of it but lost the interest (Fokke Fieldnotes, 26 November 2022).

Enjoyment in collaborative work

Finally, making silage is experienced positively due to the collaboration. When farmers collaborate for making silage, their bodies come together and are empowering each other. Daan and Mies, Sytse, Jorrit, Fokke and Jelle are farmers who often work together with others to create the silage hill. The joy of this collaboration is illustrated in the story of Jelle and Fokke:

> Jelle: "*I find it [farming] the most fun when everything is at its busiest. And to be making the silage with my uncle and my dad, when we do the silage altogether. I think when everyone is at work, that is the most fun to me. What job I have to do, I don't care so much. […] For example, there you are raking and then suddenly you drive next to your uncle who is on the loading wagon. So, you wave. And then you drive home, and then your dad is on the [silage] hill. Of course, you put the tractor to the side. Comes your uncle, coincidentally returns. And then, yeah, I do something in the barn. And then, it's nice, sociable, and everyone is like "Oh it was wet, that bit!" "Yeah it was wet!" Then you are working and yeah, that is fun. I like it best when everyone [works together]."*
>
> Fokke: *"Everything goes in one go. […] the first starts to mow, and that one immediately after, and then that one stands there, and nothing is standing still! […] That is the nicest about it. Like Jelle says, you are busy all the time. And then in the evening, when you are sitting at home, you've had enough. But then all is done, and then you have a really good feeling. That you achieved the schedule."* (Fokke and Jelle, Interview, 26 November 2022).

In their story, Fokke and Jelle show how the positive affect is produced when the three farmers and their tractors who work in a synergetic manner, in ways that their activities build on each other. The positive experience is subsequently captured in stories which produce a the shared feeling of achievement.

A final activity of dairy farming is breeding, for which each farmer has a different strategy. What most of the farmer's mentioned about it, is that they are looking for a healthy cow. The cow is judged on three criteria: milk production, frame and utter. Additionally, the smoothness of giving birth to the calf also plays a role. This aspect of farming should not be underestimated, as it brings together farmer and successor (Daniël & Renske, Fieldnotes, 27 January 2023; Daan & Mies, Interview, 23 January 2023), hinges on skill and strategy (Jorrit, Fieldnotes, 15 November 2022), allows for independence (Yfke, Interview, 29 December, 2022) and the raising of the calves gives joy, or grief as seen in the accounts above from Yfke and Jorrit.

To summarize, dairy farming encompasses a variety of activities in the name of caring for the cow. These activities weave an intricate connection between the farmer, the dairy cow and the land. These everyday activities rely on and build a form of intimate, situated knowledge of cows, fodder and land which is located in the body of the farmer. The variation of activities, a sense of autonomy, and the emotional experiences of the work, e.g., relaxation during milking, mowing or walking in the land, makes dairy farming a joyful practice, and as such an emotional labour. The activities involved also bring other people together. This can be seen in the examples given by Fokke and Jelle when making silage, in Mies, Daan and Frits, who mix the fodder. For Teun and Age who milk collectively. For Gerard and Tina, and Daan and Mies, who do breeding together. Daan and Mies who work together in the breeding strategy.

5.3 Dairy farming as food production

In this section, I discuss a final meaning of dairy farming, namely 'dairy farming as food production.' This meaning of dairy farming is associated with geographic location and a value of sharing.

First, the farmers consider the Netherlands a favourable place for dairy farming: the climatic conditions, the soils, and technological and knowledge conditions of the country make it an 'ideal place' for dairy farming. Climatic and geographical contextual factors are of high importance to the dairy farmer whose profession is to create the conditions for raising and rearing dairy cows, The farmers compared the ideal conditions of The Netherlands to the conditions of other countries, where dairy farming is believed to be less feasible, in the sense that it the conditions *elsewhere* make it difficult to achieve the production levels of Dutch dairy cows (Sytse, Interview, 25 November 2022; Daan, Interview, 9 January 2022; Teun, Interview, 29 November 2022). An example of this is found in the consideration of Fokke:

> *"[…] Food (milk) can be produced here, and that is not possible in a lot of other places. At least, in Asia you have fertile areas of course […] there grow different things well. And, dairy and grass, that can be produced efficiently here. […] In Germany or France, you need to irrigate often because the soil is so dry and there is less rain. That is also less efficient, because you need to irrigate more, which costs fuel… and here, in the Netherlands, the climate is just perfect, and it's nice and flat, very easy tilling, that also makes a difference, is also efficient and… yeah, because of that you can grow food well, of good quality. And you need to safeguard that, I would say."* (Fokke, Interview, 26 November 2022).

This quote illustrates how the farmers believe that dairy farming in The Netherlands is logical, because it has the ideal conditions for dairy farming. In this narrative, it is circumstances that ask for dairy farming to be practiced, rather than dairy farming shaping the circumstances. Eliminating dairy farming from The Netherlands becomes an illogical development. In practice, it is common that the circumstances are changed in service of conventional dairy farming, such as lowering the local water table, land reform and industry infrastructure (source). Furthermore, Smit (2018) shows that conventional livestock farming, including dairy farming, relies on externalizing energy, labour and land requirements, moving the procurement of resources for dairy farming off the farm. However, for the farmers, it is dairy farming in essence which is perceived to be questioned, rather than the current practice of intensive dairy farming.

The practice of dairy farming to produce food is ascribed value and evokes emotion similar to those which Nussbaum (2003) refers to as eudaimonistic emotions and values. Eudaimonistic emotions relate to valued things as part of what is a good life, and to things perceived valuable to the person's life. The discussion on the environmental sustainability of dairy farming, of which nitrogen emissions are a part, becomes in this narrative a threat to food production. The eudaimonistic values attached to dairy farming by the farmers are 1) the understanding of dairy as food, a primary need of people, and 2) a responsibility to share abundance. Take for example the following accounts of Teun, Cato and Jelle:

> *"Well… let me say it this way: all people want to eat food, right? Well. If we make the Netherlands the ideal country, good for the climate, good for nature. But a lot of food is produced here, we are also suited for that, in terms of land, climate, everything. Then you … half it? Well, then people's food needs will not have decreased."* (Teun, Interview, 29 November 2022).

> *"A lot of people have no idea of how [farming] works. In The Netherlands, the circumstances are really perfect, ideal for food production. And then they want to give that up… And the people say, a lot is for export, it needs to be local again. But what is export? And what is local? What we export now goes to Germany; is that too far? Is that a problem? I think that if we have such good conditions to produce food, we should share that. It even seems egotistical to me, to not share it and to keep is for ourselves."* (Cato, Fieldnotes 25 January 2023).

> *"It is a responsibility that you have perhaps, to the rest of the world as an exporter of food. […] If we can contribute in this way, and another country does it another way. Then we can all maintain ourselves well."* (Jelle, Interview, 26 November 2022).

Thus, for the farmers, the people's need for food is given, and in their view, giving up dairy farming in a place where conditions are ideal is illogical as the need for food needs to be me. Furthermore, the farmer's view it as a responsibility to share the abundance of food in The Netherlands, which is in turn the result of the good conditions. When talking about export of food, the idea of exporting food carries a sense of sharing and care. In this way, dairy farming is viewed as a service to people, the *production of food, for others*. This meaning of dairy farming is also at stake, in the felt existential threat contained in the nitrogen crisis.

5.4 Co-becoming of farmer and place

In this section, I describe how the farm is a part of the farmer and the family. I illustrate how dairy farming is a process of co-becoming of the farmer and the farm. As such, the farm is also an amalgamation of the labour of past, present and future generations. First, in the case where a farm has been passed down in the family, it contains the labour of the past generation(s), and understood as heritage. Second, in the present, the work of the current farmer is concerned with farm development and is associated with pride and achievement. Third, the farm is viewed as a place of potential, where they can realize visions of the future. Furthermore, the farm also co-becomes with the future generation.

"I am a farmer since 1979. That's when I came from school and went to work with my dad and brother in the business. So, how long is that? Forty three years? Yes, I think so." Teun is a chatty man, in his late sixties. He works in a partnership with his brother and his young nephew, Sytse. They are working together on a farm that milks nearly 300 cows who give about 36 Liters a day on average. I first speak to him while he eats a warm meal for lunch in his house. We continue our conversation in his office, in front of his PC viewing the Lely dashboard of the milking robot. This is where we end up when I prompt him to show me his favorite place.

"And did you always know you wanted to take over the farm?" I ask him. As he takes a bite, he responds *"Yes. Yes, from when I was about eight, I think."* In awe, I ask *"Already from when you were eight?" "Yes." "You were already thinking about it then?" "Well… It was a given. You didn't think about it. You know, your father… that wasn't… there were about eight farmers in this street. All kids went to school and became farmers. It was nothing more than normal that sons would take over the farm. My dad, he had three sons, which was a lot. But, well, that is also why he made this farm so very big." "For you to be able to work there?" "Yeah, the three of us. […] You know, I was already in farming school, and he knew I would come to work on the farm after. So yeah, maybe he thought "I will just build this stable." You also got subsidies for that, did you know […] So that also gave an extra encouragement to build a really, really big stable. […] And well, [my brother] was already working on the farm. I would join as well. And my little brother also helped in his free time. So in principle we could handle the work. And maybe he thought, "Oh, well, if one of the sons won't be a farmer, I will just see how I fix it." A bit of a jump in the dark, I think that too."*

> *At the end of the interview, we walk to my bike. He adds another remark "I had a very ambitious father. When I took over the farm from my father, it was very big already. We have taken over a big farm." Almost at a standstill, he continues "I think we do not differ much ideologically. I find the climate and nature also important. But I am a farmer, it is my life. And I defend my farm."* (Teun, 22 and 29 November 2022).

Above, the story of Teun's father illustrates how history is crucial in having shaped the present-day dairy farm system, and the materiality in which the current dairy farmer operates. In this case, the past decisions of Teun's father shaped the infrastructure and the size and breed of the cow herd. Through passing down of the buildings, associated finances, as well as the process of on-farm breeding. Second, the story illustrates how the decisions of Teun's father held an emotional, affective component. In his decision to up-scale the farm, he considered the future of his sons, and their ability to continue farming. As such, the father's past decision-making and labour is subject to the affect towards his children, captured in the intention to enable them to keep farming. The dairy farm is an inheritance of the labour of the predecessors, and makes the farm a place of relationship between the current farm household and the past generation(s). Importantly, this emotional aspect acted in concert with favourable financial circumstances created by the government. The investments of the father shape an instance of possibility for the continuation of the farm by the future generation, which produces positive affect between the father and Teun and his brothers. The sons are empowered in their capacity to act in dairy farming. Carolan (2018) similarly identifies the importance of succession, the wish for future generations to be able to farm, in farm development decisions. The agroindustry cunningly attunes to this affective dimension of farming by connecting farm innovation to the attractiveness of farming and in enabling succession in a capitalist economic context (Carolan, 2023).

The process of farm development is a process of co-becoming of farmer and farm. The current farmer shapes the farm in their own way, and grow together with the farm. Ingold (2003) characterizes place-shaping processes in terms of dwelling, rather than designing or building. With dwelling, Ingold characterizes the creation of places and artefacts by people, to be understood as a process of co-becoming. Dwelling (and growing) is contrasted to the concepts production or making that imply pre-determined design for places and things. With the concept of dwelling, he argues that their development is likewise an *unfolding*: the dweller or the artisan combine material elements to construct a place or artefact, and finetunes the place and artefact to their senses. These dwelling and growing practices require skill, embodied in the maker, and as such, the resulting places and artefacts *contain a part of the maker.* In other words, in dwelling the person and the place or artefact are co-becoming, making the 'product' and the 'maker' intimately intertwined.

Applying Ingold's concept of dwelling to dairy farming, the farm becomes an unfolding of a lifetime and *includes a part of the farmer*. This includes the current farmers, but also predecessors. In dairy farming, the farmer and their family dwell on the homestead. They work there for a life-time, throughout which the farm is shaped by the farmer's (and other family member's) vision and needs. For example, after succeeding their farther, Teun, his brother and Sytse have put their mark on the farm by using their labour and making decisions for changes in terms of milking system, feeding strategy, ambitions and business relations. Farm development, as co-becoming with farmer is a process of composition by the hands of the farmer. The composition is a source of pride and achievement, as becomes clear in the statements of Daan and Daniel. Daniel seemed reluctant to admit it but states: "*You have to stay modest, I am not often proud… What am I proud of? I guess it would be the farm as it is now"* (Daniel, Interview, 26 January 2023). Similarly, Daan told me, *"Rather development of the farm. We used to have the land at many different locations. […] Now we have a really nice closely-knit lot, so to say. And been able to breed a qualitatively high cattle herd. I am quite proud of that."* (Daan, Interview, 9 January 2023). It is also confirmed by Douwe, who says *"when you see that everythig*

goes well, nicely, then that gives a good feeling. If things work out well, that gives you a proud feelings. I think those things go hand in hand." (Douwe, Interview, 30 December 2022).

The process of co-becoming is characterized by challenges and achievements in overcoming these. For example, Johanna managed to keep dairy farming by taking on off-farm jobs that fit to the milking schedule (Johanna, Interview, 4 November 2022). Jorrit has struggled to keep his cows healthy after the introduction of the milking robot. The milking routine of the cows was disrupted and the new system disagreed with the grazing behaviour of his herd. Jorrit then made the decision to keep the herd inside in order to deal with it (Jorrit, Interview, 22 November 2022). Daniel has managed to restart a dairy farm from scratch after relocation, and managed to transition to an 'organic regime' (Daniel, Fieldnotes, 26 January 2023). And, finally, both Jorrit and Fokke and Jelle have managed to deal with the adverse effects of the phosphate policies after making investments but needing to reduce the herd size after (Jorrit, Fieldnotes, 15 November 2022; Jelle, Fieldnotes, 24 October 2022; Fokke, Fieldnotes, 26 November 2022). Over their lifetime, the farmers co-develop with the farm system, in their experience and knowledge and dealing with challenges.

The co-becoming of farmer and farm comes to the fore in the integration of the successor into the farm system, and in the aspirations of current and succeeding farmers. Next to raising livestock on a dairy farm, children grow up on the farm. Whereas in the past, children were often expected to succeed, the choice lies nowadays more with the children themselves (Brandth & Overrein, 2013; Carolan, 2018). If someone shows enough interest to succeed the current farmers, they will engage in a process to grow into the farm. This growing into the farm is illustrated by Jelle and Fokke's statements:

> Jelle: *"Sometimes I talk about the construction of first working, so then for example to work three days at work, or four days, and then one day at home (at the farm). Then you can grow into it somewhat. Or you can say, no, this is not going to be it, and then you grow out of it again. Then you work more elsewhere and less at home. Or, you go the other way around, work more at home and less elsewhere. Then you grow more into it. That seems good to me."*
>
> Fokke: *"I used to have a colleague, his father died… Well, he was nineteen, something like that […] Yeah, suddenly he had to feed the calves, which he never did. Like that… You have to learn all that, everything also contains a bit of feeling about it. So you have to learn everything. To know certain cow diseases... capping a claw. Or, when a cow is stuck in a box- I had that too, that cow was completely stuck-"*
>
> Jelle: *"Yes. Then my father explained, like this and that way."* (Fokke & Jelle, Interview, 26 November 2022).

Similarly, Mies and Roel, as well as Jesse and Yfke first spend years working in the sector or on their parent's farm in order to learn, internalize and develop intimate knowledge needed for dairy farming, and the intricacies of their future dairy farm system. Another example of internalizing the dairy system, is from Mies who tells me about the fodder mix they manually composed to feed their cows:

> *"[My boyfriend] has a paper with the ingredients. But I know it by heart. We mix about 9 elements into the feed, meal, chopped straw, maize, and silage of two kinds. Once you figure it out and understand why the ratio is that way, it's pretty logical and easy to remember."* (Mies, Fieldnotes, 25 January 2023).

Mies even chose a specific school program, Agrarian Business Operations (Agrarische bedrijfsvoering) to become integrated into the farm: *"Part of [the program] is that you take over the farm. First year is analysis, second year is finances, third year is improvements and final year is*

really the plan of succession. That is very nice, because you talk about everything because of that." (Mies, Fieldnotes, 25 January 2023).

Growing into the farm entails learning the fine details of the system, how it is composed and about cow-care. As such, the successor also develops on the farm, together with their predecessor (often their parent). It is common for successors to farm in companionship together with the predecessor for several years before they fully take over the farm for themselves. In the embodied, intimate knowledge and specific experiences, the farm becomes a part of the person. In the context of the nitrogen crisis, and the risk of losing the farm and the ability to practice dairy farming, a part of the person's body and identity, in the form of knowledge and experience, is also potentially lost. The agrarian coach described the loss of identity as follows:

> *"Yes, it's the connection to the animals, generations, cutting ties with the land. Yeah, the identity as farmer, that is all very difficult. What are you then? When you stop? Yeah, what are you… They often say like "and what can I actually?" While they can do a lot, because they are very smart people with a lot of technical insight. So they can do a lot. But of themselves they always have the idea "yeah, but what can I actually?" Very strange. They run a whole business, take care of animals, maintain the machines. They build the stables themselves, they can do so much…"* (Linda, Interview, 12 December 2022).

This section described how the farmer and farm co-develop through long-term dwelling and labouring at the farm, infusing the farmer into the place and the place into the farmer. The termination of the farm entails a stop on putting the embodied knowledge of dairy farming into action, and a stop on the performance of the dairy farmer identity. Since the knowledge is context specific, translating it into a new environment might be a challenge for the farmer.

To conclude, this chapter has described the various meanings that the dairy farmers attach to their work and their place of living and working. The farmer's are in an intertwined relationship with cows and land, understood as a relationship of care and reciprocity through giving milk. In the daily activities, a dairy farmer engages with creating the conditions for dairy cows to grow up and to optimize their health and subsequent milk production. This role as composer of a dairy farm is associated with autonomy and pleasure in variation of a wide range of tasks. The tasks themselves are also experienced as joyful, if things go well. Furthermore, dairy farming is connected to the importance of food production, and principles of sharing abundance are connected to food exports. Dairy farming becomes a type of work that is in service of other people. Finally, over the years, the farmers and family create a place. They develop together with the farm in a process of co-becoming, and take action in service of the continuation of the farm based on the consideration of a next generation to be enabled to practice dairy farming.

Chapter 6

Affective relations in the dairy farming system

In this chapter, the analysis is expanded to relations beyond the cow-farmer(s)-land triad, for the farmer is not alone in their work. I analyse the affective relations in the dairy farming system, looking at how farmers are facilitated or hindered in dairy farming in relations with various actors. Specifically, I focus on the relations a farmer has with 1) the farming community; 2) professional relations and 3) government institutions, nature organizations and citizens. In doing so, I present the dairy farming system as an affective arrangement, in which the various relations that make up the farm work to enhance or diminish the farmer's capacity to act, and respectively create instances of potentia or potesta. While the first two categories of relations mostly contain positive affect, the latter contain negative affect. These affective dynamics are of central importance in farmer's experiences of the nitrogen crisis, as the emotional experience of affect is part of the experience of the situation.

6.1 Affective relations with colleagues and community members

In this section I discuss the relationships to friends, neighbours and colleagues in dairy farming. I highlight how these are predominantly positive in affect and evoked emotions. First, positive affect is produced when the farmer's capacity to act is through collegial relations that facilitate the practice of dairy farming. Second, positive affect is produced is in collegial and friendship relations for co-learning about dairy farming. Finally, positive affect is produced in the relation to community through forms of support of community members.

To start, positive affect is produced in the household, friendship and collegial relations that facilitate the practice of dairy farming. This happens in the everyday practices that are part of dairy farming, such as silage or mowing. Furthermore, in sharing resources in times of need with colleagues, dairy farmers help each other (Yfke, Interview, X; Daniel, Fieldnotes, X). In this way, dairy farming does not take place in isolation. Instead, farmers are embedded in a community of close family, colleagues and neighbours. This community is a source of support, through assistance and collaboration. In the field, I observed numerous situations in which colleagues or family stopped by, and helped out in the work. One example of this can also be seen in the story of Jorrit in 7.2. An example of this assistance is found in the quote from Mies:

> *"I also really like the community. We help each other, and after a long day of silageing, we share a beer. With the neighbours I also get along. That is also very nice. [...[What also is really nice about farming here is the togetherness you have with the rest. We run into each other regularly, and we help each other a lot."* (Mies, Fieldnotes, 25 January 2023).

Another example is told by Yfke:

> *"We are there for our neighbours, you know. Recently, they used our shovel. Well, then of course they will want to do something in return. They don't mind. It's the same with the other neighbour. If there is something broken – we can just use the tractor and then… the other day, we had a leak in our front loader of our other tractor. We can just pick up the other from the neighbour."* (Yfke, Interview, 29 December, 2022).

Second, positive affect appears is in a collegial and friendship community that empowers the dairy farmer through co-learning, in settings which also allow for socializing. Dairy farmers learn collectively about their profession through study groups, or information evenings organized by

farmer's organizations (Willem, Fieldnotes, 16 January 2023; Daan, Fieldnotes, 25 January 2023; Douwe, Fieldnotes, X). For example, the regional veterinarian organized a lecture about observing for dehydration and how to drench in severe cases (Daan, Fieldnotes, 16 January 2023). The younger farmers are also members of youth organizations, where they learn about dairy farming and share experiences (Mies, Fieldnotes, 25 January 2023; Jesse, Interview, 19 January 2023; Sytse, Interview, 25 November, 2023). They find a lot of support from peers who are in the same situation and profession. Together, they learn about changing circumstances of farming, and find community that supports in tasks or challenges and support from experts can be organized due to collective association. In these instances, the coming together of colleagues leads to empowerment and enables their action, Through co-learning about dairy farming in collegial relations, the farmers become empowered in performing dairy farming and adapting their systems. This is illustrated by the statement of Jesse:

> *"If I can, I will go [to the gatherings], I try to. Because then you stay up to date. It is also important. My father never goes, he never went. But you see that also in his contacts. […] You have to do it together. In the end you will need each other. And it's also… really fun. And it is important to stay in touch. […] Lately… the last few years, with all the matters that pass… Nowadays, with all the new rules and stuff, you have to go to stay up to date. I mean, you can still read professional journals and all that. But at those evenings; they will have a speaker. And yeah, you just learn way more. Plus, you catch the last news from the neighbourhood."* (Jesse, Interview, 19 January 2023).

Finally, positive affect appears in the relation to community members in instances where they participate on the farm. In these instances, the dairy farm becomes a place of empowerment, enabling people to pursue passions or promote development. For example, Fraukje described her brother Douwe as a social worker, when he offered a place to work for multiple youngsters in his village: *"at the farm, he just put them to work with a task. And in that way they learn that they surely can do something, and can contribute something"* (Fraukje, Fieldnotes, 22 October 2022). Similarly, Daniel and Imke have Johan working at their farm (Douwe, Fieldnotes, 20 and 24 December 2022).

Thus, the farm and the activities of cow-care bring people together on the farm. On top of this, dairy farming takes place in a community of people that reaches the farm, who learn in study groups and association, and help out in tasks and times of need. In moments of collaboration or support, people join together and in this relation increase each other's power to act.

6.2 Affect in professional relationships

In this section, I discuss the second category of relations, which entails the professional relations in the dairy farm network. I highlight some examples of instances in which the farmers are in interaction with professional relations. The companies are represented by the advisors that visit the farm on a regular basis and who provide support to the farmer in their activities. The professional relations include the veterinarian, banker, feed advisor, mechanic, DLV[8], milk factory and breeding companies. The professional relations of the farmer serve to 1) support in the process of cow-care and 2) to ease the physical and mental labour of the farmer, through provision of a variety of services and products. In some cases, these connections entail personal and long-term relationships. Interestingly, the support of the advisors goes beyond the services which they provide, as they also provide social interaction and moments of celebration. In every-day practice, positive affect appears through facilitation, reliability and celebration, and is experienced positively.

[8] Dienst Landbouw Voorlichting, Agricultural Extension Services. Until the 1990's, the DLV was a governmental body, lending extension services. The agency became, however, privatized, and since then followed a trajectory on a commercial model of agricultural extension services (Beukema, 2015).

The first form of positive affect in these relations is based on reliability. In a modern dairy farm system, the farmer depends on the assistance of the professional relations in times of need. The farmer relies on the veterinarian, the mechanic and the feed advisor to jump in when a situation arises when their help is necessary, and will also do so in the experience of the farmers. For example, Daan is pleased with the feed advisor (and company) as they can be expected to even deliver extra fodder on Christmas day (Daan, Interview, 9 January 2023). Likewise, the milk factory will come every three days to pick up the milk, a reliability that is necessary in order to be able to keep milking the cows (milk production does not stop), and for the milk to retain its quality (Johanna, Interview, 4 November 2022; Willem, Fieldnotes, 18 January 2023.

Second, positive affect is produced through intimate knowledge that professional relations have of the farm. The advisor, veterinarian, mechanic and milk trucker know and understand the farmer and the farm system with attention to detail and the particularity of the farm. These relations are commonly long-term connections, which allow the development of intimate knowledge by the professional relations. Through this, the professional relations are able to facilitate dairy farmers in the practice of dairy farming, as such enhancing their capacity to act. For example, the farmer connects with the feed advisor or a laboratory to analyze the roughage in silage in order to gain detailed knowledge of the nutrient and energy content of the year's harvest. Then, usually together with a feed advisor, the farmer develops a strategy to achieve a balanced diet for their cows (Jorrit, Fieldnotes, 17 November 2022; Teun, Interview, 29 November 2022; Daan, Interview, 9 January 2023). Furthermore, the breeding company CRV facilitates the farmer through providing a monitoring platform, and even an app to oversee the whole herd, tracking their performance, their fertility and their health (Douwe, Fieldnotes, 27 December 2022; Yfke, Interview, 29 December 2022). Additionally, the mechanic knows the stable intimately, illustrated by the statement of Douwe:

> *"Twice a year, the [milk] machine needs to be check-up. So the mechanic also comes here regularly. […] That is always the same [person]. You don't call the company, you call the same mechanic. That is convenient because they know how it was built here at my farm. And he can also help out through the phone, you know? Then you can fix it yourself."* (Douwe, Fieldnotes, 29 December 2022).

In the case of Douwe, the mechanic can assist over the phone because of his knowledge of the specifics of the farm system. In this way, the farmer's capacity to act is enhanced, he is empowered to resolve the issue himself. The people that assist the farmer have intimate knowledge because the relationships are long-term, or the information the companies a farmer works with is very detailed and tailored to help the farmer make decisions. This point is further confirmed by the conversation with Fokke and Jelle:

> *Daphne: "Do you get along well with the feed advisor?"*
> *Fokke exclaims,"Yeesss!"*
> *And Jelle laughs, "That is always… I asked my dad once: who is actually the most fun of the visitors? […] My dad always liked it best when the feed advisor would come by."*
> *Fokke concurs, "Ah yes, that is fun. He is a good guy."*
> *Jelle's mother joins in, "Sympathetic man. He knows the farm well."*
> *I ask, "Does he come here a long time already?"*
> *The three of them look at each other, as they try to remember.*
> *Fokke estimates, "Ten? About ten years? But he does not come here as frequently as at other farms."*
> *(Interview, 26 November 2022).*

The professional relations considered instrumental for the practice of cow-care. Whether a farmer keeps working with the same professional relations is based on experiences of positive or negative affect for the dairy farm system, or their personal experience. When talking about the long-term

character of his relationship with the mechanic, he explained, “you know, if you get along well, then not a lot needs to change for me” (Douwe, Fieldnotes, 29 December 2022). In contrast, Jorrit switched in advisors for his breeding technique when the advisor did not resonate with his expectations, as his idea was that his advice did not serve his farm but more the interests of the company In turn, he really appreciates working with the veterinarian, who works in a way that resonates with him: “I have a pleasant veterinarian. He has a good mood, not such a grump. And he works fast. Which is good because he is expensive” (Jorrit, Fieldnotes, 18 November 2022). Similarly, Teun is considering to switch feed advisors, as the current advisor “keeps missing the mark already for a month” (Teun, Interview, 29 November 2022). The concept of affective resonance can help understand the experiences of affect in these relations. Mühlhoff (2015) uses affective resonance to refer to how a dynamic of “mutual modulation and influence” occurs during an interaction, in which the power (to act) of the individuals is increased. In turn, dissonance refers to when the respective power to act is diminished. In these case of Douwe and the mechanic, and between Jorrit and the veterinarian, there is resonance between their bodies, in their speed of working, or getting along well. The resonance between Jorrit and the vet is illustrated in the vignette below. In this story, the two men match in rhythm and objectives, while interacting the a cows (one of whom does not resonate) and together tackle the tasks for cow care.

With the presence of the vet, the cows are restless. On the advice of Jorrit, I remain behind the bars on the feeding alley and observe from a small distance. The veterinarian and Jorrit are among the dry cows to vaccinate those who are close to calving. Jorrit is holding a small scrap paper that lists the numbers of the cows that need to be treated. Next to him, the vet is handling the syringes. One by one, they work along the list, where Jorrit finds the cow, and the vet systematically does the vaccination procedure. I decide to walk around a little. After speaking to Jorrit’s mother, I see Jorrit’s father who simultaneously preparing the cow beds. I assist him in filling buckets with some sawdust, and carrying them to the entrance of the stable at the end of the feeding alley. By the time I return to my observation place, I see Jorrit and the vet are already done with the vaccinations. The two of them are now walking among the big herd, the vet at an even faster pace than Jorrit, who is following in his steps. They walk among the cows with a directness in their step. Still with the paper in hand, Jorrit guides the vet to some cows that need a fertility check. The first few cows are found quickly and checked up without much resistance. But one cow is not easily caught. Between the other cows she runs away. Jorrit and the vet split up, each walking to an end of the walkway and try to close her into a place along the feeding alley, using their bodies to try to block the ways out. But the cow escapes several times, and it takes almost ten minutes to catch her. Finally, they manage to direct her into a place and lock the bars to keep her in position. (Jorrit, Fieldnotes, 18 November 2022).

Jorrit and the vet seemed to resonate with each other as they worked through the tasks, both with a directness and speed based on years of experience and little time to waste. Jorrit is assisted in his cow-care goals with the help of the vet, enhancing his capacity to act, which is experienced as pleasant and in service to reproduce the dairy farm system. Another example of resonating in the work together, is found in the milking session of Johanna. While she milks her cows in the morning, a man working for CRV is joining to sample the milk for quality. His work is part of the “Milk Production Registration” (MPR), which CRV offers as a service for farmers to get detailed knowledge about parameters in the milk of each individual cow.

> *The rhythmic sucking sound of the milking tubes and buzzing sound of the machine fill the space during the morning milking session. Johanna is almost at the end of the routine, with the final dozen of cows standing in the rows. She stands to the side, with her hands in her blue overall pockets. In the meantime, a short man is with her in the milking parlor. He is short, middle age, and walks around wearing gloves and has a tablet hanging on a cord on his neck. They are both silent. While she waits for the cows on one side to be done, the man has a little round spoon with which he taps some milk from the individual tanks of the cows who have just finished being milked. He pours the milk from the little spoon into a small sample tube, where the color turns blue in reaction with the already present liquid. He twists the lid on it, and he picks up his tablet to fill in some details to track the sample. "Eighteen point eight," he says while he types. I am confused by the number. Johanna explains it is the average milk production of all her cows that morning. "It's a bit low. Usually I am around 20 or above. But I have three that produce little. One will have to go to slaughter…" They talk about how elsewhere the production is also low. Due to the hot summer, and hot fall. He continues with the next sampling, and then the next. Johanna is working to care for the udders of the cows on the other side. She swiftly dips each teat in the blue cup with iodine solution, raising her arm four times and moving on to the next udder. The man just finished the last sample when the last four cows have left the row. He takes the spoon and again taps milk from each tank. The tubes turn blue and are registered on the tablet. Meanwhile, Johanna has started spraying down the alley on the other side. When he is done, he takes his leave. "Will you go to another farm?" No, I only do one per day these days." Johanna adds, "I milk so late, there won't be any other farmer that is still milking." As the man has left, I let Johanna finish the cleaning of the parlor while I return to the house."* (Johanna, Fieldnotes, 2 November, 2022).

The CRV employee and Johanna resonate as they work as a well-oiled machine, each of the executing their part autonomously, and keeping in rhythm and flow of the cows being milked and then released. The employee knew well how to operate in the milk parlor of Johanna and worked around her while not being in her way. On their website, CRV advertises the service explaining:

> *"[MPR] is an very important link in your business management regarding the herd. Ration calculations, breeding policy, production planning are mostly based on the MPR data. With the results you will have solid facts that help you in decisions on your business. […] By default, all samples will be tested for fat, lactose, ketose, cell count and gestation (added on preference). CRV takes work out of your hands. You have a milking robot? Not a problem, for samples from a robot, CRV has all materials in store"* (CRV, n.d.-a).

In this way, CRV is able to attune to the particularities of a farm, facilitating detailed knowledge that is crucial for the farmer in their strategy and the daily activities of cow-care. Based on these results, the farmer is able to assess what is required to improve the conditions for rearing dairy cows and producing milk.

Thus, the professional relations, both people and organizations, facilitate the dairy farmer in his work. This is achieved through attuning to the diversity of dairy farm system by developing ways to intimately know the farm and providing tools that make the work of cow-care easier, for example by participating in making decisions about the feed composition, or by facilitating the data a farmer needs

to make decisions in an app or report. The people and the software facilitate and remember the dairy farm system and its systems, resonating and acting in concert with the farmer.

Finally, positive affect is produced in moments of celebration. The professional relations share in the achievements, and participate in creating moments in which the labour of the dairy farmer becomes appreciated. An example are the various prizes or gifts that can be found around the farm, in the office or the home of the dairy farmers. For example, Willem and Jelle receive special collectors' items of Friesland Campina for providing milk of a higher standard than the mainstream (Willem & Froukje, Fieldnotes, 17 January 2023; Jelle, Interview, 26 November 2022). In the home of Johanna hang two frames of dairy cows who reached a 100.000 Liters production in their life (Johanna, Interview, 4 November 2022; CRV, n.d.-b). These prizes celebrate the achievements of the dairy farmer and his cows. In this way, the prizes are a symbol of achievement or appreciation created by the professional relations, and encourage the continuation of the work of the farmer. The experience of joy due to this positive affect can be seen when Sytse tells me about the price he and his uncles received for the level of milk production:

I walk alongside Sytse across the farm. We walk away from his favourite place, the edge of the pasture with a long stretching view of green. On our way to the office, he suddenly stops in front of the milk tank. Enthusiastically, he shows me the mechanics and explains how the system with the back-up tank works, for when the milk-truck arrives. Then, I notice a little figurine on a little ledge of the tank. It's a small metal cow, on a red footing. The socket reads the year 2020 on it. "You guys got a price?" I ask him curiously. This excites Sytse, "Yes! We were the 'top milker' in 2020, but also last year! We milked about X Liters then." I am amazed, "Just in one year?!" I ask. "Yes, on average about 36 Liters per cow. And all the cows were doing really well. That was a very nice year." I look at the little figurine and notice now that is says Lely, the company that sells farm mechanics such as milk robots. "It's from Lely? Did they send it in the mail?" "No, they [Lely] came to bring it! And then they took photos, which were posted on the Facebook page." His smile is wide. "Did you get a lot of congratulations?" I continue. "Yes, a lot! From my friends. They said "nice work, congratulations!" to me. I really enjoyed that. […] I am also quite proud, because it was such a good year, with healthy cows, little sickness. […] There are some [farmers] who strive for 70, a really high production. But that is not the goal for us, we focus on healthy cows. So I actually find it quite funny that we got the prize. [Because] for [the other farmers], it's their goal, they want maximum production. And we a more about the health, not highest production. And then you have some years where there is very few sick cows, and then you get good production. That makes me proud, and happy. If you focus on the cow's health, then it comes by itself, I think." – Sytse (Fieldnotes, 25 November 2022).

Like the other companies do, the company Lely rewards dairy farmers for their milk production. In the case of Sytse and Teun, this led to a event where they gained recognition and were celebrated by the community and the company (both online and in person) (Sytse, Fieldnotes, 25 November 2022). Another example of a moment of appreciation being facilitated by a company, is in the story of Daan, who went door-to-door in the village, together with colleagues, to promote the dairy products of Friesland Campina (his milk processor) (Daan, Interview, 9 January 2023). Thus, the companies, represented by some of the people that work with the dairy farmer actively facilitate situations in which the farmers can gain recognition for their work. This element of recognition, being valued for

the labour and product is an important factor for the wellbeing of farmers, which is important part for farmers to keep doing their work (Contzen & Häberli, 2021; Kuijk et al., 2022; Mzoughi, 2014). In providing pathways for recognition, the professional relations empower the farmers in their dairy farming, and participate in the reproduction of the dairy farm system.

The professional relations of the dairy farm system are not only characterized by positive affect. While in the every-day practice of cow-care the farmers are facilitated and empowered, on the long-term, negative affect is also produced. This happens when the dynamic in the relation shifts from agreement to disagreement. This can particularly happen in the relation between the bank, and the milk-price a farmer receives. A conventional dairy farmer depends on capital from the bank for investments in farm development. This already starts at the moment of succession, when a farmer takes over from the father or companion. Also in farm expansion (land or stable), a farmer takes loans to cover the costs. Despite the necessity of capital for continuation of dairy farm systems, the farmer feels free in their choice to engage with these parties. Johanna explains: *"I think a lot of farmers view it as their own choice to enter into a loan with a bank. A lot of rules coming from government feel more imposed. I think people have this [feeling] less with the bank"* (Johanna, Fieldnotes, 6 November 2022).

It is considered a personal choice to into relation with the bank in order to become a dairy farmer. Entering into relations of dependency with the bank, and the subsequent extraction of value, is considered inevitable (farming without a bank is impossible), or taken for granted (it's logical that a bank needs to make profit) (Johanna, Fieldnotes, 6 November 2022; Jorrit, Fieldnotes, 17 November 2022; Daan, Interview, 9 January 2023; Douwe, Interview, 30 December 2022). In stable economic conditions, a loan and the obligation to pay it back can be unproblematic. However, in a market with fluctuating or low milk-prices, a dairy farm system becomes vulnerable in the long-term: a bank can quickly transform from facilitator of dairy farming to a terminator of dairy farming by placing the dairy farm under strict control should revenue be consequently low for a few years, or deeming the farm unable to continue (Daan, Interview, 9 January 2023; Jorrit, Fieldnotes, 17 November 2022; Johanna, Fieldnotes, 6 November 2022; Daniel, Fieldnotes, 27 January 2023). The relation of facilitation that produced positive affect flips to one that produces negative affect and works in a decomposing way for the dairy farm system in the long-term.

Furthermore, the conventional dairy farmers depend on the milk factory to process and market their product. In a cooperative like FrieslandCampina, the farmers are co-owners and have financial capital invested in the cooperative (Willem, Interview, Jorrit, Interview, Daan; Douwe, 30 December 2022). The farmers and the cooperative are interdependent in their continuation. Since the second world war, the dairy processing industry developed into large scale enterprises and large factories through mergers of dairy factory cooperatives, and set up international trade chains to market the surplus milk production. The farmers went along with the mergers into the larger companies since switching milk factory is not very common (Johanna, Interview, 4 November 2022; Daan, Interview, 9 January 2023). At the farm-gate, the farmer is a price-taker because most milk companies or cooperatives offer a fixed price per kilo of raw milk, which they cannot negotiate. The determination of these prices varies between companies, but structurally, these prices move along with the global milk price since integration of Dutch dairy into the global milk price ((ZuivelNL, 2023)). For years, the price Dutch farmers get has been low. By exception, the year 2022 was characterized by a historically high milk price, caused by lower production in other countries (ZuivelNL, 2022). Apart from this exception, the milk price does not cover the production costs for the past two decades (Agrimatie, 2023a, 2023c). Therefore, farmers depend on subsidies in order to maintain profitable. On the long term, larger farms are better able to deal with structurally low prices (Agrimatie, 2023a, 2023c). Structurally low prices paid by the milk processors for the milk negatively affect dairy farm continuation in the long-run. In order to deal with the low farm-gate price, dairy farmers can scale up their farms to reach economies of scale and efficiency (reducing input costs per kilo of milk) or reduce costs by reducing dependency on off-farm inputs. Another trend was the increasing pursuit of diverse activities on the farm,

increasing the multifunctionality of farms. Income from non-farming activities increased in the last decades of the 20th century. (Van der Ploeg & Roep, 2003).

To conclude, the professional relations are essential as part of the dairy farm system and facilitate the work of the farmer and the continuation of the dairy farm system, as farmers care for a large amount of dairy cows, depend on the weather, and face narrow margins. The professional relations attune to the particularity of the farm, the system's need for stability through reliability, and create moments for recognition and appreciation. In this way, the professional relations produce positive affect in the every-day lives of farmers, which is experienced positively as support, respect and recognition. In the long-term negative affect is produced when economic conditions work in a decomposing way for the dairy farm system, impacting the health of the farmer and the cows within it.

6.3 Affect in the relations with government, nature organizations and citizens

In this section, I focus on the relations to broader society in the dairy farming network. To characterize these relations, I distinguish three societal actors: government, citizens/consumers, and nature conservation. They are encountered by the dairy farmers in a variety of ways, as individuals or as organizations. The way the farmer to these societal actors is different for each. First, the farmer is connected in relations to the government, both the executive and the legislative body, through a digital platform and regulatory frameworks. Second, the dairy farming system is connected to citizens through the market. In conventional dairy systems, this connection is primarily made in the supermarket, where citizens buy the products derived of milk. Third, the dairy farming system is connected to nature organizations through land tenure contracts and regional land management. In these relations, negative affect is produced through unreliability, generic or insufficient knowledge by these actors of the dairy farm system, and subsequent criticism or undervaluation. The participating dairy farmers mostly commented on the experiences of negative affect in the relation with government institutions.

First, negative affect is produced through unreliability, mainly experienced in the relation to government and nature organizations. In the relation to the government, unreliability refers to how the policies concerning farming systems changed rapidly within a timeframe of a decade. The phrase 'swabbing policy' captures this unreliability, which refers often to the events of 2015-2016 with the abolishment of the milk quota and the introduction of the phosphate policies, and is confirmed again with the recent abolition of the derogation. The dairy farmers express the need for stable conditions to support their decision-making regarding the farm, and the current instability, and uncertainty about future policies affects their capacity for action negatively. Consider the statements of Daan, Jesse and Johanna. When making the body map, I ask Daan what he thinks of the nitrogen policies. He tells me:

> *"Then you go more to anger… right? I think "man… is all this necessary? So, angry… and disappointed. Because the government is not able to come up with something better than this. […] you can only have perspective when… you get the time to develop ideas and not like 'well, tomorrow this has to be done, and the next day that.' Then… it's just over. People will drop out, [they will] just [be] angry. Like, 'it's over, suit yourself.'" (Daan, Interview, 9 January 2023).*

Similarly, when I asked Jesse about how he foresees the future and possible reductions, he tells me:

> *"How I [foresee it]? I don't foresee anything." He laughs. "Yeah. I don't know what you have to- You will have to give in something, but… first we need clarity, and then we can do something. But in The Netherlands, you never get clarity from the government. Once in a while [you get] a plan for two years. And they you can do it all over again. […] At some point, they came with that phosphate [policy]. In 2015, they based [the rights] on the number you had in the stable. Well. We just renovated the stable, so we had just a bit less cows than normal. But sure, they*

based in on that. So, the past years, we have constantly been buying extra phosphate rights, until we had the rights for the number of cows we have now. Ninety. So, phosphate collected, everything together… and then comes the next thing (the nitrogen reductions). But we did invest all that money. So yeah… there is no- you can never undertake anything, based on such short-notice decisions. That [clarity] is what the government has to achieve first. Then you can make a plan. In this way we can never make a [plan]." (Jesse, Interview, 19 January 2023).

In the case of the phosphate regulations, Jorrit likewise faced negative affects due to uncertainty and unreliability,

"The rules change constantly, and also with retroaction. You can't plan with that. I had kept my livestock, until it was sure what was supposed to happen. Then I had to pay a fine, for each [period] that I had too much animals…" (Jorrit, Fieldnotes, 15 November 2022).

Johanna expressed in the interview that she has more of a 'waiting' attitude at the moment, waiting for the plan of the government. She explains:

"Yeah. You can't keep screaming every day. I don't have that feeling anymore now, more like… "we will see. We wait what is going to happen, what they want now. […] No one is really doing anything. Back [at the beginning], there were every day a protest or a meeting. But now, there is nothing. Everyone is a bit like…, no one know what has to happen. Yeah, and if you don't know what it is, you can't say you don't agree, or you do, or not. And you don't do anything. That's the other side of it. I am not going to do anything. But if you are planning on doing something, you are not going to do it. I mean like, imagine you were going to take over the farm in January – usually that is in January – are you going to do it, or not? Or are you going to build a new stable next year? Are you going to do it or not?" (Johanna, Interview, 4 November 2023).

Daan experiences anger and disappointment due to the fast-paced imposition of rules, while support lacks for developing other strategies. In the experience of the farmers, the unreliability in policies and regulations undermine the continuity of the dairy farm system: 'the perspective' of the system. In the concept of affective resonance or dissonance, we can see that there is dissonance between the government and the dairy farm system in terms of rhythm and speed, and that this is negatively experienced by the farmers and the dairy farm system. The negative affect in the relation is felt in the body of the farmer as disempowering. Daan and Jesse refer to how the unreliability, and Johanna and Jesse also address uncertainty about the future, has a kind of paralyzing effect on the farmer's capacity to act. The farmers express that they feel they cannot *do* something.

In the relation with nature organizations, Daniel and Fokke experienced unreliability in tenure contracts, and distant relationships with the organizations. It is common for dairy farmers to procure land through short term tenure contracts, as in the case for Daniel, Daan, Douwe and Fokke. In the experience of Daniel and Fokke, the nature organizations proved unreliable in maintaining the terms of contract, as there could suddenly be changed. In the case of Daniel, the terms were changed at the beginning of the season. In the case of Fokke, the terms were changed regarding the mowing times. While the contracts would be renewed each year, the change of terms were suddenly announced, and both of them felt obliged to agree with the changing terms. This was necessary in order to maintain the farm, for they rely on land area to meet requirements for the manure legislation (Fokke, Fieldnotes, 26 November). The continuation of the dairy farm depends on having enough land available to offset the manure produced in the system, and a sudden reduction in land area results in quick action to meet with the legislation. Since land is a scarce resource, it usually means that farmers have to make higher

costs for the disposal of the manure (Bloemberg-Van der Hulst, 2023). For Fokke, the mowing policy in the nature 2000 site seem illogical, as all mowing happens on the same day. He laments the new steward of Staatsbosbeheer, who "is dark green" (meaning that he has a strong ecological philosophy. In Fokke's experience, the relation changed when the steward changed: "Like I said, the new steward is dark green. In the past, we had a good man. He was in contact [with us]. But the new man, he overthrew everything. The contracts were also changed. […] The new man, you see him in the street sometimes. But in the land, he does not see you." (Fokke, Fieldnotes, 26 November, 2022). In Daniel's case, the terms of contract were changed for his tenure of nature land, where he would graze his calves and heifers. In the new contract, calves were no longer allowed to graze on the nature land anymore. In his perception, this was due to the increased presence of the wolf. For him, the nature organization became an unreliable partner in carrying the burden of both having a wolf in the landscape and young livestock on the same land (Daniel, Fieldnotes, 26 January 2023). The presence of the wolf in the Netherlands is a highly debated and sensitive topic in the public debate.

Second, negative affect is produced in the societal relations through generic or lack of knowledge of the dairy farm system. The negative affect produced through this dynamic in the relationship is experiences as misrecognition and lack of respect. In contrast to the professional relations who know the farming system very intimately, the government, nature management organizations and citizens are considered to know very little of the dairy farm system, or about dairy farming in general. This idea of generic knowledge is in part the result of the distance between the dairy farm system and the government and citizens, a distance created by the fact that the people associated with these parties rarely set foot on the farm.

In the case of the relation to the government, the farmer is in connection through the executive agencies and the legislative body For the legislative government institutions, the dairy farming system is affected by the laws and policies it develops. These are developed at different scales of government. The idea of lacking knowledge by government is based on the notion of 'crooked policy'[9] which refers to policies being developed in ways that affect the (dairy) farming in contradictory ways. Most farmers had the general idea that the government makes policies based on lack of knowledge of farming realities, making negative affect of the content of these policies omnipresent. One specific example was the idea to change the norms for the was the abolition of this policy was considered irrational and illogical when considering the goals of the Dutch government. To the farmers, the contradictory nature of policies being developed and affects is incomprehensible. This is illustrated by Johanna's statement:

> *"Well. Yeah. I find that the crookedness of the regulations. I am a conventional farmers. But I have to start dispose of my own manure, and then I am allowed to buy artificial fertilizer – I can't get that through my head. That that is allowed. That is just crooked rules. Because financially I can better spread artificial fertilizer than buy extra grass. That is financially more appealing. That is crooked policy to me, because you are adhering to the rules while in my view you are not doing the right thing. That is crooked right? […] that is why I think, is this about sustainable farming? Or are there entirely different interests behind this?"*
> (Johanna, Interview, 4 November 2022).

The negative affect in the relation to executive agencies would refer to specific situations. Mainly, the farmers are connected through the Dutch Government Agency for Entrepreneurs (RVO) for subsidies and registrations, among which the Common Agricultural Policy subsidies. Each year in May, all farmers in The Netherlands are obliged to complete the 'combined registration' on the digital RVO platform. Herein, they have to provide a load of details about the farm system and its activities of the previous and upcoming season. For many of the farmers, this process is very time-consuming and

[9] In Dutch: krom beleid.

tedious. Frustrations arise from the fact that, even though some things remain the same in the system, these details are not remembered by the program (Jorrit, Interview, 22 November 2022; Willem, Fieldnotes, 19 January 2023). One example of generic, distant, knowledge is the process of measuring land for the combined statement. The land area of the farm is measured remotely and manually, by an employee of the RVO, different each time and who the farmer does not know. The measurements are made based on generic knowledge of the employee, and therefore mistakes can occur, which results in extra work for the farmer to correct. The negative affect is produced through generic knowledge and experienced as annoyance and frustration, which becomes clear in the statement of Jorrit:

> "*And what is especially irritating is: each year some students are hired at the ministry of agriculture. You know? They have to measure the plot boundaries. And if there is a tree that casts a shadow, they think "oh, we draw around that shadow, that is how the boundary runs." And then I think, "No! That ditch runs straight, and that is a shadow. There is land under there." And then you have to retrace all the plotlines. To see if it is correct. […] You have to check it all, and then go "hey, that is not correct." Then you take that out again. You can fill in a little statement. Things like that. That is very irritating. […] That is every year again. […] And I understand that there needs to be such a thing, for the subsidy. It needs to be legitimated. But it can be so much more practical. […] You see, I have a lot of relatively small plots, with a lot of ditches. And when they move the plotline every time a little bit, then I have to go by every ditch, every plot. Point by point… yeah. That takes hours. You could also just say "hey, yeah, that has stayed the same, and there is a new silage hill" and you take out only that. You really don't have to…. Every ditch has not changed."* (Jorrit, Interview, 22 November 2022).

The RVO relies on generic knowledge of all farms in the process of the 'combined registration', it does not allow for retaining detailed information of the farm. Subsequently, the platform places a high demand on the time and energy of the farmer to provide the same information each year, or adds demand for more information as legislation compiles. Jesse also complained that by now, it is almost impossible to fully do the registration by yourself, due to the information intensiveness, which increases the need for hiring external experts, adding another cost to the business (Jesse, Interview, 19 January 2023).

It's an overcast Monday morning at the end of October, but it's warm outside. Johanna and I step out of the house to make our way to the pasture across the road. She pops into the barn quickly to return with a spade. "I need it to take our the Ragwort," she explains. We cross the road and step into the pasture. When we make our way across the field, I learn the history of the ragwort: it was sown by the local municipality into the ditches alongside the roadways. "They had not considered that it is poisonous to cows, and even deadly to horses. Now I have to come out here to remove it from my fields…" Her voice contains a note of annoyance. While she tells me the story, I look at the ground. I notice a lot of clover in the field, and dandelions. We also come across several piles of cow dung, with small yellow flies crawling about. About twenty meters in, we already encounter a ragwort plant. Johanna jams the shovel into the ground to uproot it. A few steps later she does the same for a thistle. "Thistles are of no use… the cows don't eat them," she explains. The same fate is met by a buttercup a bit further on. As we continue our walk, Johanna tells me more about the field. About how the grass below the trees is longer because the cows like it less, "there is less sun in that grass." And how the grass is actually exceptionally long everywhere at this time of year, due to the warm autumn. "Most farmers are still getting another cut.

Grass should actually be short before it goes into winter. Otherwise it will die off and you have to resow it." Here and there Johanna jams the spade into the soil, as she has spots more ragwort plants. She tosses the plants into the ditches. "There's actually quite a lot of them… I should actually go into to the field more often." Johanna is careful about having her pasture free of ragwort. She cares a lot about her horses and really dislikes if her cows would get unwell from it. After our final turn in the field we head back to the road. We pass along the pen of the heifers, who playfully follow us along the line. When we get to the edge of the road, Johanna notices an empty soda can next to the road, and she quickly goes to pick it up. "That is one of my biggest annoyances… that people throw their cans into the ditches. A cow can really get hideously ill from that. Those cans are so incredibly sharp. I have seen images of that, that really doesn't make you happy!" I follow in her example and pick up the next can I see. I also spot a shard of can, which has already met the blades of the grass mower. By the time we return at the farm gate, about 200 meters later, we both have our hands full with a number of cans which we dumb in the bin next to the door. (Johanna, Fieldnotes, 31 October 2022).

Lack of knowledge by nature organizations is based on the observations of the farmers of mistakes made by these organizations locally. The vignette above describes some fragments of the farm walk I took with Johanna. The vignette illustrates the work that Johanna faces as a consequence of the decision of the local green authorities to sow ragwort seeds into the road ditches. Johanna is irritated by the decision which did not consider the consequences of the plant for the health of cows and horses. This is the experience of negative affect produced by insufficient knowledge about the dairy farm system that in located next to the road ditches. Another example is the case where Fokke shows me a video of the time the local steward accidentally flooded a meadow. His expectation was that this might have been fatal to the local meadow bird population (Fokke, Interview, 26 December, 2022). Likewise during the farm walk, Daan also lamented the management of the nature organization of a windbreak forest, that was formerly under his care. He found it a shame that some parts were overrun by brambles, and also commented on how he would remove some of the trees to open the space up more (Daan, Fieldnotes, 25 January 2023).

Finally, negative affect is produced by undervaluation of farmers by the government and consumer-citizens. Regarding the latter, the undervaluation is an expression of unknowledgeability facilitated by the distance and anonymity due to the long supply chain in between producer and consumer. A consequence of this distance is that the farmers perceive the government and the consumer-citizen as misrecognizing the importance of their affective labour, their work for food production. This undervaluation of dairy farming and dairy farm products is perceived in two ways: 1) farmers lament that people pay a low price for food and 2) farmers feel that the importance of their labour as food production is substituted in priority in favour of nature conservation or luxury consumption.

In the past decades, the share of Dutch household spendings on food products remained relatively stable around 11,3%. This stability in spendings was broken during the Covid-19 pandemic, with the effect that spendings increased to 13,1% in 2020. Since then, the share of spendings decreased again, to return to 11,5% in 2022. The year 2022 was marked by record levels of inflation, which affected food prices, and increased total spendings (Berkhout et al., 2023). The share of 11,5% of total household spending on food products is historically low. Since the second world war, this share has followed a decreasing trend, from 70% in 1870 to 40% in 1950 to the 11,5% at present (van Sonsbeek et al., 2023). The decrease of the share spend on food is a consequence of the combined decrease of food prices and the increase in average income of households. As described in chapter 4, the modernization of dairy farming led to the increase of production, which translated in lower food prices. In this dynamic, however, the income of farmers has lagged behind the income increases in

other sectors (van Sonsbeek et al., 2023). Van der Ploeg & Roep (2003) speak of a squeeze on dairy farmer incomes due to decreasing milk prices, and increasing costs of inputs. As noted in chapter 4, the milk price that dairy farmers received in the second half of 2022 reached an historical height, coming to 62 cents per kg of milk (Agrimatie, 2024)

The dairy farmers perceive the Dutch consumer-citizen low spendings on food, and the choice for the cheapest products as a lack of care about food and farmers. This is reflected in Sytse's account when I asked him about his experience of the nitrogen crisis:

> *Yes…* Sytse pauzes a while. "*Um….*" Another long pause to collect his thoughts. *"I think that… I know for sure that they will just…*" He sighs. Then voice turns fired up. "*They don't have a clue what they are talking about. Really absolutely no clue! Absolutely no clue. It really makes no sense. If you- I looked at a map recently with the father of my girlfriend. You just see all the planes flying. And all the boats sailing. That was a different map, about cargo boats. Well, you know, they just run on oil fuel. […] And that… is all just gasses, and then…. They say that* a cow- *a* damn cow… *that that is the problem of what is going on in our environment. Sure, that is the biggest nonsense that exists. It seems to me at least. The cow has been here forever. Always. And the horse too. All the animals have always been here. And now they have a nitrogen problem and then they point at us farmers. With our cows. Cows that… well, graze the land all summer. Then I think, "what?" They are just about something that has nothing to do with a farmer. They just want the land, and that is all, that's what all is based on… […] I find, really, if you see what that government does, they just abandon the farmer. There was war before… and after the war they said "we never want hunger again."* He pauses. "*Never again. And the farrmers, those people, they set to work. One with arable farming, another with dairy farming, and another went to rear cattle. Everyone went to work, to make sure no one was ever hunger again. We have to eat. Then this is just the thanks you get. In the end… now it's like, "you just leave little farmer. We can do without you." I find that sick. Really sick. I think that if my grandfather had seen this. How this goes. The father of my father… I think that man would have burst out in tears."*
> *"What about you?" I ask him.*
> *"It gets to me… It just gets to me. Look, um… When my father was a boy, everyone… had appreciation of the farmer. A farmer is a man or a woman, who works hard for their animals, for his- for little money, but just for something that he finds beautiful. And… it gives little money, but it's just a craft. It's your passion! You find it awesome. There is no job as beautiful as a farmer. Because you do everything, all different things. And people saw that in the past. They had respect for farmers, they had appreciation for farmers. And yeah… I don't know if it's the citizens of the Netherlands, or really just the people in the Second Chamber [of Parliament]? But that respect for farmers, the appreciation seems to fall away. While we are the people that make sure that every has a glass of milk in the morning at breakfast. Or cheese on their cracker, or whatever you can think of. That is where it comes from. And it's produced for a crap price. Yeah. I find that regretable." (*Sytse, Interview, 25 November 2022).

Similarly, Johanna and her family experience lack of concern from society for their businesses:

> While all bowls have been filled with soup, the dinner conversation revolves around the exceptionally high milk price. Johanna's speculate about why the milk

> price could be so high. I suggest to look it up and find on the news that it is linked to the war in Ukraine, and the demand. *"The news link everything to the war in Ukraine"* comments one of the relatives. Johanna challenges the reading also, *I hardly believe it could be demand… and it could also not be the increased costs. No one has ever been concerned with that. Why would that suddenly be the case now?" (Johanna, Fieldnotes, 1 November 2022).*

Jesse's statement also demonstrates the experience of disempowerment in the food prices, and the government policies:

> *"It's time that they start valuing the small things. And [the government] wants to, but the rules lead to that the big ones become bigger and the small ones are squeezed out. […]. The people want things to stay small. But the people don't want to pay for it. So yeah, then it gets nowhere. The people also can't pay for it, that is the big problem. Like the organic farmers, their products the people also leave aside. Because they can't pay for it. So, there the government first has to address, they first have to go sit at the table with the supermarkets. They make so much money, that is bizarre. If you see what you get for the product, and what they charge for it. That is… yeah, then it can't go anywhere. There, they will first have to take action. And then you can find an opening for fair prices, and then a farmer can keep going. If a farmer is paid fairly, the way it should be, then the farmer can do so much more." (Jesse, Interview, 19 January 2023).*

For Sytse and Johanna, the price of milk has not reflected the value that food production, or the cost of producing requires. Jesse also points to the value chain of dairy products, and the value extraction by supermarkets that negatively affects both consumer-citizens and the dairy farmer. The accounts of Sytse, Johanna and Jesse show that the milk price has a feeling, affective dimension. For Johanna and Sytse, it is a symbol of valuation, as care for the farmer. The low price specifically is a symbol of undervaluation or lack of concern. Jesse's account also shows that the milk price has a bodily action component, an empowering or disempowering affect for the continuation of the dairy farm system, and for sustainability measures to be taken.

This chapter explored the different affective relationships that make up the dairy farm system beyond the farmer-cow-land triad. It explored the relations to colleagues and community, to professional relations and to societal actors (government, nature organizations and citizens). What the findings show, is that the first two categories of affective relations are mostly producing positive affect and positive experiences, while the latter category primarily produces negative affect. The positive affects help the continuation of the farm system and facilitate and recognize the farmer in his daily practices. Positive affect appears in the first category of relations in the form of care**,** assistance**, and** co-learning**.** In the second category, positive affect is produced in facilitation, reliability, intimate knowledge and celebration, resulting in pleasant experiences. The third web of relations holds negative affect in the form of unreliability, generic knowledge, and undervaluation. Through the empowerment for cow-care: learning together, helping, feeding strategy, breeding strategy, milk monitoring, ready-to-help when needed, the farmer is empowered in continuing the practice of dairy farming at a larger scale. Neighbours and colleagues assist in dairy farming activities; the CRV app helps a farmer oversee the cow herd, and their health; the milk company details the quality of the milk and the health of cows every pick-up; the feed advisor is there to think about feeding strategy and adapt to the variation each year that the roughage has due to climatic dynamics. As such, the collegial and professional relations are positive for the dairy farming conatus in the every-day setting. In the every-day, the 'bodies' of the professional relations and the dairy farmer 'agree' in terms of timing and particularity, in creating moments of celebration. These ultimately produce an experience of recognition, being seen. However, on the long-term, the low prices from the milk company, and the shift that can occur in the relation to

the bank based on economic factors, make a squeeze on the income from dairy farming. This works in a decomposing manner to the continuation of dairy farming. On the long-run, this negatively affects the viability of the farm, and the farmer's health, working in a decomposing manner: there is negative impact on financial viability, and the farmer experiences more mental and physical stress.

Chapter 7

Dairy farmer's experiences of the nitrogen crisis

In this chapter, I expand on the findings of chapter 5 and 6 by focusing on the farmer's experiences of particular situations of the nitrogen crisis. I illustrate how dairy farming and the affective farm assemblage are the objects that are at stake in the crisis, in which anticipated loss and anger are evoked as specific emotions.

To start, I illustrate the general experience of the nitrogen crisis by the farmers, highlighting the highly-context specific character of this experience. Beyond the general context-specific experience, the farmer's also experienced the nitrogen crisis in an affective and emotional way. First, I elaborate on anticipated loss, reiterating the meaning of dairy farming (chapter 5) and the farm assemblage (chapter 6) to further illustrate that which are at stake. I pay special attention to the theme of farmer's suicide, to give space to how this particular loss, deep grief, is within a community and unknown to those distanced from agriculture. Second, I elaborate further on the anger that the farmers feel, based on the felt frustration and injustice of the way the nitrogen crisis, and government regulations more generally, is addressed. Finally, I elaborate on the experience of the June 2022 protest movement, showing how the protests facilitated positive affect through support and solidarity.

7.1 Context-specific experiences of the nitrogen crisis

In this section, I demonstrate that the emotional and affective experiences of the nitrogen crisis are specific to the farmer's individual character, and the geographical and legal characteristics of the dairy farming system.

First, the participating farmers experience the nitrogen crisis as so-far 'manageable'. This is based upon comparison of their farm's legal status and proximity to a Natura 2000 site to that of colleagues. The reasoning is that their activities are legal, for they have a nature permit. This is positive in comparison to their colleagues' who are a 'PAS-melder.' Consequently, most farmers feel not too worried about their situation. The positive legal status gives a certain comfort. It indicates that, at least, the activities are not acutely challenged, as illustrated by the statement of Douwe: *"I cannot complain over my location, and my happiness. The PAS-melders, they have a difficult time. From those people I can imagine that it's no walk through the park for them, so to say.*[10] (Douwe, Fieldnotes, 28 December, 2022). This is also confirmed by Johanne, who tells me, *"You are here with me now… but everything is fine here. There are other farmers where its worse, like the 'PAS-melders'"* (Johanna, Fieldnotes, 30 October, 2022). The statement of Jorrit later on, on page X, also shows this. Furthermore, the relief to have a permit is mediated by the proximity of the farm to a natura 2000 site, and the prospect of being affected by this location in the future (Fokke and Jelle, Interview, 26 November 2022; Daan, Interview, 9 January 2023).

Second, the instance of farm termination looms over the farmers but remains uncertain. This makes the possibility of termination immanent, ever-present, unrealized potentiality. In the every-day routine of dairy farming, which entails continued milking and feeding, the immanence of this future brought a certain tension. Dealing with the uncertainty involves strategies, which farmers referred to as trying not to worry too much. The farmers who mentioned they did not have too much worries emphasized or show-cased an ability to distantiate themselves from the farm and put the occurrence of farm-termination into perspective.

[10] This is my own translation of the expression "niet in de koude kleren zitten" which Douwe used in the conversation.

For example, Douwe explained his approach as follows:

> *"You can let your head get messed up, but that brings nothing. I try to keep a positive mindset. […] As long as you are healthy yourself, and living a bit happily… That is much more important that the other stuff. You can be grumpy about the business, but …. If you are healthy, and you have fun. Then you are already rich"* (Douwe, Interview, 30 December, 2022).

Similarly, Johanna explained,

> *"I think it is different from personal relations. This is your business – it will be alright with me and my business. I think [the business] is important, but it doesn't go as deep as with [a family member]. Then I felt a rock in my stomach. This does not go that deep."* (Johanna, Interview, 4 November 2022).

There was also the consideration that there would be other things that could be done besides farming. For example, Jelle and Yfke saw the possibility in working elsewhere if the farm would have to stop (Jelle, Interview, 26 December 2022; Yfke, Interview, 29 December 2022). And Teun could see himself becoming a manager if he couldn't farm anymore (Teun, Interview, 29 November 2022). However, the capacity to put things in perspective, or to distance from the farm differs among farmers. Others find it hard to imagine what else there could be besides the farm or being a farmer (Linda, Interview, 16 December 2022).

Thus, the experience of the nitrogen crisis is specific to the context of the dairy farming system, and depends on the farmer's coping strategies and abilities. Nevertheless, despite not worrying too much, the farmers still expressed concern. For even though the farmers themselves did not worry about their own farm, they do still feel empathy for their colleagues. This brings me to the next section.

7.2 Anticipated loss

In this section, I demonstrate that the farmer's experience the nitrogen crisis in an emotion I refer to as anticipated loss. With anticipated loss, I refer to how farmers experience the nitrogen crisis in the form of a sadness evoked by the appraisal of the valued 'object', which is dairy farming in s variety of meanings. This feeling of anticipated loss is based on the appraisal of the future of dairy farming, which is a possible, yet unrealised future that contains the potential termination of dairy farming for the respective farmers. Farm termination is a future event that is likely, but uncertain in its realization, and would entail the loss of dairy farming in the diverse meanings. Whether this potential will become reality is uncertain, which makes the future immanent and produces a feeling of anticipated loss. The potential loss of the 'valued object' in the future is already felt in the present, as the possibility of termination is uncertain and therefore immanent. In chapter 5, 6 and 7, I presented dairy farming in a variety of meanings: as labour for cow-care, as autonomy, as food production (chapter 5), as heritage and potential (chapter 6), and as a system of relationships with empowering affect in community and professional interactions (chapter 7). In this section, I highlight some instances in which the experience of anticipated loss became clear.

First, the daily life of dairy farming is potentially lost in the nitrogen crisis with the termination of farms. As part of the buy-out procedure, farmers who are owners of the farm have to agree on a clause that prevents them from starting livestock farming activities elsewhere in Europe (Hofs, 2023). The farmers expressed they would feel saddened to stop the practice of cow-care, and forego the routine and autonomy involved in the work. Daan and Teun could see themselves moving into different fields, becoming a [x] or a manager respectively. Roel and Jorrit imagine they might be engineers. Johanna, however, did not look forward to stopping dairy farming, explaining,

> *"This is my life… Yeah, it's my whole life. I always say to people, "I can only milk cows, what else can I do? But that is not true because I've done all kinds of jobs.*

[…] But you know, I just find it beautiful. I think it fits with me, at least I like it. I think it is important to do what you like." (Johanna, Interview, 4 November 2022).

For Fokke and Jelle, especially the work with cows would be a loss as shown in their conversation:

Jelle: "What's the use of money when you have no more cows…?
Fokke: "Exactly. So yeah… and you have no more bunders, no more land…
Jelle: "And, you lose your freedom. I don't know….
Fokke: "And what to do with yourself, hey? What to do? Sure, you can spend all the money, but…
Jelle: "You can sit in front of the TV and spend your money. And…
Fokke: "Yeah…"
Jelle: "With your feet up…"
Fokke: "Sure. Yeah, I could make it until I am 67 I think. But the boys will certainly never be a farmer. Because the farm is gone. Yes… Yes, the preference is to keep going!" (Jelle and Fokke, Interview, 26 November 2022).

The affects involved in dairy farming, the cow-farmer relation of care, the land, the work for the successor, the farm as a whole, is at stake. A way of being in the world becomes changed if a farm is terminated.

Jorrit tells me as they step through the bars. While Jorrit and the veterinarian busy around to vaccinate the cows together, I walk around a little to explore. I chance upon Jorrit's mother in the employees' cloakroom, at the end of the feeding alley. We introduce, and I tell her "I am the researcher visiting Jorrit today" so she knows my role. "Oh yeah, is this for your education?" "Indeed. I look into how farmers experience the nitrogen crisis." "Oh, that is important research." "I agree." She goes on to tell me "We (she and her husband) are happy that Jorrit has taken over [the farm] from us. Jorrit first protected us a little, when it [the nitrogen crisis] started. But over time, he has let us in on it a little more. If my husband were to do this now, he would not have been able to handle it." "In what way would he not have been able to handle it? Do you mean stress, or…" "Well, yeah, mainly a lot of stress. It would not have done his health any good…" She turns and reaches to collect something, before continuing. "It's also pretty serious. To just suddenly get a map like that, with 47 percent reduction. That is not realistic at all. It would be regrettable to see Jorrit having to quit." "Why would you find that regrettable?" I ask her. "Well, we have worked all our lives, together, to build this farm and for Jorrit to take over. Of course, we're not happy to see that disappear like snow in the sun…" "Would you find that a shame if that were to happen?" "Yes. We have worked on this our entire lives." She continues to search through the boxes. I decide to leave her to her work, as she prepares to give milk to the calves. I follow the feeding alley back into the cowshed. I see Jorrit and the veterinarian still busy, but also meet his father. He asks me to fill a tall bin with sawdust and turns around to return to the cows. I fill two bins and bring them to the end of the feeding alley. Jan's father is cleaning the beds using a wiper. Taking one of the bins from me, he sprinkles the mats with the sawdust with an ease that comes only from years of repetition. (Jorrit, Fieldnotes, 18 November 2022).

Second, dairy farming is also form of affective labour by being the work of previous generations and current farmers to enable dairy farming for future generations. The vignette above shows the

anticipated loss of this labour and place. Jorrit's mother refers to how she fears losing her and her husband's life's work, as well as the possibility for Jorrit to pursue dairy farming. Returning to Ingold's notions of growing and dwelling, the farm development is a process of co-becoming that intertwines the farmer's energy and their emotional experiences with their material environment. This makes the farm an emotional place, and dairy farming an embodied activity filled with emotional experiences. The dairy farm, as shaped by and shaping the farmer, can be potentially lost in the nitrogen crisis, evoking in the farmers an anticipated loss of a life's effort to maintain the dairy farm system. This feeling of anticipated loss is confirmed by Fokke, though he values the land to enable his children. We are in the milking pit when Fokke tells me,

> *"Yeah… If the farm has to stop… that would not be nice. You don't get a good feeling from that idea, it feels like you lose something. I do think, if I did not have children, it would be easier. I lose my land, and I want to be able to give them land. That is important, that they have land to live from."* (Fokke, Fieldnotes, 26 November 2022).

His statement shows how his experience of the nitrogen crisis is influenced by his children. For him, holding on to the farm, especially the land, is related to the care for his children. The striving to continue the dairy farm system is in that way also affective labour, in the service of enabling one of the children to become a farmer.

Fourth, the dairy farm community might potentially be lost in the case of farm termination. The potential loss of this affective arrangement is already felt by the farmers. This is illustrated in the statement of Jelle:

> "*Frisia is also a bit of a farmer's province. Everywhere there are some farmers. And pastures and grass, cows in the pasture and that bit of culture, you will lose all that too. You lose something… and… well, I don't know… […] It also has its benefits. That… and it is also sociable, because all those farmers, well… they get you."* (Jelle, Interview, 26 November 2022).

Johanna likewise points to the community that is at stake,

> *"A lot of people who protested are not farmers. There are a lot of other people who depend on this system. If half of the cows disappear, then the claw trimmer has only half of the cows to care for. They say, if a farm stops, about five or six jobs are lost. And it is actually you job… […] If the plans of [the minister] proceed, then the Dutch economy will look very different. If the map happens, then the surrounding here will also look very different. That goes beyond the imagination."* (Johanna, Fieldnotes, 6 November 2022).

Daan also described the uncertainty of the future for farmers, and is disappointed about the lack of vision there is behind the government's policy development. When I asked what the vision should entail, Daan tells me,

> *"Well… what I said, "okay, you are going to buy a lot of land. And what will you do with that land?" (he asks the government). And also business models for farmers. Like, alright, if we have a lot less farmers soon. That also means a lot less employment around farmers. And also, the milk factory, that we have left. What will happen to it? Such things are not thoughtfully considered. So yeah… it's the consequences of the policy. That is not thought through. And also not about… who will be able to farm in fifty years? You don't hear anyone about that. That's difficult."* (Daan, Interview, 9 January 2023).

Finally, I highlight that the farmers do not just consider the potential loss of community as a whole, but also anticipate loss of the members of the community. I want to pay special attention to the theme of farmer's suicide, to show how this particular loss, grief, is felt within a community and possibly unknown to those at a distance from agriculture. The theme of suicide emerged on several occasions. Next to the loss of dairy farming and the farm in all its meanings, there is also loss of lives of colleagues. In other words, also farmer's lives are at stake in the nitrogen crisis. The farmers experience worry evoked by immanent risk of colleagues taking their lives as a result of the nitrogen crisis. This worry draws upon past experience in events related to 'swabbing policy'.

Cato and Mies take me along to an event after dinner, as part of Daan's carefully planned day. We arrive at a white venue for the "Boerenavond" (Farmer's evening), hosted by the regional veterinarian organization. The freezing weather makes our journey across the parking lot precarious. Inside, the atmosphere is warm and inviting, with cozy lights and people ambling around and catching up. We arrived just before the start, so the room is already full. We take some spots near the front on the side. Daan is still in a meeting, joining us later. The program begins with talks by the veterinarians, and they are followed up by a representative giving a promotional talk discussing cow health supplements. Then, the highlight of the evening: a comedic performance by a woman who funnily describes her move from the city life to marrying a dairy farmer. She satirically described her experience of getting to know dairy farming. About how the farm is a loud place, not quiet and idyllic as people expect. And how delivering a calf can be hard work. How her new community in De Achterhoek finds a reason to drink beer in nearly anything. The stereotypes are blown up of people and rural people. I find myself laughing, and confronted as outsider. As the show ended, conversation immediately explodes and beers start to flow, with the waiters hurrying among the tables. People start to mingle around and find their colleagues. I find myself at the table with Mies and Frits. They want to find the 'youth table.' I briefly talk with Mies, who tells me her perspective on the nitrogen crisis. I then strike up a conversation with the young man on my right, "What is your name?" He introduces himself enthusiastically as Luuk. 'Are you from around here?" he asks me. I have to tell him that I am visiting Mies, as a student from Wageningen to learn about the nitrogen crisis. I return the question, "Are you from around here?" He shakes his head, "Not really from close by. We live in the north, but are still in the region of this veterinarian. We moved there from Twente. We moved because we could not farm anymore there. My mother also took her life because of all the rules that we were thrown upon us, and with the move. She could not take it. In Twente, there was no more perspective for us. And then we could move here." The story is told rather casually. He explains further that the move was around the time of the phosphate legislation. Because they had moved, they did not have any animals on the farm at the measure date. And therefore, they were not granted any rights. "Recently we won a the court case." "Was the court case about a permit?" "No, not about a permit, but about the course of events. We have an exemption now, so we can keep the cows according to the permit, but we don't get phosphate rights. But now we have perspective for the future." Luuk is studying health care. "But after, I actually want to go to the HAS., to take over my father's farm." He is approached by an acquaintance, and has to leave. He gets up so quick, I don't get a chance to say goodbye. (Daan & Mies, Fieldnotes, January 25, 2023).

The excerpt above describes a contingent encounter that brought up a personal loss in relation to the circumstances of the phosphate policy implementation in the past. The relevance of past events is illustrated in the vignette of Luuk, who associated my research topic to his experience of the phosphate policies a few years ago. He connects the suicide of his mother directly to these policies. The true cause of the suicide cannot be confirmed for this study. However, the way the story is told is shows that suicide is interpreted and associated with (recent) government action for sustainability. This is further illustrated by the statements of Jorrit and Johanna:

> It is still drizzling when we stand on the driveway. Jorrit needs to fix his car that afternoon, and find out why it will not start. So I take my leave. But before I go, I ask Jorrit if we can plan the interview. We agree on a time and place. At the end he ponders *"I am curious… well.. what should anyone say about it…?" He looks out over the field for a moment. "Look, for me, it is not that bad, I have a nature permit, and that gives me a lot of peace. Then you can wait and see, see what happens. But there are some who do not have this. And that [nitrogen] policy… that will cost people' lives. […] it just shows how interwoven we are with that policy, and with the farm."* (Jorrit, Fieldnotes, 18 November 2022).

> *"[The body mapping] made me realize that it doesn't go as deep for me. But maybe it does for others. Yesterday I spoke to my uncle. He spoke of a case of a farmer, who had moved because of being too close to a Natura 2000 area. And then in June the map was published, which said he had to reduce 47%. He hung himself." She is quiet for a moment. "I find that quite heavy to hear… And it doesn't come as deep for me, but maybe it did for him. And maybe that is why I protest, I show my anger, and then you are done with it."* (Johanna, Fieldnotes, 5 November 2022)

There are detailed statistics about the occurrence of suicide among dairy farmers, since the occurrence of suicide is only measured per sector rather than specific profession (Linda, Interview, 12 December 2022; Gilissen & Berkelmans, 2019; Traag & Hoogenboezem, 2021). A recent estimate comes to around 11,5 suicides per 100.000 people working in the agrarian sector in 2021 (113 Zelfmoordpreventie, n.d.; 113 Zelfmoordpreventie & LTO, n.d.). The significance of these numbers is contested (BNR Webredactie, 2023). But the data shows that the occurrence of suicides among agrarian workers has increased over the past decade. There are also signs that the risk for developing mental or physical health problems is higher among farmers due to the stress factors within the profession, increased isolation as a result of mechanization, and the negative critique on farmers in the public debate (Kuijk et al., 2022). The increased risk for (mental) health problems is also found in research on farmer wellbeing and health in other countries (Fraser et al., 2005; Lunner Kolstrup et al., 2013).

Importantly, in the experience of the farmers, the exact number of farmer suicides in The Netherlands are less relevant than that the fact that they occur at all. The risk for loss of lives is felt within the dairy farming community. The possibility and increased risk of suicide evokes feelings of worry and compassion for those who suffer, and concern about the demand for sustainability that is placed on the community. The link between environmental policies and farmer's suicides is made within the farmer community and amplified by the protest movement (Hart van Nederland, 2022; van Dijk, 2022). In particular, Farmer Koos became an important symbol in the resistance movement. On June 23, 2022, he appears in on the news, in a video where he shows despair and attempts to keep his emotions under control. In the video[11] he says the following:

[11] Original speech: "Voor mij het klaar. Echt klaar! Maar voor deze [jonge boeren] allemaal niet! En dat ga ik ze zo meteen vertellen. En maakt mij niet uit, als staat er 100 politie om me heen, ik ga het ze

> *"It's over for me! Really over! But not for these [young farmers] here! And I am about to tell [the politicians]. Doesn't matter to me if there is a hundred policemen around, I will tell them. Because in [place], a farmer – I told them that yesterday at [the ministry] too – a farmer hung himself! And for what?! Not because his marriage was failing, or because he had worries. It was precisely for what happens here [in the government]. And every farmer who does the same this year, you [Koos points to the politicians] are responsible for that! And I won't do it, because I am always of a positive attitude, all the time. But I can't do it now. I can't do it anymore. I am in a frenzy! This is war!"* (De Telegraaf, 2022)

Later, two parliament members try to comfort him. In a talk with the woman leading the BBB, he breaks into tears. Through his display of emotion on national television he evoked a lot of sympathy in the public and amassed support. The next day, he appears in the popular Dutch talk show Op1, where he also invites the general public to show support for the farmers using the red handkerchief (Op1, 24 June, 2022).

Johanna, who is a member of the farmer's defence force, tells me about the moment she saw Koos' tv-appearance,

> *"I nearly started to cry myself. Yeah… Yeah, I really find that… you know… that is just as it is, what he told them. And yeah, if you start to cry, then I start to cry. So, to me that was very intense. And then… how [the ministers] responded, I just think… I mean… they won't start crying with you, even though that might be nice. If you have a minister that also cries with you, and who gets what you [go through]. I really think that [the minister] has no idea what she is causing. […] It would have saved a lot of misery if she had done that [publishing the map] differently. […] because she caused a lot of suffering with everyone. I find that very regrettable. It makes me sad. Not for myself, because I can handle it. But for those who can't handle it, I find it very sad. Like with Koos… I find that so… It moves me. […] He had gotten a talk later that night, with [the ministers]. Van der Plas had organized it, that he could get a conversation. But that moment… it makes me cry as well. Just that… it's just powerlessness then, you know. Because you are talking there, but to who? Who is listening? That is why he said "I am jumping." Just, just because you feel that you are not heard. That is very unpleasant…"* (Johanna, Interview, 4 November 2022).

Johanna empathizes with the despair of a fellow farmer, and her sadness is evoked by the idea of colleagues suffering in the nitrogen crisis. The other farmers did not respond to seeing Farmer Koos in such a synchronizing manner as Johanna, but they agreed that it is regretful the some farmers struggle and empathize with them (Douwe, Interview, 30 December, 2022; Jelle, Interview, 26 November 2022). For example, Daan tells me,

> "*I can imagine very well [why he is angry] […] He is someone who works hard, very hard in his case, to build a business. And, at once, sees the earth swept away from under his feet. […] It did not [touch] me so much, but it did make an*

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vertellen. Want in Montvoort, heeft een maand geleden – heb ik ook tegen het LNV gezegd, een boer die hebt zich opgeknoopt. En waar om?! Niet omdat het slecht ging met zijn huwelijk, niet omdat hij zorgen had, maar precies om wat er hier beneden gebeurd. En elke boer die dat dit jaar nog doet, zijn jullie hier voor verantwoordelijk. En ik zal het niet doen, want ik ben positief ingesteld, alle tijd. Maar nu kan ik het niet. Ik kan het niet meer. En ik ben in alle staten. Het is oorlog!"

> *impression. But it's not like I was crying in front of the TV for two hours. Not like that. [The impression was] that you understand him really well. And that he… well… put it into words in a way that made everyone go quiet. […] But there are more like him."* (Daan, Interview, 9 January 2023).

The topic of farmer's wellbeing got attention in the public media, in part due to the protests and the visibility of farmer Koos' emotions. In this way, the issue of farmer's wellbeing was set on the public agenda. This increased attention resulted in action within the farming community itself. Over the years, a care network developed in which care and farmer's organizations started to collaborate to achieve prevention by attempting to break a taboo on talking about health. For example, one action was to organize ways to train the professional relations of farmer's to notice signs of distress (LTO Noord, 2022). In another example, a campaign on mental health (TABOER) was launched to assist in helping people speak about distress (LTO Noord, 2023; Nieuwsuur, 2023). The importance of the farming community to the wellbeing of the farmer is increased in these efforts, as the relations of the dairy farming system, as well as farmer's amongst each other, are called to look out for one another (Hallema, 2023). The importance of the community for care of the farmer is further confirmed by Daan:

> *"Of course, [that farmers struggle] psychologically, that troubles me a lot. Um… not everyone is… dealing with it as easily as we are. There are a lot of people who are just really angry, also just very disappointed and who… are not able to release those feelings. [They're] like "what am I doing wrong and what do they want from me?" Quite difficult… […] I know some, but not yet those with suicidal tendencies, not that far yet. But, oh, those exist for sure. […] It is about making it possible to speak about it, that is the most important. But that is difficult. You need to find your own- you need to find your friends. And you should not make more enemies. That is the whole art of it. Look, you have to find a sort of connection. If you only just… stand across each other, then, well… They think that the enemy will break at some point, but in this case, that will not happen. The nature clubs have way more time and money than the farmer's organizations. I think you need to find connection. Otherwise, you won't get out of it anymore. […] I think [the support] is well organized. But they do need to find it. You know? If you have those who eat themselves up inside. Yeah, that is difficult…"* (Daan, Interview, 9 January 2023).

The positive affect within the dairy farming system's relations is further developed through relations of care for farmer's health. The campaigns promote that the dairy farm system participants deal collectively with the negative emotions evoked by negative affect in the relation with the government and society, as well as experiences of anticipated loss.

To summarize, this section showed the accounts of farmers that show the anticipation of loss of various aspects of dairy farming should their farm, or that of colleagues be ended. The farmers anticipate loss of the work and life's work, of community sociality, and specifically of colleague's lives in the stressful situation.

7.3 Frustration and anger based on perceptions of injustice

In this section, I describe the farmer's experiences of the unfolding of the nitrogen policies and the continued production of disempowering affect through unreliability and uncertainty. These are experienced with frustration, anger and disappointment. These experiences are the result of farmers' perceptions of injustice in terms of communication, and in distribution of consequences and responsibilities. Hegtvedt & Parris (2014) define perceived (in)justice as a comparative evaluation made by an individual or group based upon (normative) expectations and the 'actual state of affairs' (Hegtvedt & Parris, 2014, p. 104). They show how perceived situations of injustice evoke negative emotional states, such as anger, indignation, sadness, or frustration.

The first perception of injustice relates to the way that the farmers feel they are treated, which literature on justice refers to as interactional dimension of justice (Hegtvedt & Parris, 2014). As part of the interview, the farmers were specifically asked about their response to the publication of the map. This appeared particularly an event that evoked anger (Jelle, Interview, 26 November 2022). The experience of Johanna illustrates the frustration over the communication and the approach of the government to publish the nitrogen map. When we talk about her feelings at the time of the publication of the nitrogen reduction map she rhetorically asks:

> "*Is it possible to get more and more angry? […] That map, that made no sense. Just the way that the map was presented, like "Oh. This is it. That's how it's going to happen. [The minister] was not… very empathetic. […] more like, "I am the minster, and you will all do what I want, and here is the map, and that is how it's supposed to be." Hello!? Who do you think you are? [The minister] approached it completely wrong, from the beginning. […] Remkes also said this in the report; the farmers, they understand something needs to happen. But not in this way. No. Hello… […] that is not how you treat us!*" (Johanna, Interview, 4 November 2022).

As such, the publication of the map was a particular event that evoked the emotion of anger and indignation, based on the notion that it is important for a government developing sound policy in a respectful manner.

Next to anger based on indignation over policy development and communication, the farmers also experience anger based on the distribution of impact and responsibility. Among the farmers, the feeling of injustice is the result of the evaluation of two aspects of the nitrogen crisis: 1) a large group of farmers was rendered illegal even though they acted according to the law (PAS-melders); and 2) the responsibility for the sustainability of agriculture is felt to be unequally distributed between farmers and the rest of society, and this is combined with an idea of misrecognition of the importance of the work of farmers.

The first unjust distribution is how the nitrogen crisis impacts their colleagues who are PAS-notifiers. The nature of the injustice is procedural, in that the course of events which rendered the farmer's activities illegal is unfair. This is illustrated by the story of Douwe, who himself also almost ended up as a PAS-melder,

> *"When the ruling came, that the PAS fell, that law was made for those problems [of the past]. But the farms, like us, they did not need a permit. They just told you that, "you don't need that." There were many farms like that. But then because they change the rules – because they did not do their work well in the parliament – at once, all those who did not need a permit, they give them a huge problem. Then you think… that doesn't cheer you up, no. And then I think: they did not do their work well. We, in hindsight just in time, got the permit. The man (who advised us) was rather smart, we got a final permit. But only because of the cleverness of that other person. We did not need a permit. But he said, "I don't trust this, it doesn't feel right." […] In hindsight we were lucky, we could also have been part of the (PAS) group. Well, then you have a really big problem outside of your own [doing]."*(Douwe, Interview, 30 December 2022).

The second injustice is felt to be the level of responsibility placed on farmers to take sustainability action in comparison to other sectors and actors in society. The majority of the ammonia emission and dispositions are originating from agriculture, and within this the majority comes from animal husbandry (source). However, the activities that produce such high nitrogen emissions are considered by the farmers to be in pace with the development of the rest of society. While agriculture intensified, so has the volume of air travels, the consumption levels, the number of houses and the general

population (sources). The demand for sustainability action (i.e., reduction of emissions, or for biodiversity) from only one sector while it is embedded in a generally very resource intensive society, is felt as an unjust distribution of blame and action. This is illustrated by the statements of Jorrit, in which the farmers berate the fact that other activities of society are not being targeted as harshly. When discussing the publication of the map, Jorrit expressed frustration:

> *"Good thing that in The Netherlands, the goals are never achieved. I thought immediately, this will not be so bad. A lot of farmers around me would not believe that. […] I said, they will never- this cannot be, there is no way. So, I did not want to make myself angry and powerless by that, like others did. But I was angry and frustrated. […] [I did not expect] that they would put it fully on the agricultural sector. That they would shop the nitrogen away from there. I found that very cheap. That other polluting industries were just left completely out of sight, I did not expect it like that."* (Jorrit, Interview, 22 November 2022).

The other farmers made more comparisons to the damages associated with loss of land to urbanization or the growing number of houses (Teun, Interview, 29 November 2022; Johanna, Interview, 4 November 2022), use of pesticides in gardens (Johanna, Interview, 4 November 2022), flying behaviour and expansion of airports (Fokke, Fieldnotes, 26 November 2022; Sytse, Interview, 25 November 2022). The development of society are considered to be taking place in agriculture as well. As Douwe states:

> *"There are perspectives here that prefer to see agriculture disappear, to the small farms of the past. But, you cannot put a part of the economy in a situation of 100 years ago, while the rest keeps on going. I don't think than can be achieved. […] Agriculture is not a part that stands still. That keeps on going, and will keep developing. Just like the rest of the economy. […] If you hear some people, then agriculture is all doom and gloom, but it is absolutely not true. Because all the nature areas that they want to protect now, they emerged next to agriculture. And suddenly, agriculture is the problem. Then I think, something is not going… you know, they came to be while there was always agriculture…"* (Douwe, Interview, 30 December 2022).

The agricultural sector is perceived to carry the heaviest load, approached in separation from the rest of society. In this way, there is understood to be a misunderstanding of agriculture, and of the role of agriculture in the sector. The farmers consider it unfair that the agricultural sector is the only one facing regulations while other sectors that likewise need to downscale are exempted or less regulated.

Thus, the anger and frustration that the farmer's feel emerges out of a legacy of unreliable policy making, which is repeated in the events of the nitrogen crisis. The lack of thought in this policy-making process signifies a lack of respect and unfair distribution of responsibility. At large, the injustices are perceived as a failure of the government.

7.4 Protests to avoid loss, express anger and build solidarity

In this section, I go deeper into the accounts of the farmers on their reasons to protest and experiences of the protests. For the farmers, the protests had two functions: 1) an attempt to challenge the negative affect on the farms from the government so as to avoid potential loss, and 2) a means to channel the anger about injustices which I illustrated above. Additionally, the protests in turn created an atmosphere of support and solidarity.

Firstly, not all farmers went to participate in the mass protests, and all of them disagreed with the use of violence. Some could still understand where the violence comes from (Johanna, Fieldnotes, ; Jesse, Interview, 26 November 2022). Only Willem did not feel involved with the protests. This was due to

his forthcoming retirement, which is why it did not matter much for him anymore. While Douwe and Yfke did not join the protests, they did support the efforts of the protesting farmers, and viewed the protests positively to make the farmer's concerns known (Yfke, Interview, 29 December, 2022; Douwe, Interview, 30 December, 2022).

For the other farmers, the protests were a means to express the anger, frustration and despair felt by the unfolding of the nitrogen policies and in the years before. The protests became an attempt to express what is felt as an existential threat: the potential of losing what is valuable to the lives of the dairy farmers, which is what the farmers want to avoid. As such, the anticipated loss of dairy farming and the farm led to efforts to resist the nitrogen policies. This motivation to protest is observed in the account of Jelle,

> *"It's nice that you are not alone in this. And that you are not alone in… your disagreement with the policies. But it is deeply tragic of course, that this is necessary, and that you are there for that reason. […] If you get this on your plate, then you have to [protest]. You try something to stop it… it's actually just terrible. But yeah, whether it helped? I don't know…"* (Jelle, Interview, 26 November 2023).

It is also confirmed in the account of Sytse, who went to protest in 2019 and 2022,

> *"No…I wouldn't be happy [if the policies went through]."* Sytse is silent for a moment before he continues, *"Yeah… You can't do much about it I'm afraid. We protested, we tried everything. We were in [place]. Many days we have been out with the tractor. To [place], and [place]. Everything and anything. Because…"* Sytse's voice catches in his throat. *"Yes, it was just… I protested, I went to The Hague. Twice. That's a long way. With the tractor. That takes long…. But then you really want to make your point. So you go there. It's like "see us! We… we… This makes no sense! You are destroying us!" And because of despair you go with all the farmers from the neighbourhood on the tractor to The Hague. To protest. And then its seems like… it works. It all seems fun. Everyone saw it. There is appreciation. And then moments later, you don't see anything from it. That is very sad."* (Sytse, Interview, 25 November 2022).

For Sytse, the protests were a means to express the despair he feels over the potential loss of dairy farming. The account of Sytse also includes an effort to become seen by others, as a struggle for recognition. For Daan, going to the protest was a way to make sure that "the society knows that farmers will not just let this pass them by" (Daan, Interview, 9 January 2023). Similarly, Jesse reflects of misunderstanding of farmer's realities by others:

> *"[The protests] were justified. But it's also just… how should I say it. The people they of course do not understand that… the farmers do not doe this because the want to, it's just pure emotion. You are being portrayed as a animal abuser […] It's as if you do it for nothing. I mean, farming is not a [normal] job. You don't become a farmer that fast. Who always has to work, you need to be on time. It's a way of life… and that is made very difficult. […] People mostly just do not understand this. They just think, those stupid farmers, they protest… they don't know what farming means for a farmer…"* (Jesse, Interview, 19 January 2023).

Furthermore, the dairy farmers also (re)created a community of support and solidarity through coming together at the protests. This feeling of solidarity is supported by the symbolism that was developed

within the protesting community. Across the Netherlands, farmer's fields and many villages hoisted upside down Dutch national flags.[12] Additionally, red handkerchiefs could be seen attached to the sidemirrors or window wipers of cars on the roads. Stickers were also placed on cars, trucks, barns, signs with the message "proud of the farmer." (Bosma & Peeren, 2021). For the farmers, the meaning of the flags and the handkerchiefs is one of support, symbolizing solidarity. This is illustrated by Sytse's statement,

> *"Actually, I find that really beautiful what you see lately. People with kerchiefs, and everything, on mirrors and window wipers. That gives that feeling that we do not stand completely alone. Yeah. And flags upside down, we have one at home upside down too. Blue, white, red, The Netherlands in emergency.13 In my view its actually a bit like that." (Sytse, Interview, 25 November 2022).*

It is confirmed by Fokke, who explains

> *"[It's] the least you can do. Hanging the flag upside down. In that regard, we were in Stroe […] to show support, so to say. There were so many tractors. A huge togetherness!" (Fokke, Interview, 26 November 2022).*

For Johanna, there was an added meaning,

> *"In the fisheries, it had a meaning, if the flag was hung upside down. Then you knew that a man was overboard, or that the ship was in distress. That is what the flag means to me, it means farmer in distress. I also find the flag way more powerful than the red handkerchief." (Johanna, Fieldnotes, 6 November 2022).*

This solidarity in the protest movement builds produces a collective to oppose the adversary: the government and its disempowering policies (Klandermans et al., 2002; Klandermans & Stekelenburg, 2020). Fueled by the public appearances of farmer Coos, the feeling of solidarity is distributed and circulates by being attached to the flags, stickers and handkerchiefs in the public sphere. In this way, emotions played a role in both motivation to protest, and to create cohesion among the farmer's movement (Goodwin et al., 2001). As such, the emotions anticipated loss, anger and frustration were motivating emotions to participate in the protest movement. And the solidarity perceived in the use of symbolism such as flags and handkerchiefs strengthened the sense of community.

Thus, the participating farmers considered the protests as a means to become seen, and to be heard – that is, to express the emotions of loss and frustration that have been felt for a long time as a result of the disempowering affects the relation between government and society. Furthermore, the protests facilitate a composing affect among the farming community and the wider public, in the form of expressing solidarity.

To summarize, this chapter illustrates that, at the time of research, the way the farmers experienced the nitrogen crisis were related to context: the farm system's legal status and the proximity to the Natura 2000 sites. Furthermore, the experiences of the past policy changes are extended into the present situation, such as the experience of loss in the phosphate policy. Though the participating farmers found the situation thus-far manageable, they still anticipate loss, evoked by an uncertainty about the future of the farm, the dairy farming community, and the landscape. Dairy farming is at stake as it might potentially by terminated and lost, along with this the meanings of dairy farming as people's life's work, and as a service to society to produce food. And an anticipated loss of an affective

[12] The Dutch national flag carries the colors red-white-blue from top to bottom in three broad stripes. The farmers turned these flags upside-down to show blue-white-red.
[13] Own translation of the rhyme "Blauw, wit, rood, Nederland in nood."

arrangement, a community that celebrates, that supports, that enables and that learns together. Furthermore, the issue of farmer's suicides is also felt in the community, indicating the anticipated loss of people's lives. Next, the farmers experience anger through perceptions of injustice and carry years of frustration due to the disempowering relationship between government specifically. In the coming together during the protest, and the symbolism of the protest movement, the feeling of solidarity circulated among the dairy farmers.

Chapter 8

Discussion and conclusion

In this chapter, I discuss my findings and subsequently draw conclusions to answer the main research question and reflect on the focus on emotion and affect for the scholarship of sustainability transitions. I applied the concepts of emotion and affect to research Dutch dairy farmers experiences of the nitrogen crisis. While emotional experience is constructed based on appraisal of individuals of themselves and their environment, affect refers to the emotional experience of changes in the body's capacity to act.

This research aimed to answer the question: "*how do Dutch dairy farmers experience the nitrogen crisis in terms of emotion and affect?*" This question is positioned in a broader question of the role of emotions and affect in (agri-food) sustainability transitions. To answer the main research question, an ethnographic research approach brings insight in the emotions that Dutch dairy farmers experience, bringing into view what objects they are related to and what affective dynamics occur within dairy farming systems. The findings show how dairy farming is the work that farmers do which is emotionally experienced. Dairy farmers are driven by a passion for cows and conducting their everyday activities autonomously. Daily activities vary throughout the seasons, and some are particularly associated with positive emotional states, such as relaxation from mowing grass and milking manually, affection in raising calves, and caring for the overall health of cows. Long-term labour and dwelling at a particular place makes the process of development of farmer and farm one of co-becoming: the farm shapes the farmer and the farmer shapes the farm. The process of co-becoming attaches meaning to farm, and results in that the farm contains a part of the farmer. In this way, heritage is produced, where the dairy farm becomes a place that contains the co-becoming of predecessors. The farm also contains potential, where successors start with a process of growing into the farm and envisioning futures.

The diverse meanings of farming identified in this thesis are in line with other scholars who describe (dairy) farming relationally (Darnhofer, 2020), and associated with a broader range of meanings, including affective dynamics. Particularly in studies of farm continuity and succession, these dynamics come to the fore. For example, Carolan (2018) describes how dairy farming is related to family tradition and continuation of the farm. Both Joosse & Grubbström (2017) and Grubbström & Eriksson (2018) identify the importance of social relationships in farm or land transfers. Contzen & Häberli (2021) point to the importance of social recognition for Swiss dairy farmers in their quality of life and their continuation in the sector. Bilewicz & Bukraba-Rylska (2021) highlight the social consequences of deagrarianization, which is associated with the break-down of community life, fuelling conflicts among entrepreneurial and smallholder farmers, and fostering distrust among rural communities.

The focus on emotion revealed a variety of 'valued objects' in the dairy farmer's world that are appraised by the dairy farmers in the context of the nitrogen crisis. The farmers experience anticipated loss of these valued objects as they are appraised in the context of 'the buyout' policies' that could mean farm termination and a prohibition from farming. In the unfolding of the policy development to address the nitrogen crisis, farm termination is a potential but uncertain future event that could touch the dairy farms. The potentiality and uncertainty make the potential loss of dairy farming immanent. Notably, the experience of anticipated loss is context-specific and depends on the farmer's resilience to this stress factor. While not all farmers anticipated the loss of their dairy farm in the same intensity, they still empathized with the colleagues that might be affected. For this reason, the loss of dairy farming should not only be understood as a loss of livelihood and/or capital, but also of work pleasure, community and heritage. It's necessary to note that a consequence of the sampling strategy was that

the research participants did not include farmers who are considered PAS-notifiers, who are in a legally in a precarious situation and therefore are in a different situation than the farmers that participated in this research.

The anticipated loss is similar to what Nussbaum (2003) terms eudaimonistic emotion. For Nussbaum (2003) emotions can be considered as value judgements; "as value-laden ways of understanding the world" (p. 70). Anticipated loss is experienced in relation to what the dairy farmers value in their own life, but also for society. For example, dairy farm and dairy farming are also part of what the farmers perceive as a good life to live, in their references to (dairy) farming as a way of life that they enjoy. This way of life is associated with autonomy and doing valuable work in service of others. The notion of eudaimonia is also found in the appraisal that food production might be potentially be lost in the Netherlands. It is connected to values such as providing food for people at large, sharing with surrounding populations and with geopolitical autonomy for Dutch society. The valued objects, dairy farming in its various meanings, are what is at stake in the nitrogen crisis. The farmers appraise dairy farming as possibly ending for them or for colleagues. The responsibility, or the cause, for this anticipated loss is placed at the level of government, and expanded to wider society, making the protests a means to address this responsibility and attempt to avoid potential loss.

Furthermore, the notion of affect helped untangle and characterize the diverse relationships that make up the dairy farm system, contributing to an understanding of how the farmer's capacity to act is changed in these respective affective relations. In this way, affect reveals that the dairy farmers experience joy in empowering relations and frustration from disempowering ones. The dairy farm system can be understood as an affective arrangement made up of a complex of affective relations with dynamics of changes in involved subjects' capacities to act. The dairy farmers are embedded in affective relations with cows, land, machines; with community and colleagues; with professional relations such as advisors from agribusiness, veterinarians, mechanics, service providers, the bank; and with government, citizens and nature organizations as societal actors.

The affective dynamics shape the experiences of the nitrogen crisis, as dealing with the pressures and making changes depends on the farmer's relationally constituted power to act. The community and professional relations produce positive affect in the every-day through support, facilitation, collaboration and celebration. In the long run negative affect is produced in the relation to the bank and milk processor, based on value extraction or appropriation. However, this negative affect is not felt in the every-day by the farmer, as it becomes overshadowed by interdependency and enhancement of his capacity to act. In contrast, negative affect is produced in the relations that farmers have with government, citizens and nature organizations in the every-day through unreliability, generic knowledge and undervaluation. There is a dissonance in pace and rhythm of the dairy farming system and the policy developments, which diminish the farmer's capacity to act, diminishing motivation and hampering decision-making. This dissonance is experienced as frustrating.

Affective politics entails the (re)production of affective relationships and arrangements. The political significance of affect in the nitrogen crisis is that it plays a role in reproducing the arrangement of the conventional dairy farm, that this affective arrangement becomes the object of value that is at stake. Slaby et al. (2017) identify loyalty as an affective mechanism that reproduces a group of people in team work. In the case of conventional dairy farming systems, I show that it is positive affects produced by facilitation and valuation, and the experiences of pleasantness that reproduce the professional and collegial relations in a conventional dairy farm system. In contrast, negative affective dynamics decompose the system, and take place particularly in relationships with societal actors based on generic or lack of knowledge, inconvenience, and the low milk price and no shared responsibility for the task of agricultural sustainability. The dynamics of positive affect in the dairy farm system, that enhance the farmer's capacity to act, sustain the system while negative affects contribute to the disempowerment of the farmer and the system. The way that professional relations enhance the farmer's capacity to act, this affect works in service of the farmer's and the system's the conatus – the

effort to persist in the constitutive relationships, to avoid decomposition of the affective arrangement. Thus, affective dynamic have political importance. The political entails the maintenance of positive affective relations. This means the reproduction of the dairy farm system as an affective arrangement. Affect is important for politics of relations, as the joyful, positive affects reproduce arrangements, in that the conatus pursues the reproduction of positive affect. When thinking about regime systems relationally, the affective dynamics and the implications for bodies and experience within the regime influence reproduction of the regime. As Singh (2015) notes, we are inclined towards joyful encounters.

Frustration over lack of support is targeted at the public and government, while companies (banks, milk processors, feed companies) are exempted from blame as cause of disempowerment (e.g. extraction of value, low compensation). This suggests that a possible explanation might be that the relations are experienced as positive due to their ability to enhance the farmer's power to act, to perform his daily tasks in the practice of cow care, where the professional relations are intertwined with the reproduction of dairy farming system. The consequence of this experience of affect is the dynamic of the conatus; the effort to maintain the constitutive relationships, and to avoid the decomposition of the affective arrangement. It is emotional experiences of affect (positive) that reproduce the system, and serve the conatus. The deflection of blame of undervaluation to citizens rather than agroindustry is interesting to consider when thinking about regimes in transition processes. What is threatened in the process of transitions is not just economic interest, but social networks of valuation and respect that farmers do not find in relationships with government employees, governmental monitoring agencies such as RVO. Nor do they find it in their relationship with consumers of their dairy products, which is mediated with the milk price.

Singh (2013) and Van den Berg et al. (2022) emphasize the positive dimension of affect, by focusing on the creative power (potentia) in affective relations. However, the Spinozist-Deleuzian notion of affect also contains a negative dimension, with affective dynamics of disempowerment in instances of potesta, where the body's capacity to act is diminished. This dual manifestation of power in affective relations presents a more complex picture of affective dynamics, not only ascribing a positive meaning. In this thesis, instances of diminished capacity to act came to the fore in the accounts of farmer's that describe how they are hindered in what they do or aspire as a result of negative affect in the relation to government, citizens and nature organizations. A first example is that of unreliability and inability to create policies that support a dairy farm system. Another example is the price farmers are paid for their products works disempowering. The low milk price is established through price-setting by food processors. However, this is not reflected upon as such. Some farmer's considered the value extraction of the retailers. But mostly interpreted the price as undervaluation by 'the public'. Based on the experience of changes in the body's capacity to act as a result of the milk price, I suggest an affective conceptualisation of prices, to characterize the (dis)empowerment that is experienced based on valuation of the dairy farmer's activities, that is, an affective milk price. The affective conceptualization of a price brings attention to how labour and the price are experienced emotionally and in the body's capacity to act, moving the establishment of a price beyond cost-accounting or equilibriums of demand and supply. For an agri-food sustainability transition at farm-level, the farmer's capacity to do so is affected by the price, pointing to the importance of approaching a price, and other dimensions of transition management, towards the enablement of the farmer(s).

It should be noted is that the analysis of these affective relations in a dairy farm system is not exhaustive, but of an exploratory character. For example, affective dynamics in the relations of dairy farmers with non-human and material actors of the dairy farming system also influence the farmer's capacity to act, for example the milking system and the tractor, and the cows, soil life, pathogens. Non-human, (im)material elements feature as mediators of affect in the relationships farmers have with individuals or organizations, such as the connection to CRV or RVO through software and platforms. Or the connection between farmers and societal actors through regulations, tenure contracts

and prices. These material actors in the dairy farm system have been featured in several vignettes, and shortly accounted for in the discussion of the role of the milking robot, but a thorough analysis of the agency of non-human and (im)material objects in the affective relations was not the priority of his thesis. The focus has been on the dynamic of changes in farmer's capacity to act between human individual and collective actors. Future research could implement and improve the analysis with a more systematic approach, and attention to non-human and (im)material agencies in these relationships. Part of this research would require a longer time for the conduct of thorough and reflexive research.

Furthermore, the analysis and description of affective relations and influences of bodies' capacities to was performed in a one-directional manner, where the attention is mainly on the diminished capacity to act of the farmer. In this way, the decreased capacity of farmer becomes a power disbalance: the negative affect becomes a power over the farmer, a form of domination. However, the affective dynamics have a dialectical dynamic, where all the bodies in relation are affecting and being affected. In the idea of affective dissonance (Mühlhoff, 2019), all bodies are in an interaction of dissonance that diminishes the power to act of all bodies. The way that government or citizens become disempowered, i.e., diminished capacity to act, in the arrangement of dairy farming has been unexplored in this analysis. Future research can implement a dialectical study of affect by both researching dynamics of affect with a focus on all bodies involved in the interaction. For example, by including the experiences of the collaborating farmers, the RVO employees, the ability of 'the government body' to achieve its goals could be explored.

With the dominant focus on the farmer's body, the dialectic dynamic of affect in the relation between farmer, cow and land has not been analysed in-depth. This is another shortcoming, for there are implications of this perspective for debates on land-use and animal ethics – which are a relevant part of sustainability ideas. The use of the term cow-care in this thesis can seem problematic in debates on animal ethics, due to practices like separating the calf from their mother, or breeding for production over bodily integrity, or removing the cows horns to adapt her body to the stable. In other words, the cow's body and relations are altered to maintain the relationships of intensive production. The affective dynamics of conventional dairy farming have worked as decomposing to the dairy cow's composite body. The term cow-care has been used to stay close to the lifeworld of the dairy farmers, who are engaged in the every-day activity of creating the conditions for the raising of dairy cows, while conventional practices differ from views on 'animal-worthy livestock farming' (e.g. Raad voor Dieraangelegenheden, 2021). Ingold (2000), points out, that the affective dynamics in one relation interrelate with affective dynamics in other relations. Similarly, West et al. (2018) emphasize the importance of relational approaches to notions such as stewardship and care, showing how care is an embodied, situated, political practice that emerges out of social-ecological relations. In this way, if we want to understand how industrial modes of farming are opted for by entrepreneurial farmers, the attention shifts to the web of relations that a farmer is embedded in. In this way, the full understanding of affective dynamics is necessary, and the ethical responsibility for creating positive affect becomes an issue in the whole dairy farming system of affective relations. The affective price, and the affective debts of the farmer, have to be included in a transition to dignified animal husbandry systems. In a dairy farm, the cow, land and farmer are intricately connected, and the main goal is to care for cows and infrastructure in a way that they can achieve ambitious goals. The process of dairy farming has however become more violent for the cow as the practice began to answer to industrial logics. This development needs to be placed in the wider context of society, where the relations of citizens and government has also become decomposing. The affective relations have implications for the whole affective arrangement. The interdependencies of a dairy farming assemblage make farmer, cow and land vulnerable to decomposition; care relationships depend on other care relationships. Composing relationships depend on composing relationships.

Finally, I turn to a discussion of the findings in relation to the broader question this thesis examines, namely "what is the role of emotion and affect in sustainability transitions." Not a lot of research has engaged with emotion and affect in the specific context of a sustainability transition, while it is agreed that sustainability transitions are political processes (Avelino et al., 2016; Meek, 2016), and that political processes are intertwined with emotion and affects (Goodwin et al., 2001; Nussbaum, 2003). Processes of resistance in sustainability transitions are generally understood in political-economic terms explanations for regime resistance to change processes in the attempt to maintain wealth and discursive power. In the context of the agri-food transitions, regime resistance is understood as vested interests of agribusinesses and industrial farmers. In this line, Van der Ploeg (2020) explains the mass protests of Dutch farmers by the involvement as agribusiness and capitalist interests as the explanation for resistance.

The perspective on affect and emotion to the resistance from dairy farmers reveals that what is at stake in this politics of transition. The findings shows that resistance is targeted towards relations of negative affect that touch on the those aspects of life that farmer's value: lifestyle, farm continuation, community and food production. This thesis finds that farmer's motivations to protest were to avoid the anticipated loss, to express frustration over experiences of disempowerment, and to address injustices perceived in the unfolding of the nitrogen policies: the distribution of responsibility which relates to experiences of disempowerment. This brings the understanding of politics of sustainability transitions beyond Marxist, materialist understandings of politics in the sustainability transition. It is important to take into account in sustainability transitions that at the level of the farm, it is not just economic interest that are at stake, but an network of relations. The termination of the dairy farm, or phase-out of certain elements, breaks affective relationships that are experienced emotionally. In this way, the politics of sustainability transitions also concern a bodily dimension: where people's perceptions and values inform political action and affective relations that capacities and subjectivities are reproduced. Both emotion and affect, as bodily experiences, are important to consider in political processes. Where emotion, as value-judgement, motivate action and ascribe responsibility, affect plays a role in the reproduction of relational bodies such as dairy farm systems. The findings in this research show that the agri-food sustainability transition also touches upon this personal-political dimension, where the accounts of the farmers revolved around personal experiences of the nitrogen crisis are shaped by personal experiences and meanings which touch a broader scope than livelihood or material wealth. Scholars have critiqued how governance approaches tend to render technical environmental issues, reducing the issue to techno-scientific problems and economic rationality (Kenis et al., 2016; Pelenc et al., 2019). In the Netherlands, the politics of sustainability transition do not concern the Political: the affective relations that are at stake. While the farmers ask for a vision of agriculture as a way to include all that is at stake into politics, the politics revolves around the technicalities of nitrogen emission reduction and the funding available to do this. Addressing the nitrogen crisis is in this way renders technical the political, hindering a politics based on values and meanings at stake. The failure to include the political in the politics of the sustainability transition fuels antagonism (cf. Mouffe, 2011) which is expressed as a farmer's resistance to environmental regulations. For the dairy farmers, sustainability of agriculture is important, but the affective relations of the governance approach to the nitrogen crisis continue to threaten the valued objects and capacities to act are not enhanced.

To conclude, this thesis research aligns with the those that highlight the social relational, affective and dynamic character of farming and linked the affectivity and emotion of dairy farming to the context of sustainability transitions. It aimed to contribute to understanding the social and embodied dimension of the agri-food sustainability transition. The insights of this thesis demonstrate the workings of affect in the farm assemblage, describe the emotional experiences of farmers, and unpacks the disempowering affect in the relationship between the dairy farm system and the government. The perspective is important for transition management and destabilization projects in two ways. First, the research shows it is important to take into account the Political in the processes of transition

governance. Second, it shows the importance of taking into account the body and the capacities of farmers as actors involved in the agri-food transition processes. It shows how a transition is *felt* in the body, and the relationality of capacities shows how concerted action is crucial for enabling action and dealing with change. In this line, Frankowski et al. (2021) make a call to pay attention to dealing with loss in transition processes. Bogner et al. (2024) make a contribution by introducing the feeling of 'transition pain' as a state actors have to deal with in transition processes. They emphasize the need to look at coping, and capacities to address sustainability challenges. The perspective of affect also highlights how addressing a the sustainability transitions, in particular the farmer's capacity to act in name of sustainability, is shaped by the affective relations that they are embedded in. The protests in part functioned to raise attention to the unequal distribution of responsibility to farmers alone for reducing nitrogen emissions, pointing to the importance of others to act in concert with farmers to achieve such an objective. The examination of affective relations in dairy farming shows how farmers particularly experience disempowerment in the relation with government, citizens and nature organizations. Farmer's currently rely on agribusiness for their capacity to act, a monopoly that further reinforces conventional dairy farm systems in their relations. A key challenge, in line with Spinozist ethics, is to transform these relationships towards producing empowering affect, where a collective ethic of enabling affective relationships is developed to achieve sustainability transitions on dairy farms, and agri-food system transformation at large. For the politics of transition, understanding the workings of affect are useful in a context where there are 'deliberate destabilization' projects considered as imperative (van Oers et al., 2021). These destabilization projects can produce negative affect in disempowering actors, or produce positive affect in creating empowering relations to generate change. The appreciation of positive affect by farmers suggests, that if there were a viable alternative of positive affect, one outside of agribusiness, it could be leveraged in favor of the sustainability transition. Research and policy-making can pay attention to transforming the relation between dairy farming systems and the government and public from negative affect into positive affect. A Spinozist ethics applied to the design politics of sustainability transitions can generate ideas for empowering actors in processes of destabilization.

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