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The impact of local actors on potato farmers' participation in the Norwegian Regional Agri-environmental Program

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ABSTRACT

This Master thesis presents a case study that investigates the impact of local actors on potato farmers' participation in the Norwegian Regional Agri-environmental Program (RMP). The study was conducted in the county of Innlandet, located in east Norway, and involved four different actors and a total of six individuals: three farmers, one local advisor, a Municipal Agricultural Office (MAO), and the County Governor of Innlandet.

The results underscore the crucial role of local advisors in positively influencing potato farmers' participation through individual climate advising, on-site demonstrations, field trips, and webinars. As a central player in RMP implementation, the MAOs positively impact farmers' participation by providing information materials, on-site consultations, meetings, and a tolerant approach during controls. The results also provide evidence that their peers' experiences can positively influence potato farmers. Machine-sharing among farmers emerges as a promising topic for enabling smaller potato farms to use RMP measures. Finally, the study shows that contractual obligations with economic actors can hinder potato farmers' participation in the RMP.

ACKNOWLEDGEMENTS

First, I want to dedicate this thesis to my family, especially Marine, Gala and my parents, who have always supported my choices in life and studies.

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1. INTRODUCTION

The latest dietary guidelines in the Nordic countries prioritise the consumption of a *« plant-based diet high in vegetables, fruits, berries, pulses, potatoes and whole grains »* over meat products (Blomhoff et al., 2023). The growing recognition of the nutritional importance of plant-based diets, coupled with concerns about climate change and food sovereignty, underscores the need for a paradigm shift in the Norwegian farming sector. This shift must involve increased national consumption and production of plant foods and a transition of the limited Norwegian agricultural area used for animal and dairy production systems towards more sustainable agroecosystems. These systems must be long-term productive and resilient to climate change and soil degradation. A limited number of pioneering Norwegian farms and farmers, primarily organic, provide success stories that demonstrate the feasibility of competitive and environment-friendly plant food cultivation throughout Norway (Brennsæter, 2019).

The consumption and cultivation of potatoes have the potential to play a leading role in this new paradigm shift (Gustavsen, 2021). In addition to their nutritional qualities, potatoes have several benefits that address the above-mentioned desired goals. They are highly adaptable to various climates and soils, making them particularly suited to Norway's growing conditions: potatoes are grown *« from Kristiansand in the south to Alta in the north »* (Fagforum Potet, 2024). Potatoes also have a high yield potential, an important benefit for efficiently using the limited Norwegian agricultural area. Regardless of the decrease over time in both the production and the consumption of potatoes in Norway (see the full report from NIBIO, 2023), potatoes, together with cereals, remain the most important plant food in Norwegian agriculture (Nilsen, 2024). However, despite potatoes' qualities as a food crop, their cultivation has significant room for improvement.

1.1 FARMING PRACTICES

Modern agriculture is dominated by production-intensive farming systems and is primarily based on monoculture, deep tillage, and no soil cover except for weeds during the time no cash crop is growing, leading to soil compaction, erosion, and loss of organic matter (Diacono & Montemurro, 2010; Lal, 2008; Rittl et al., 2023). Consequently, the soil is degrading, crops become more vulnerable to disease, overall ecosystem resilience is reduced, and potato cultivation is no exception (Nyawade et al., 2019; Rittl et al., 2023).

Still, to maintain high and stable yields in limited areas, most farmers rely heavily on the use of chemical pesticides and mineral fertilisers, sometimes in excessive amounts (Diacono & Montemurro, 2010). These external inputs can leach into deeper soil layers and water systems, contaminating water sources and harming non-target organisms, the overall environment, and human well-being on the planet. An illustrative example is the annual surplus of nitrogen and phosphorus resulting in run-off in the Oslo fjord. Public authorities have recognised how the run-off from farming is harming the fjord's biodiversity and water quality (see the full report from Klima- og miljødepartementet, 2021).

Alternative cultivation practices at the farm level are essential to reduce negative externalities on soil and water while maintaining competitive yields in both organic and conventional farming systems. Innovative practices such as cover cropping, residue management, no-till, riparian buffer zones, and compost are widely recognised by research for their positive contributions to agroecosystems (Lal, 2004; Naiman & Décamps, 1997; Rittl et al., 2023). However, these practices are still used far too little by Norwegian potato farmers.

1.2 AGRICULTURAL POLICIES AND SUBSIDIES

The transition to new, alternative production practices can be seen as a significant risk for many farmers who are under constant economic pressure. Agricultural policies and market-related actors have long encouraged farmers to use production-intensive farming systems. Due to their relatively small size and overall high costs, Norwegian farms heavily depend on governmental subsidies. Thus, the country's agricultural policies have the potential to influence farming practices significantly and positively.

A striking example of the influence of Norwegian agricultural policies on farming practices was provided by Lundekvam et al. (2003) with a study on the case of soil erosion in Norway: After World War II, land channelling policies[1] aimed to increase Norwegian food production, especially cereal production in southeastern Norway. From the 1970s, payment schemes supported the transformation of steep areas into land suitable for production-intensive farming systems through land levelling. These incentives resulted in an expansion of the total agricultural area by 13% between 1971–1985, but also higher erodability of the soil (Lundekvam et al., 2003). By 1985, environmental concerns led to restrictions on land

[1] *« Agricultural policies [that] attempt to reserve the scarce most favourable lands for arable crops, while ruminant livestock is channelled to regions with less favourable conditions. »* (OECD, 2021)

levelling and new support schemes with substantial payments establishing cover crops, no-tillage in autumn, and riparian buffer zones between fields and waterways. This shift in payment schemes resulted in a significant reduction in soil erosion rates and reflects the impact of policy changes on environmental outcomes from farming in Norway (Lundekvam et al., 2003). Despite these positive results, the problem of soil erosion in Norway remains relevant today. Many farmers continue to farm the "old" way primarily due to false beliefs that, for example, stopping autumn ploughing would lead to lower yields and increased weed growth[2].

1.3 AGRI-ENVIRONMENTAL PROGRAMS

Uthes & Matzdorf (2013) defined Agri-Environmental Measures (AEMs) as follows:

> *« Agri-environmental measures (AEM) are incentive-based instruments […] that provide payments to farmers for voluntary environmental commitments related to preserving and enhancing the environment and maintaining the cultural landscape. »*

AEMs are commonly supported by the authorities through voluntary incentive-based programs (Agri-Environmental Programs, AEPs) but can also be implemented as mandatory requirements in legislation and regulations (Ritchie, 2024).

AEMs and AEPs have been extensively studied, particularly in rich countries where they tend to be most used (Ritchie, 2024). When designed at a national level, AEPs have been shown to be ineffective due to their often vague and immeasurable objectives and lack of available data (Bareille & Zavalloni, 2020; Schomers, Matzdorf, et al., 2015; Taylor & Van Grieken, 2015; Uthes & Matzdorf, 2013). This gap has been addressed by numerous empirical studies (field experiments, monitoring data, farm surveys and statistical analyses) attempting to assess the environmental impact and economic effectiveness of AEPs, often at the expense of one perspective or the other (Uthes & Matzdorf, 2013).

Decentralised AEPs[3], on the other hand, are advocated in the literature as a *« desirable strategy »* because they are closer to the realities on the ground and are more likely to effectively target site-specific needs (Bareille & Zavalloni, 2020; Uthes & Matzdorf, 2013). This aligns with the agroecological approach, which emphasises locally targeted

[2] Lundekvam et al. (2003) explained that only a few decades ago, *« Norwegian farmers were told that harrowing against weeds in autumn followed by ploughing in autumn was the best way to control weed, and this procedure gave the highest and most stable crop yields. »*
[3] AEP designed on a regional or local scale.

improvements in farms and food systems, as defined by NMBU's Agroecology Group (Francis et al., 2016):

> *« A holistic (phenomenon-based) approach to support site-specific improvements towards ecological and social sustainability on farms and in food systems. Areas to consider in the change process will be decided on in a site-specific manner. »*

Leveraging AEPs on a regional scale has the potential to harness local expertise and resources to support and implement environment-friendly agricultural practices. For such a regionalised AEP design to be effective, it must involve increased participation and inclusion of stakeholders and be built from the *« bottom-up »* (Toderi et al., 2017a). This preferred design poses some challenges: its implementation is more costly, and conflicting interests between different actors may lead to compromises in the regulatory process or hinder the farmers' adoption of AEMs (Uthes & Matzdorf, 2013).

1.4 LOCAL SOCIAL NETWORKS

Toderi et al. (2017b) notes that *« because the adoption of AEMs by farmers is voluntary, a high level of acceptance is required for their successful implementation. »* Existing stakeholder studies on decentralised AEPs have shown evidence that local actors are likely to play a role in the farmers' *level of acceptance*, also referred to as the *effectiveness* of AEPs (Schomers, Matzdorf, et al., 2015; Taylor & Van Grieken, 2015). This effectiveness can be measured according to two main criteria: farmers' participation and spatial targeting[4] (Prager & Freese, 2009; Wünscher et al., 2008).

One specific player, the *intermediary,* has been the focus of the limited research on the topic (Bosselmann & Lund, 2013a; Schomers et al., 2021; Schomers, Matzdorf, et al., 2015). Intermediaries come from civil society, non-governmental organisations, or governmental entities and play a role in the implementation of AEPs by facilitating social relations and trust between farmers and other local actors (Bosselmann & Lund, 2013a; Schomers et al., 2021; Schomers, Matzdorf, et al., 2015; Uthes & Matzdorf, 2013).

Schomers, Matzdorf, et al. (2015) looked in a survey study at the role of German Landcare Associations (LCAs)[5] as an intermediary in the German AEPs. The LCA groups function as

[4] In other words, the impact of an AEP depends on how many farmers use the measures it includes and if they are used in an appropriate setting.
[5] The LCAs are locally based, non-profit, and non-governmental organizations focused on environmental and landscape conservation.

local mediators *« by resolving tensions and harmonising contradictory interests between stakeholder groups. »* The author established their potential in providing *« local social networks and agri-environmental information and assistance »* to the farmers, overall improving farmers' participation and environmental outcomes of German AEPs.

In this thesis, the focus is shifted from the intermediaries to the direct relationships between farmers and local actors involved in the implementation of AEPs in Norway. Taking a multi-perspective approach by involving various actors in the study instead of focusing only on intermediaries can help better understand how the social networks involving potato farmers and local actors function at the local level and the impact of these actors on farmers' choices. This approach can also result in practical recommendations for the local actors to leverage supportive interactions and initiatives promoting farmers' participation. Local advisors, municipalities' agricultural offices, fellow farmers, and economic actors were identified as relevant actors for this study after documentation research on the topic and discussions with key informants (see the Methods section).

1.5 RESEARCH OBJECTIVE AND RESEARCH QUESTION

While research shows that local actors and intermediary players can positively influence farmers' participation in regional AEPs, multi-perspective approaches combined with qualitative methods that emphasise relationships directly involving farmers and local actors are under-researched, particularly in the Norwegian context, where there is currently a knowledge gap on these questions.

By examining these relationships from the perspective of different actors, my research seeks to bridge this gap by uncovering and explaining the underlying mechanisms of existing social networks and by providing recommendations to the involved actors to leverage local supportive initiatives and interactions that provide agri-environmental information and assistance to potato farmers. The objective of this thesis was to contribute to such process by answering the following research question:

How do local actors impact potato farmers' participation in the Norwegian Regional Agri-environmental Program?

2. METHODS AND MATERIALS

Artificial Intelligence (AI) has been used with the platform « Grammarly » as an aid exclusively for small improvements in grammar and vocabulary and overall clarity of the writing. Outcomes provided by such tools have been critically reviewed before use. AI was utilised in strict accordance with NMBU's plagiarism norms and BIOVIT's guidelines which permit the use of AI as an aid in a Master thesis. All ideas, sources, references, and findings come from my own research

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Because of its « how » formulation, my research question seeks to explore and gain new, comprehensive insights. In accordance, I selected qualitative methods for the study, as suggested by Yin (2009). I chose a case study design because it allows in-depth exploration of a real-life phenomenon, focusing on actual individuals and their interactions with one another. I took a multi-perspective view, considering not only the perspective of farmers but also various other local actors involved.

2.1. CASE STUDY RESEARCH

As presented in the Introduction, this thesis aimed to understand better the roles and involvement of different local actors in farmers' participation in the Norwegian Regional Agri-environmental Program (RMP). To achieve this, I adopted a case study approach and took the implementation of the RMP in the Norwegian county of Innlandet in 2023/2024 as an example. The choice of Innlandet county is justified by the region's contribution to the national potato production, with almost 50% of Norwegian yield (Statistics Norway, 2023), offering a promising avenue for experimenting, understanding, and expanding AEMs in potato cultivation.

The *unit of analysis* (Yin, 2009) in my case study was defined and bounded according to the concept of Community of Practices (CoPs), which is defined as a *« collection of people who engage on an ongoing basis in some common endeavour »* (Eckert, 2006). A CoPs has three main characteristics: a *shared domain of interest*, a *community* of members involved in the domain of interest, and the *practices* within a domain that members exchange and learn about (McDonald, 2015).

According to the concept of CoPs, I identified the *domain* of my case study as the implementation of the RMP program in Innlandet. The *community members* are the potato

farmers and local actors located in Innlandet County. The *practices* around which the community members interact are selected AEMs included in the Innlandet County RMP program.

In the following three sub-sections, I provide background information on these three characteristics of my case study.

2.1.1. The RMP program (Domain of Interest)

Norwegian agri-environmental subsidy schemes are designed with a pyramidal system from general goals to local measures (OECD, 2021). These schemes have been part of the National Environmental Programme[9] since 2004 and are renewed every four years (Landbruksdirektoratet, 2022). The main programs are:

National Level	National land and cultural landscape subsidy (AK)[6]
County Level	Regional Environmental Program (RMP)[7]
Municipal Level	Special environmental measures in agriculture (SMIL)[8]

Through the Regional Agri-environmental Program (RMP), counties set the criteria for farmers to qualify for support. Each Norwegian county chooses AEMs from a national *« menu »* and tailors them to meet regional goals (OECD, 2021). The Norwegian Ministry of Agriculture defines the framework within which the County Governors have the freedom to manage their RMP program. In other words, the County Governors cannot act at will; they must follow certain obligations. For instance, some RMP measures must be included in all regional programs.

2.1.2. Study Participants (Community Members)

Potato farmers

Potato growers are the primary actors and simultaneously the subjects of the RMP measures. They decide whether to implement the measures proposed by the County Governor. Their

[6] Nasjonalt areal- og kulturlandskapstilskudd
[7] Regionale miljøtilskudd
[8] Spesielle miljøtiltak i jordbruket
[9] Nasjonalt Miljøprogram

decisions result in positive or negative externalities that affect their immediate environment: soil, water bodies, and biodiversity.

I will refer to the interviewed farmers as Farmer 1, 2, and 3. The potato farmers who participated in this study all have in common the fact that they use conventional farming practices. While potatoes are the main crop for Farmer 1, the other two primarily grow cereals, with potato production being secondary. The three farmers are in three different municipalities. All three used an RMP measure in potato production in 2023.

The County Governor

The County Governor of Innlandet, the English translation of « Statsforvalter », is a regional public administration with the authority over the selection of most of the measures included in the RMP program and part of the funds allocated. The County Governor manages the administrative aspects of the program such as the processing of grant applications.

For this study, the participant representing the County Governor is an employee responsible, among other duties, for managing the RMP program. This person provided a document as another source of corroborative evidence (see below, section 2.2.2) and can thus be considered an *informant* for this study (Yin, 2009).

The participant from the County Governor explained that his office plays no active role in communicating and informing farmers about the RMP. He described how this responsibility is primarily delegated to Agricultural Extension Services and the municipalities. The County Governor has two main tools for this purpose. First is the climate advising measure included in the RMP (see below, section 2.1.3). Then, there is a regional climate fund[10] allocated for financing projects such as field trials, informational meetings, and on-site demonstrations. Most of these funds are channelled to Agricultural Extension Services, which then disseminate information to the farmers, but some municipalities also undertake informational projects.

NLR local advisor

Norsk Landbruksrådgiving (NLR) is the Norwegian Agricultural Extension Service. NLR define their organisation as « *the link between research and agriculture.* » In other words: « *[NLR] collects, develops and coordinates knowledge that the advisors pass on to*

[10] Klima- og miljøprogrammet

practitioners in agriculture. » NLR is a nationwide organisation structured into regional departments and specialised subject areas.

Two local NLR advisors specialised in potatoes and vegetables were key informants for this study. They assisted me with recruiting potato farmers and provided useful contextual information about potato farming in Innlandet. Only one of these two advisors also participated in the study as an interviewee and will be referred to as *« The NLR advisor. »*

The Municipal Agricultural Offices

Norwegian municipalities all have a Municipal Agricultural Office (MAO), which works closely with the farmers within their district. Their role includes a variety of tasks, such as case management, guidance, advice, and regulatory control. According to the NLR advisor, it is usual for the farmers to contact them to understand complex regulations or ask about different subsidies, including the RMP measures. Each year, the municipality must inspect at least 5% of applications for RMP grants. These controls are typically done in parallel with on-site inspections at the farms, where areas are measured and animals are counted, among other checks (Statsforvalteren i Innlandet, 2023). One employee of the agricultural office from Municipality 1 has taken part in this study. To preserve the participant's anonymity, no background information, such as the name and the precise location of the Municipality, will be given in this thesis.

2.1.3. The AEMs (Practices)

It is important to clarify the difference between the *substance* and the *implementation* when studying a public program (Yin, 2009). As mentioned earlier, my study is about the *implementation* and does not particularly focus on the AEMs *(substance)* included in the RMP program. However, knowing which practices (AEMs) we are talking about is important to guide the case study. I selected the relevant practices for this study based on their applicability to potato cultivation and in collaboration with the key informants (NLR advisors and the County Governor) due to their extensive knowledge and experience on the topic.
The following measures were considered as relevant:

- Mechanical weed control in row crops *(Mekanisk ugrasbekjempelse i radkulturer)*
- Riparian buffer zones between fields and waterways *(Grasdekte kantsoner i åker)*
- Catch crops sown after harvest *(Fangvekst sådd etter høsting)*
- Zones for pollinating insects *(Soner for pollinerende insekter)*

- Climate advising *(Klimarådgivning)*[11]

2.2. DATA COLLECTION

Two diverse sources were used for data collection. Data were primarily gathered through semi-structured, in-depth interviews with various stakeholders, which allowed me to corroborate information expressed by some participants when discussing it with other participants. To a lesser extent, I also used a non-publicly available document provided by the County Governor as a data source.

2.2.1. Interviews

I conducted six semi-structured in-depth interviews, five in English and one in Norwegian. All interviews were recorded and transcribed. The order of interviews was strategic, with responses from farmers partially guiding the construction of the subsequent interview guides for the County Governor, the NLR advisor, and Municipality 1 (see appendices A, B, C, and D, respectively).

The three farmer interviews took place in week 15. Conducting these interviews face-to-face provided a better understanding of the local farming landscape and details such as body language, enriching the findings and my overall experience. Farmers were recruited through an online form designed with Nettskjema (see Appendix E). The form included questions on individual background information, such as the farm's characteristics and farming methods. Out of twenty-three potato farmers who completed the form, three agreed to meet. The form was distributed via the two informants from NLR, who also offered feedback on how to improve recruitment.

After these interviews, I contacted the County Governor using contact information from their webpage and conducted the interview via Teams, as I considered that an in-person meeting was unnecessary. Next, I interviewed a local NLR advisor recruited through NORSØK contacts related to their collaboration in the CropDrive project. This interview was also conducted via video call. Finally, based on Farmer 1's responses, it became necessary to interview an employee from the Agricultural Office of Municipality 1, which was not initially planned. I found the contact information on the municipality's website, and the interview was

[11] The climate advising measure included in the RMP refers to guidance provided by local advisors to farmers that comprehensively evaluate the emissions and uptake of greenhouse gases from all farm operations. Climate advising must result in an action plan aiming at implementing measures that mitigate climate change and adapt to its impacts (Statsforvalteren i Innlandet, 2023).

conducted via video call in Norwegian. I later translated the responses into English during transcription.

2.2.2. Documents

Several publicly available documents on the County Governor's website were helpful in obtaining primary background data. These data primarily include explanations of the measures included in the program, subsidy rates, and the current legislation. Additionally, at my request, I was granted access to a non-public document after my interview with the County Governor of Innlandet. It is an Excel format document named *« Tiltaksrapport (RM09) »*, which can be translated as *« Measures Report »*, listing raw data on the number of individual applications and the size of areas applied for the RMP measures relevant to potato production as reported by each municipality in 2023 (see Appendix F).

2.3. DATA ANALYSIS

The data collected through the interviews were analysed in relation to the research question and using the *« content analysis »* systematic process as described by (Graneheim & Lundman, 2004). After reading and re-reading the transcripts, I started by identifying *meaning units* and extracting pieces of text that expressed a meaningful idea or argument. Then, I summarised these text pieces into *condensed units* to make the data more manageable. The next step was to give a *code* to these condensed units before creating four *themes,* capturing the data's meaning and essence in relation to the research question (Tables 1 & 2). I received helpful feedback from a peer, which helped me reflect on my biases as a researcher during this process.

To analyse the raw data provided by the County Governor, I used the Excel program for basic calculations and the creation of visual maps (see Figure 2 in section 3.2).

The results of the data analysis are presented in Chapter 3 and discussed in Chapter 4 in relation to the research question and the relevant literature in order to find *analytical generalisations* (Yin, 2009).

Themes
Local advisors as a trusted source of knowledge
The municipality's agricultural office as decisive interlocutor
Farmer-to-farmer interactions
An indirect influence of economic actors

Table 1: The four themes.

Meaning unit	**Condensed meaning units**	**Codes**	**Theme**
I talk with my potato friends quite often. We talk about how we do things, just as we are talking now, you and me.	Interactions with other farmers producing potatoes.	Regular interactions with peers.	Farmer-to-farmer Interactions
I think I need to ask if I can borrow a seeding machine from my neighbour	Interactions with neighbouring farms for borrowing equipment.	Interactions with practical motivations.	
There should be a platform for machine sharing between farmers, yes.	There is a need for further collaboration on equipment issues.	Interactions for practical motivations.	
The farmers talk with each other all the time about how they do things. They all want the best yields.	Farmers talk to know what the others do.	Interactions to get inspiration	

Table 2: Example of data analysis, from the meaning unit to the theme.

3. RESULTS

This chapter will present the six participants' perceptions on their social networks regarding the farmers' participation in the RMP. The findings are based on the interviews and integrate figures provided by the County Governor of Innlandet (Appendix F).

3.1. LOCAL ADVISORS AS A TRUSTED SOURCE OF KNOWLEDGE

All the participants identified NLR as one main source of knowledge on AEMs. This is natural as the interviewed farmers are members of NLR, and they all receive regular digital newsletters with general information and invitations to webinars, meetings, and field trips, some of which are related to the RMP. From the farmer's interviews, it was obvious that the interest in learning about AEMs from NLR's resources was mixed. While Farmers 2 and 3 were particularly familiar with the RMP measures and frequently mentioned NLR's webinars as a primary source of knowledge on AEMs, Farmer 1 had a distinct perspective.

Farmer 2 consistently referred to NLR as a trusted source of knowledge: *«NLR guys know better. »* With a touch of humour, the interviewee noted: *« People from NLR, they have studied. Many are coming from Ås! »* Farmer 2 described his relationship with the NLR advisors as follows: *« They give some information and recommend things. »* This farmer expressed that he follows most NLR's advice closely. A notable example is illustrated by an inquiry made to Farmer 2 regarding the feasibility of utilising biochar, to which he responded: *« They have done some research, and [NLR] are not convinced that it is making things better, and it costs a lot of money, so I will not try. »*

On the other hand, Farmer 1 displayed limited knowledge of the measures available in the RMP. It was not until he read the recruitment form of the present investigation that he discovered the option of applying for subsidised measures through a question regarding the use of RMP practices: *« In the questions you sent, I noticed a mention of [riparian buffer zones between field and river] in the list, which I was not familiar with. I believe I could implement this on my farm either this year or the next. »* He also admitted that he was unaware of the RMP subsidies available for using « mechanical weeding » in potatoes. The farmer acknowledged this deficiency. He primarily receives and reads news via email from NLR and interacts with advisors only regarding potato cultivation or pest issues. He rarely participates in NLR events or webinars where more comprehensive knowledge is often disseminated.

3.1.1. The *climate advising* measure

The climate advisory measure, conducted by NLR advisors, is another way local advisors and potato farmers interact about RMP measures. None of the interviewed potato farmers applied for this, which correlates with the low number of applications in 2023: 87 farmers [in total, including potato producers] applied for individual climate advice in Innlandet (Appendix F).

Still, the County Governor participant indicated that individualised farmer support is likely the best way to increase their participation in the RMP in the future. However, he also noted that in Innlandet, this measure is still in its early stages, and the outcomes of advisors' visits are *« largely theoretical »* with too little exploration of RMP measures.

When questioned about climate advice in potato cultivation, the advisor from NLR corroborated the County Governor's statements: *« Yes, I [NLR] have heard climate advice for potatoes is not very helpful. We don't have much information, background, or experience, as it just started last year. I understand the people who have said that. »* The NLR advisor suggested that for climate advice to be effective in the future, it must take a holistic approach that considers all aspects of farm production, not just potato cultivation.

3.1.2. On-site demonstrations, field trips and meetings

The advisor explained that NLR conducts several projects and field trials focusing on environment-friendly practices every year, often in collaboration with research institutes and the County Governor. Field trips[12], meetings, and webinars are organised for the farmers to present results, new knowledge, and how to succeed. The NLR advisor explained that those events have become increasingly popular among potato farmers, particularly the webinars, since the COVID period. The advisor also described a common interaction with potato farmers during these events: *« I regularly try to tell that cover crops are a good opportunity to get a better soil. But very often, the farmers get a little frustrated or angry with me because they think this is too difficult or because they don't have time. It is a quite common reaction. »* The NLR advisor also noted that in some areas of Innlandet, conventional practices such as autumn ploughing are seen as traditional farming practices. The advisor also experienced that in those areas, it is particularly difficult to convince the farmers that certain practices are not as good as they think they are.

[12] In Norwegian, « Markvandringer »

From the NLR advisor's perspective, many potato farmers could easily use more RMP measures, for instance: *« Mechanical weeding is very much easier in potatoes than any other crop. It is strange that not more do it. So, I try every year to convince them that it works. »* In 2023, 38 farmers applied for « mechanical weeding » subsidy in potato or vegetable cultivation (see Appendix F).

3.2. THE MUNICIPAL AGRICULTURAL OFFICE AS KEY ACTOR

The Municipality's Agricultural Office (MAO) is a central player in the implementation of RMP measures. Two interviewed farmers (2 and 3) described their interactions with their MAOs as positive regarding RMP questions. Farmer 3 put it the following way: *« We have in the municipality two persons working with RMP. You can ask them questions, they come around to check. It's nice*. » Farmer 2 was particularly satisfied with his relationship with the MAO: *« The municipality has 1 or 2 meetings about the RMP every year. They take the initiative for these meetings. Many farmers attend and they are pretty much interested. The [MAO] help us with the application process, and they also try to inform us as well as they can. »* However, Farmer 1 expressed a different perception of his interactions with Municipality 1.

Farmer 1 explained that he mostly interacts with the MAO through phone calls. Noteworthy is his typical approach to trying out new practices. He first receives news from NLR via email about RMP or discusses with other farmers, then calls the MAO and asks for more specific information. He explained that the MAO provides guidance on the available funding and specific rules. However, he made clear that the MAO doesn't take the initiative to suggest, recommend or inform about potential RMP measures he could adopt on his farm.

The statements from the employee of Municipality 1 align with Farmer 1's experience. Municipality 1 explained that the MAO's missions are primarily to conduct on-site inspections in the farms and answer farmers' specific questions. The employee made clear that the provision of knowledge and advice about RMP measures is not a priority for Municipality 1: *« Here in [Municipality 1], we have not informed much about RMP. Sometimes, we post information on the website, and we might send out information via email, but we haven't always done that. Farmers receive a lot of information from other sources, so if someone has a specific question, they call me. »*

In contrast to the situation in Municipality 1, the NLR advisor described a successful initiative coming from four municipalities bordering the East side of Lake Mjøsa and aiming to provide information on RMP to the local farmers: *«Hamar, Løten, Stange, and Ringsaker cooperate because they all are around Mjøsa. They make a magazine 2 or 3 times per year and send it out to the farmers in those districts [Figure 1]. They often have articles about RMP in potato cultivation. »*

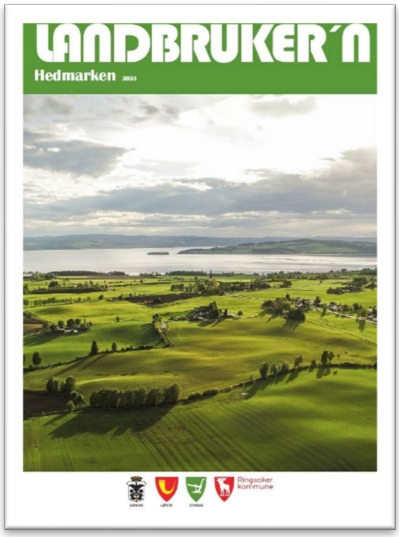

Figure 1: Cover of the magazine "Landbruker'n" (2024)

According to the County Governor, individualised guidance through in-person visits organised by the MAOs is another example of a supportive strategy to encourage the farmers to participate in the RMP. He described the case of Østre Toten Municipality: *« I have seen agents from the Østre Toten office pointing out various improvements that could be made when they visit or control the farms. We saw an effect on how many farmers applied for [riparian buffer zones] the following year [2023]. »* Numbers provided by the County Governor (Appendix F) support this statement: 33% of Innlandet's applications for riparian buffer zones in potato cultivation came from farms in Østre Toten in 2023, significantly more than any other municipality. The County Governor insisted that: *« This approach clearly works; we should have more direct consultations on farms »* and added that *« too few [MAOs] »* do such work. He also distinguished the roles of local advisors and municipalities. While he believed that most consulting activities should be carried out by NLR advisors, he noted that MAO agents could offer advice and recommendations to the farmers in addition to their current tasks, for instance, in parallel with routine inspections and controls.

When asked about the mixed strategies used by the different MAOs to support farmers' participation in the RMP, the NLR advisor noted: *«The municipalities further south have larger farming areas and potato farms. They focus on pollution from farming going to Lake Mjøsa and inform more about RMP measures to reduce it. But it also depends on the people who work [in the MAOs]; other municipalities could focus on other measures. »*

This corroborates with data from the County Governor (Appendix F) showing that municipalities bordering Lake Mjøsa and Lake Ransfjorden are regularly among the leading municipalities in terms of the number of applications for the selected RMP measures. See, for example, the geographical distribution of applications in the case of the mechanical weeding measure[13] (Figure 2): the municipalities of Ringsaker, Østre Toten, Stange, and Gran together account for 58% of the applications for mechanical weeding in potatoes and vegetables.

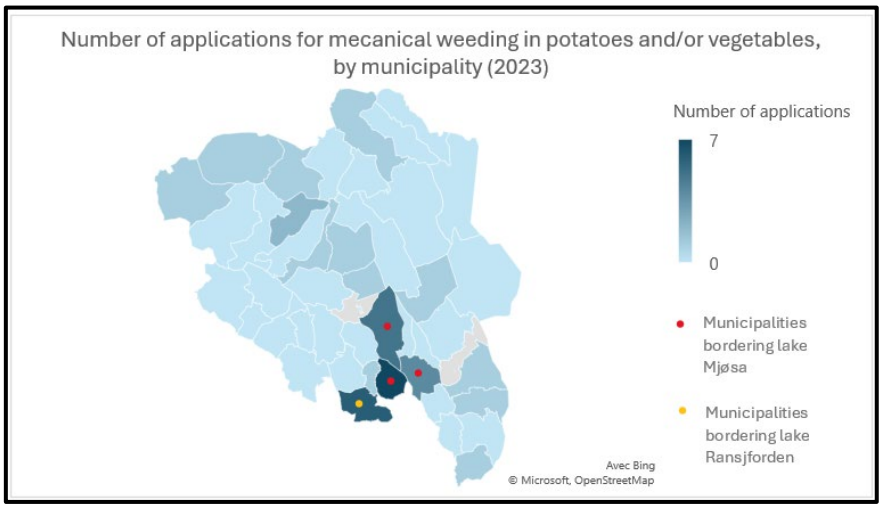

Figure 2: Map of Innlandet county representing the geographical distribution of applications for "mechanical weeding" in potatoes and carrots, by municipality of Innlandet county (2023).

Returning to Municipality 1, Farmer 1 exposed an unpublicised strategy from the MAO intended to support farmers' adoption of RMP measures. Farmer 1 reported that a neighbouring potato farmer from Municipality 1 received RMP funding for cover crops in 2023, even though they were not well established when frost arrived.

[13] The reason for highlighting the « mechanical weeding » measure here is that most data provided by the County Governor does not differentiate between different types of production in terms of number of applications. Only the measures related to *riparian buffer zones* and *mechanical weeding* specify whether they pertain to "potatoes and vegetables" which are aggregated under a single category.

The NLR advisor corroborated the farmer's experience and explained that MAOs' inspectors tend to be tolerant when controlling the farmers in the first years of implementing new subsidised measures. The advisor said: *« The [MAO] will approve the measures anyway, like a 'carrot.' They want the farmers to try more. If they are too strict and do not give the money, nobody will try anymore. »*

According to the NLR advisor, when the County Governor introduces a new RMP measure, the focus of MAOs' inspections is primarily on understanding the new measure itself. The NLR advisor described this process as positive for both MAOs and farmers to familiarise themselves with the nuances of the new measures. The NLR advisor provided an illustrative example related to the cover crops measure: *« If we talk only about RMP and cover crops, I know [the MAOs] have seen or controlled all the applicants. The reason is that they want to learn more about it themselves. »*

3.3. FARMER-TO-FARMER INTERACTIONS

The three farmers each mentioned different types of interactions with their neighbours regarding RMP measures.

Farmer 1 explained that he is considering trying cover crops in potatoes after he saw his neighbour trying it in 2023. He observed that using cover crops was not a difficult operation. He was also motivated by the relatively high payments of 400 NOK per decare (Statsforvalteren i Innlandet, 2023) and the likelihood that the MAO would still approve the funding even if it failed (see the above section).

Farmer 3 has engaged with fellow farmers on RMP measures, primarily concerning grain. He has been part of a farmers' association working group called « Kornutvalget », which used to work with the County Governor on strategies to enhance grain production in Innlandet County. He explained that through several meetings with other farmers, he had the opportunity to learn about RMP measures and regulations for grain.

For Farmer 2, interactions with neighbours about RMP were more oriented towards sharing machinery. He noted that he wants to try to establish cover crops and zones for pollinating insects, but he lacks appropriate seeding equipment. He was thinking of borrowing a seeding machine from his neighbour, who uses it for grassland areas. Farmer 2 made clear that the lack of equipment was an obstacle to adopting new RMP measures.

When inquired about any existing funding and initiatives meant to support machinery sharing among farmers, the County Governor acknowledged that they currently do not provide any support and solution in this regard. On the same topic, the NLR advisor explained that: *« 50 years ago, it was normal to share machines between several farms, but it is rare now. With the high prices, buying new machines has become too expensive, so having some kind of platform would be a very good solution in the future. »*

3.4. AN INDIRECT INFLUENCE OF ECONOMIC ACTORS

Although economic relationships were outside the scope of the thesis, the interviewed farmers indicated that in the potato sector, the market demand is an important driver and large retailers and potato industry actors indirectly limit their capacity to use certain RMP measures, cover crops in particular. The three farmers stated that they cultivate potato varieties that can be harvested the earliest around mid-September, which is too late for a good establishment of cover crops. When asked about the possibility of cultivating earlier varieties, the farmers' responses were mostly oriented on economic concerns.

Farmer 3 explained that early potatoes are less demanded by the consumers and that: *« you have to produce what the people want, what the factory wants. »* This was confirmed by NLR: *« Farmers have contracts with buyers, it is not easy for them to make changes. It is almost like the farmer can't decide which varieties he shall grow because everything is on contract. »* The three interviewed farmers have a contract with buyers such as Hoff, Findus and Bama. Farmer 2 had no intention of changing his current contract with Hoff: *« Having a contract with Hoff, it's like social democracy, it's a very stable, good contract, but not so well-paid. »* In contrast, Farmer 1 holds a contract with Bama and noted that, although the prices offered are favourable, the strict quality criteria, particularly regarding visual appearance, imposed by Bama can highly affect his income during poor yield years[14]. Consequently, this situation impedes him from investing in equipment and materials needed to use AEMs.

In addition, both the three farmers and NLR explained that their current varieties give more yield than the early varieties, and *« farmers want the best yield. »* The NLR advisor noted that: *« for early varieties such as Solist, the storage duration is shorter, complicated and the potatoes may be uglier. The buyers won't have more of the Solist. »* Farmers indeed expressed logistical concerns and too much additional work if they were to shift to earlier varieties.

[14] He described how flooding from the nearby river destroyed his potato fields in 2023.

4. DISCUSSION

In this chapter, the findings will be interpreted and discussed in the context of the current literature and the research question in order to find useful *analytical generalisations* (Yin, 2009), and provide suggestions for future research and recommendations to the actors involved in the study.

4.1. LOCAL ADVISORS, A TRUSTED ACTOR AND OPPORTUNITIES FOR IMPROVEMENT

This thesis explored interactions between local advisors and farmers and confirmed what existing literature says about farmers perceiving Agricultural Extension Services, NLR in the present study, as a trusted source of agri-environmental knowledge (Prokopy et al., 2015). The findings from the interviews have also underscored the potential of on-site consultations, demonstrations, field trips, and webinars organized by NLR and financed by the County Governor to encourage farmers' participation in the RMP. These results align with the conclusions drawn from case studies conducted in Norway by Klerkx et al. (2017), which underscores the importance of partnerships between private Agricultural Extension Services (NLR) and public administrations (County Governor) for the conservation of rivers, lakes, and environmental resources that do not yield an immediate, economically measurable *« return on investment »* to the farmers.

On-site demonstrations, field trips, and webinars organised by local advisors from NLR allow farmers to realise that alternative practices might benefit their farming system. From the perspective of Rogers (2003) and the theory of *diffusion of innovations*, those initiatives have the potential to convince or at least provoke the curiosity of farmers forming part of the so-called *« Late Majority »,* who are usually sceptical about innovations, in this case, the AEMs, and need to see *« with their own eyes »* that they work.

Although there is still little demand for on-site consultations from farmers, individualised climate advice for potato cultivation has emerged from the interviews as a promising way to encourage farmers to adopt AEMs. Individual on-site consultations have the potential to bring site-specific and practical improvements considering the farm's unique location, crop types, and soil conditions, overall reducing the farm's negative environmental impact. However, the results showed that the outcome of climate advising in potato cultivation as it is today does

not provide the farmers with a concrete understanding of how to succeed with AEMs. Climate advising is more likely to result in the actual implementation of AEMs when conducted by local advisors with adequate agri-environmental knowledge specific to the region's characteristics (Klerkx et al., 2017; Prokopy et al., 2015). In this context, these findings highlight the need for more appropriate training for local advisors in the Innlandet region on RMP measures and local environmental issues.

Although the results show that there are well-functioning public-private cooperations between NLR and the County Governor, providing agri-environmental knowledge to the farmers, the farmers must still take the initiative to seek knowledge. For example, Farmer 1 did not explore in-depth the possibilities and funding that the RMP can offer. Surprisingly, the present investigation became a source of information for Farmer 1, who needed to learn more about the available RMP measures. This situation was unexpected, considering Norwegian farmers are well-educated and informed (Brennsæter, 2019). This result reflects a broader issue on farmers' environmental awareness and shows that agri-environmental information become an essential condition for farmers to implement AEMs (Bosselmann & Lund, 2013b). Padgitt & Petrzelka (1994) suggested that for farmers to change their behaviour, they must first be aware of a problem and then be curious to learn about alternatives to their current farming practices. In conclusion, the environmental awareness and curiosity of farmers are just as important as the quality and availability of services provided by local advisors. Conclusively, the environmental awareness and curiosity of the farmers play a pivotal role in their own participation in the RMP, possibly even more so than the quality and availability of the services provided by local advisors.

4.2. MUNICIPALITIES, THE FRONT-LINE ACTOR

The findings of this thesis showed that the connections between Municipal Agricultural Offices (MAOs) and farmers can have an impact on farmers' adoption of RMP measures. The results showed that MAOs play an especially crucial role as they are closest to the farmers and well-positioned to understand local environmental challenges and farmers' needs. While MAOs' proximity to the farmers does not automatically equate to trust, they do facilitate a relationship of trust with the farmers (Schomers et al., 2015). It is particularly evident in Norway, where most municipalities are small and everyone is connected, fostering a strong sense of community and familiarity, as observed during the fieldwork. Carolan (2006)

suggested that our trust in a social network extends to the information and knowledge we receive from it. In this context, Norwegian MAOs have a unique position to leverage their privileged relationships with the farmers to foster trust and positively influence their adoption of AEM measures.

While all MAOs in Norway have the same tasks and missions, notably controlling the proper implementation of RMP measures, not all MAOs work in the same way regarding information diffusion on RMP measures. Municipality 1 was an example of an MAO sticking to its tasks and missions, contrasting with how other municipalities may go beyond these tasks and use innovative strategies to inform farmers about the possibilities of RMP measures. The study participants mentioned several MAO initiatives, sometimes as simple as informational meetings, that provide helpful agri-environmental information and consequently impacted the farmers' participation in the RMP. One of these initiatives involved a collaboration between several MAOs to publish an informative magazine that includes articles about RMP measures. The participants highlighted another strategy through the case of Østre Toten Municipality (see section 3.2), which illustrates how MAOs' agents visiting the farms and giving site-specific recommendations to the farmers had a measurable impact on the number of farmers' applications for RMP measures.

The supportive strategies outlined above contrasted with the situation in Municipality 1, which indicated the opinion that farmers can get information from other sources such as NLR. However, t is essential to also consider these strategies in light of the contextual factors that may influence the strategic decisions of MAOs and, consequently, farmer participation in RMP measures. The higher involvement of MAOs around Lake Mjøsa can be attributed to a larger farming area in this area, which also naturally increases the likelihood of applications. In addition, the historical context of pollution in Lake Mjøsa, which led to the Mjøsaksjonen[15] (1973-1982) and marked a turning point in Norway's environmental awareness resulting in policies aimed at protecting the lake from diverse sources of pollution, including agricultural run-offs (Thorsnæs & Vøllestad, 2023). This historical process may have laid the foundation for the current initiative-taking attitude of some MAOs in promoting RMP measures. As a result, natural spatial targeting of the RMP program exists in Innlandet. Those explanations align with Schomers, Sattler, et al. (2015) analytical framework for studying regional AEPs:

[15] The Mjøsaksjonen, which took place from 1973 to 1982, was a significant environmental effort to clean up Lake Mjøsa, which was subject to severe pollution problems, and secure safe drinking water for nearby communities.

« [spatial targeting] might not be an issue in a [AEP] case that is implemented only very locally in a certain region. » It is likely that a correlation between geography, history, size of farming area, MAOs' strategies, and farmers' participation exists. However, establishing a direct cause-effect relationship is complex and would have exceeded the framework of the present study. A more extensive study mixing qualitative and quantitative methods and involving a substantial number of municipalities and farmers is recommended to establish such a correlation.

In addition, some participants highlighted the impact of the « human factor » on the work of MAOs, referring to the agri-environmental knowledge and competencies of MAOs' agents. These findings align with the study by Schomers et al. (2015), who emphasised the need for the local German Landcare Associations to have proper *« capacities and competencies in [AEMs] and nature conservation issues »* to be able to influence farmers' participation in the German agro-environmental program (AEP). Similarly, Bosselmann & Lund (2013b) concluded that the *« original founding purpose, mission, and values »* of County Agricultural Offices *« continue to influence their targeting approach »* in regional AEPs in Costa Rica. In Norway, the original missions and purposes of MAOs do not compel them to take initiatives beyond their obligations, reflecting the importance of the « human factor » in the MAOs' level of effort to develop targeting strategies. In this context, the result implies that implementing the strategies mentioned above requires MAOs' to possess adequate knowledge, skills, motivation, and interest in the environmental impacts of potato cultivation.

The results also showed the existence of flexibility in enforcing the regulation in on-site inspections that MAOs conduct to ensure the proper implementation of the RMP measures. This tolerant attitude shows the MAO's intention to support farmers who take a financial « risk », particularly in case of failure, when implementing a new AEM (Matzdorf & Lorenz, 2010). The NLR advisor confirmed such a practice exists in Norwegian municipalities, though the phenomenon is complex to observe explicitly as it is « under the radar. » Indeed, these observations must be approached carefully due to the subjective nature of reported experiences and the close-knit nature of farming communities, where everyone knows each other. Such practice by the MAOs is likely to be supportive for the farmers on the condition that it is complemented with appropriate knowledge for the farmer not to reproduce the same mistakes in the future. The present study did not explore this practice in detail and more in-

depth investigation is needed to understand and determine if this practice is widespread or limited to certain areas or contexts.

4.3. PEER INTERACTIONS AND POTATO FARMER COLLABORATION

The results confirmed the research on the influence of peers within farming communities when it comes to the adoption of AEMs (Lastra-Bravo et al., 2015). The findings showed that some farmer interactions can be supportive and can positively influence farmers of the *« Late Majority »* when they see tangible benefits experienced by their peers and that it is *« safe to follow »* (Brennsæter, 2019; Lastra-Bravo et al., 2015; Rogers, 2003). Interestingly, the NLR advisor noted that some potato farmers resist adopting alternative practices presented in informational meetings, often expressing scepticism or lack of time. In contrast, Farmer 1, after seeing his neighbour using cover crops, found the implementation process straightforward. These results suggest that farmers might sometimes be the most effective « advisors » for other farmers.

It emerged from the interviews that farmers-to-farmer interactions also were oriented toward machinery-sharing. Studies in Europe have shown that machinery-sharing initiatives and local *« inter-farm collaboration »* increase farmers' likelihood of using AEMs (Lucas et al., 2019). Some participants raised the idea of creating a public-supported machinery-sharing platform as a promising solution for many small potato farms that lack the financial capacity to invest in adapted equipment. Such a platform could facilitate farmers' collaboration and consequently positively impact farmers' participation in the RMP.

4.4. INDIRECT INFLUENCES FROM LOCAL ECONOMIC ACTORS

Relationships between farmers and economic actors, notably potato buyers, do not directly regard RMP measures and fall outside this thesis's primary scope. However, during the interviews, local economic relationships emerged as a significant obstacle for farmers in adopting AEMs.

The participants expressed that economic relationships and the market, in general, might limit their freedom to choose their farming practices. Previous studies support this finding. For instance, Taylor & Van Grieken (2015) concluded that local economic relationships with buyers and private contractors can negatively affect farmers' decision-making processes

regarding the adoption of AEMs. Morgan et al. (2006) explained how contracts that enforce specific crop varieties or production practices can limit farmers' flexibility to implement practices that might be more environmentally friendly but economically less favourable. In the present case study, contractual obligations between farmers, large retailers, and potato industry actors appeared to be a significant obstacle to using cover crops, mainly because these contracts often stipulate late potato varieties, which are hardly compatible with cover cropping.

Further research is necessary to develop innovative strategies that balance market demand and economic interests in the potato sector, with environmental conservation. One approach could be to broaden the scope of the RMP program and include measures that focus on promoting the consumption of early potato varieties within local food systems.

5. CONCLUSION

In this thesis, I have outlined and analysed how local actors positively or negatively impact potato farmers' participation in the RMP program.

The NLR advisors play a pivotal role in disseminating agri-environmental knowledge to the farmers, a factor that significantly promotes the participation of potato growers in the RMP. Knowledge, facilitated by the County Governor's financial support, is disseminated via various mediums: individual climate advice, on-site demonstrations, field trips, and webinars. However, there are opportunities for improving the recently implemented individual climate advice for potato cultivation, for instance, by providing appropriate training to local advisors on the substance of the measures included in the RMP program.

The Municipalities Agricultural Offices (MAOs), as front-line actors, are pivotal in the implementation of the RMP program. Their impact on global farmers' participation is heterogeneous and influenced by contextual factors that shape their strategies to recruit, inform, and assist farmers. MAOs employ a range of strategies to encourage farmers' participation. Similar to the NLR's climate advice, MAOs' on-site visits to the farms are a promising method to provide useful and concrete information on RMP measures to potato farmers. Tolerance in rules enforcement gives farmers financial insurance in situations where the implementation of an RMP measure by a farmer is not successful. It can be considered a supportive way to encourage farmers' participation if complemented with recommendations and an understanding of how to succeed in the future

Farmer-to-farmer interactions showed a positive impact on potato farmers' participation in general. By sparking the farmers' curiosity through observing their neighbours successfully implementing an RMP measure, the chance of adoption is higher. Machinery-sharing initiatives among farmers also emerge as a promising solution for smaller potato farms whose main obstacle to adopting RMP measures is the lack of equipment. MAOs and County Governors could further leverage such relationships by organising field trips to farms that have successfully implemented RMP measures in their districts and by financially and logistically supporting existing machinery-sharing partnerships and innovative projects initiated by farmers.

Finally, it became obvious that economic actors negatively impact farmers' ability to adopt certain measures of the RMP due to contractual obligations dictated by potatoes' market demand. This limitation must be addressed in future research, which must focus on creating strategies that balance market and economic needs in the potato industry with environmental conservation. This could involve expanding the RMP program or creating a locally and consumer-oriented program to promote the consumption of early potato varieties and, more generally, environment-friendly produced plant foods within local food systems.

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APPENDICES

APPENDIX A: INTERVIEW GUIDE FARMERS

1. What are your current farming practices in potato cultivation?
2. What potato varieties do you cultivate?
3. How familiar are you with the RMP measures available for potatoes in Innlandet?
4. What are your sources of information related to RMP and environmental practices for potato cultivation?
5. Can you describe an RMP measure that you've used in your potato cultivation in 2023?
6. Which RMP measures do you plan to use for the 2024?
7. Would you still use these measures even without support from RMP?
8. What do you think are the main obstacles that block farmers from using RMP measures in potatoes?
9. Examples of challenges you've personally faced or seen within your farming community?
10. Are there RMP measures that you find too difficult to implement due to equipment or knowledge gaps?
11. Have you received any support or assistance from the county/municipality/NLR regarding using RMP measures?
12. How do financial questions influence your decision to use RMP measures?
13. Is current financial support from RMP good or too low for you to take the time to use new practices? What would be a fair price?
14. How much do environmental concerns influence your decision when considering adopting RMP measures?
15. How much do you rely on advice or experiences shared by other farmers in your community when considering adopting new RMP measures?
16. Potential future solutions to overcome challenges faced by farmers in using RMP measures in potatoes?
17. Changes or improvements you would like to see in the design or implementation of RMP?

APPENDIX B: INTERVIEW GUIDE COUNTY GOVERNOR

1. What are the main objectives and goals of the RMP in relation to potatoes?
2. How is RMP designed to adapt to specific conditions of different areas? Rivers, erosion, etc.
3. How does Statsforvalteren collaborate with other actors about RMP measures? Are there any existing partnerships or joint initiatives?
4. Could you tell about the types of information, support and resources about RMP that Statsforvalteren offers to potato farmers? For example, are there educational programs?
5. Could you tell about technical support that Statsforvalteren offers to potato farmers? Platform for exchange/sharing of machines?
6. How does Statsforvalteren assess the effectiveness of the RMP in potato cultivation?
7. Last year, which RMP measures were the most used by potato farmers? And which were the less used? Why?
8. Which measure has the most potential for the future? Which has less potential?
9. 11. Do you think the payments are high enough, considering the extra work it takes to use the RMP measures?
10. 12. How can potato farmers give feedback or suggestions for improving RMP support?
11. 13. How does Statsforvalteren incorporate this feedback into RMP?
12. 14. What are some promising ways for potato farmers to use more RMP measures? Are there any areas for improvement that you've identified?

APPENDIX C: INTERVIEW GUIDE LOCAL ADVISORS

1. One measure of the RMP that all farmers can apply for is «Klimarådgivning». Are there a lot of potato farmers using this RMP Klimarådgivning?
2. What is the role of NLR, and what are the outcomes of those RMP klimarådgivning farm visits?
3. Do you follow up with the farmers on the action plan?
4. Apart from the RMP klimarådgivning, how does NLR inform potato farmers about the RMP opportunities and their benefits in potato farming?
5. From your experience, what role do municipalities play in encouraging the farmers to use more RMP measures?
6. How would you describe the collaboration between NLR and the municipalities about RMP?
7. How would you describe the collaboration between NLR and Statsforvalteren about RMP?
8. In your opinion, what aspects of the RMP program in potato farming are working well? Which are not and why?
9. From your experience, which RMP measures are preferred by potato farmers? Which are not and why?
10. Farmers mentioned that they could borrow or rent equipment from other farmers. What are, in your opinion, potential solutions to overcome the lack of equipment for some of of some farms?

APPENDIX D: INTERVIEW GUIDE MUNICIPALITY 1

1. What are the missions and tasks of the municipalities in the RMP program?
2. What are the environmental priorities in Municipality 1?
3. Do you provide information to the farmers about the RMP? If yes, how?
4. Do you take initiatives in your MAO to inform and assist the farmers about RMP, such as holding meetings or on-site visits?
5. Can you tell about the inspections and controls of the implementation of RMP measures?

Nettskjema

Er den regionale politikken og miljøprogrammet for jordbruket i Innlandet nyttig for deg som dyrker poteter ?

Jeg heter Mateo, og jeg er en masterstudent ved NMBU. Jeg har laget denne spørreundersøkelse, og målet er å få synspunkter fra deg som dyrker poteter. Spørsmålene omhandler regionale tilskudd til miljøtiltak med mål om mer miljøvennlige produksjon. Det tar ca 5 minutter å svare på spørreundersøkelsen. Ditt bidrag er viktig for min oppgave!
[Svarene dine er anonyme og ingen personopplysninger vil bli samlet inn uten ditt samtykke]

Generell informasjon om gården din

Navn på gården (valgfritt)

Sted (Kommune)

Hva produserer du på gården din?

- Poteter
- Grønnsaker
- Korn / mel / kraftfôr
- Grovfôr
- Melk / meieriprodukter
- Kjøtt
- Egg
- Frukt/bær

Totalt jordbruksareal på gården (eid og leid)

Antall dekar potet

Det regionale miljøprogrammet (RMP) i Innlandet

Har du mottatt tilskudd fra noen av disse støtteordningene for sesongen 2022-2023?

- Nasjonalt areal- og kulturlandskapstilskudd (AK)
- Arealtilskudd til økologisk jordbruk
- Regionalt miljøprogram for jordbruket (RMP)
- Spesielle miljøtiltak i jordbruket (SMIL)
- Ingen av disse

Hvilke miljøtiltak har du tatt i bruk i potet for vekstsesongen 2023?

Dette er et utvalg av enkelte tiltak det er mulig å få tilskudd til fra det regionale miljøprogrammet (RMP) i Innlandet.

- Ingen jordarbeiding om høsten
- Grasdekte vannveier og grasstriper i åker
- Grasdekte kantsoner mot vann
- Fangdam etablert på eller i tilknytning til jordbruksareal
- Spredning av all husdyrgjødsel om våren eller i vekstsesongen
- Mekanisk ugrasbekjempelse

Fangvekster etter potet
Spredning av biokull
Soner for pollinerende insekter (f.eks. på vendeteig, langs åkerkanten eller i åker)
Andre
Ingen av disse

Beskriv eventuelt hvilket miljøtiltak du bruker som ikke er oppført ovenfor (valgfritt)

*Dette elementet vises kun dersom alternativet «Andre» er valgt i spørsmålet «Hvilke miljøtiltak har du **tatt i bruk** i potet for vekstsesongen 2023?»*

For hvilke av disse tiltakene har du mottatt tilskudd fra RMP i potet for vekstsesongen 2023?

Ingen jordarbeiding om høsten
Grasdekte vannveier og grasstriper i åker
Grasdekte kantsoner mot vann
Fangdam etablert på eller i tilknytning til jordbruksareal
Spredning av all husdyrgjødsel om våren eller i vekstsesongen
Mekanisk ugrasbekjempelse
Fangvekster etter potet
Spredning av biokull
Soner for pollinerende insekter (f.eks. på vendeteig, langs åkerkanten eller i åker)
Andre
Ingen av disse

Hva er de største begrensningene som hindrer deg i å ta i bruk flere RMP-ordninger i potetproduksjonen?

Jeg er fornøyd med mine metoder og jeg har ikke tenkt å ta i bruk flere RMP-tiltak
Jeg rekker det ikke
Tilskuddene er for låge til at jeg kan ta meg tid til det
Jeg har lite veksttid igjen etter at poteter er høsta fordi jeg dyrker for sene sorter
Jeg vil ta i bruk nye RMP-tiltak i 2024
Ingen av disse
Andre

Hvilke tiltak ønsker du å ta i bruk i potet i 2024?

Dette elementet vises kun dersom alternativet «Jeg vil ta i bruk nye RMP-tiltak i 2024» er valgt i spørsmålet «Hva er de største begrensningene som hindrer deg i å ta i bruk flere RMP-ordninger i potetproduksjonen?»

Beskriv eventuelle bremser som ikke er oppført ovenfor

Dette elementet vises kun dersom alternativet «Andre» er valgt i spørsmålet «Hva er de største begrensningene som hindrer deg i å ta i bruk flere RMP-ordninger i potetproduksjonen?»

Her vil jeg høre din mening

Ville du ha tatt i bruk disse tiltakene selv uten støtte fra RMP?

Ja, jeg ville tatt i bruk tiltakene uansett
Nei, jeg ville ikke tatt i bruk tiltakene uten støtte fra RMP

Det avhenger av hvilke tiltak det er snakk om

Jeg er usikker

Ikke relevant

Har du nok informasjon om RMP tiltak?

Ja, jeg føler meg godt informert om RMP tiltak

Nei, jeg trenger mer informasjon om RMP tiltak

Jeg er delvis informert, men vil gjerne lære mer om RMP tiltak

Inneholder det regionale miljøprogrammet tilstrekkelig med tiltak som er aktuelle i potetproduksjonen?

Ja, det inneholder tilstrekkelig med aktuelle tiltak

Nei, det mangler aktuelle tiltak for potetproduksjonen

Jeg er usikker på om tiltakene er aktuelle for potetproduksjonen

Jeg har ikke nok kunnskap om RMP-tiltak for å vurdere deres relevans for potetproduksjonen

Hvordan kan regionale retningslinjer og prioriteringer gi økt støtte til bønder for at de skal ta ibruk og opprettholde miljøvennlig tiltak i potetproduksjonen?

Er du åpen for et kort intervju før våronna?

Jeg kan komme på gardsbesøk for nærmere intervju. Varigheten av intervjuet vil avhenge av din tid. Jeg snakker litt norsk, men det er enklere for meg hvis diskusjonen foregår på engelsk.

Ja

Nei

Vennligst skriv ned din e-postadresse og/eller telefonnummer, samt din tilgjengelighet for en samtale, og jeg vil kontakte deg snart!

Dette elementet vises kun dersom alternativet «Ja» er valgt i spørsmålet «Er du åpen for et kort intervju før våronna?»

APPENDIX F: « RMP MEASURES REPORT »

Tiltaksrapport (RM09)
Søknadsomgang RMP og OBB 2023
Fylke INNLANDET
Status Foreløpig godkjent, Endelig godkjent, Utbetaling godkjent, Utbetalt
Rapportdato 04.04.2024

Miljøtema Avrenning til vann
Aktivitetsområde Avrenning
Tiltak Grasdekt kantsone i åker, potet/grønnsaker **Riparian buffer zones between field and water in potatoes and vegetables**
Utmåling m

		Prioriterte områder		Andre områder			
Navn	**Antall (m)**	**Tilskudd**	**Antall (m)**	**Tilskudd**	**Totalt (m)**	**Sum tilskudd**	**Antall søknader**
Kongsvinger	527	18 445,00	0	0,00	527	18 445,00	1
Hamar	0	0,00	0	0,00	0	0,00	0
Lillehammer	0	0,00	0	0,00	0	0,00	0
Gjøvik	0	0,00	0	0,00	0	0,00	1
Ringsaker	0	0,00	0	0,00	0	0,00	0
Løten	0	0,00	0	0,00	0	0,00	0
Stange	0	0,00	0	0,00	0	0,00	0
Nord-Odal	0	0,00	0	0,00	0	0,00	0
Sør-Odal	2 723	95 305,00	0	0,00	2 723	95 305,00	5
Eidskog	0	0,00	0	0,00	0	0,00	0
Grue	5 069	177 415,00	1 442	36 050,00	6 511	213 465,00	6
Åsnes	143	5 005,00	0	0,00	143	5 005,00	1
Våler	417	14 595,00	0	0,00	417	14 595,00	1
Elverum	0	0,00	0	0,00	0	0,00	0
Trysil	0	0,00	0	0,00	0	0,00	0
Åmot	0	0,00	0	0,00	0	0,00	0
Stor-Elvdal	0	0,00	0	0,00	0	0,00	0
Rendalen	0	0,00	0	0,00	0	0,00	0
Engerdal	0	0,00	0	0,00	0	0,00	0
Tolga	0	0,00	0	0,00	0	0,00	0
Tynset	0	0,00	0	0,00	0	0,00	0
Alvdal	0	0,00	0	0,00	0	0,00	0
Folldal	0	0,00	0	0,00	0	0,00	0
Os	0	0,00	0	0,00	0	0,00	0
Dovre	0	0,00	0	0,00	0	0,00	0
Lesja	0	0,00	682	17 050,00	682	17 050,00	1
Skjåk	0	0,00	0	0,00	0	0,00	0
Lom	0	0,00	0	0,00	0	0,00	0
Vågå	0	0,00	0	0,00	0	0,00	0
Nord-Fron	0	0,00	0	0,00	0	0,00	0
Sel	0	0,00	0	0,00	0	0,00	0
Sør-Fron	0	0,00	0	0,00	0	0,00	0
Ringebu	0	0,00	0	0,00	0	0,00	0
Øyer	0	0,00	0	0,00	0	0,00	0
Gausdal	0	0,00	0	0,00	0	0,00	0
Østre Toten	3 104	108 640,00	527	13 175,00	3 631	121 815,00	9
Vestre Toten	0	0,00	0	0,00	0	0,00	0
Gran	348	12 180,00	0	0,00	348	12 180,00	2
Søndre Land	0	0,00	0	0,00	0	0,00	0
Nordre Land	0	0,00	0	0,00	0	0,00	0
Sør-Aurdal	0	0,00	0	0,00	0	0,00	0
Etnedal	0	0,00	0	0,00	0	0,00	0
Nord-Aurdal	0	0,00	0	0,00	0	0,00	0
Vestre Slidre	0	0,00	0	0,00	0	0,00	0
Øystre Slidre	0	0,00	0	0,00	0	0,00	0
Vang	0	0,00	0	0,00	0	0,00	0
Sum	**12 331**	**431 585,00**	**2 651**	**66 275,00**	**14 982**	**497 860,00**	**27**

Miljøtema Plantevern
Aktivitetsområde Redusert bruk av kjemiske plantevernmidler
Tiltak Mekanisk ugrasbekjempelse i radkulturer **Mecanical Weeding in potatoes and vegetables**
Utmåling daa

		Flamming		Mekanisk ugrasbekjempelse			
Navn	**Antall (daa)**	**Tilskudd**	**Antall (daa)**	**Tilskudd**	**Totalt (daa)**	**Sum tilskudd**	**Antall søknader**
Kongsvinger	0	0,00	0	0,00	0	0,00	0
Hamar	0	0,00	0	0,00	0	0,00	0
Lillehammer	0	0,00	0	0,00	0	0,00	0
Gjøvik	0	0,00	0	0,00	0	0,00	0
Ringsaker	0	0,00	432	77 760,00	432	77 760,00	5
Løten	0	0,00	0	0,00	0	0,00	0
Stange	236	42 480,00	392	70 560,00	628	113 040,00	4
Nord-Odal	0	0,00	0	0,00	0	0,00	0
Sør-Odal	0	0,00	0	0,00	0	0,00	0
Eidskog	0	0,00	1	180,00	1	180,00	1
Grue	0	0,00	213	38 340,00	213	38 340,00	1
Åsnes	0	0,00	115	20 700,00	115	20 700,00	1
Våler	0	0,00	29	5 220,00	29	5 220,00	2
Elverum	0	0,00	0	0,00	0	0,00	0
Trysil	0	0,00	0	0,00	0	0,00	0
Åmot	0	0,00	104	18 720,00	104	18 720,00	1
Stor-Elvdal	0	0,00	0	0,00	0	0,00	0
Rendalen	0	0,00	0	0,00	0	0,00	0
Engerdal	0	0,00	0	0,00	0	0,00	0
Tolga	0	0,00	0	0,00	0	0,00	0
Tynset	0	0,00	80	14 400,00	80	14 400,00	1
Alvdal	0	0,00	0	0,00	0	0,00	0
Folldal	0	0,00	0	0,00	0	0,00	0
Os	0	0,00	0	0,00	0	0,00	0
Dovre	0	0,00	7	1 260,00	7	1 260,00	1
Lesja	0	0,00	8	1 440,00	8	1 440,00	1
Skjåk	0	0,00	22	3 960,00	22	3 960,00	1
Lom	0	0,00	0	0,00	0	0,00	0
Vågå	0	0,00	0	0,00	0	0,00	0
Nord-Fron	0	0,00	0	0,00	0	0,00	0
Sel	0	0,00	14	2 520,00	14	2 520,00	2
Sør-Fron	0	0,00	3	540,00	3	540,00	1
Ringebu	0	0,00	0	0,00	0	0,00	1
Øyer	0	0,00	9	1 620,00	9	1 620,00	1
Gausdal	0	0,00	0	0,00	0	0,00	0
Østre Toten	0	0,00	1 057	190 260,00	1 057	190 260,00	7
Vestre Toten	0	0,00	36	6 480,00	36	6 480,00	1

Gran	0	0,00	154	27 720,00	154	27 720,00	6
Søndre Land	0	0,00	0	0,00	0	0,00	0
Nordre Land	0	0,00	0	0,00	0	0,00	0
Sør-Aurdal	0	0,00	0	0,00	0	0,00	0
Etnedal	0	0,00	0	0,00	0	0,00	0
Nord-Aurdal	0	0,00	0	0,00	0	0,00	0
Vestre Slidre	0	0,00	0	0,00	0	0,00	0
Øystre Slidre	0	0,00	0	0,00	0	0,00	0
Vang	0	0,00	0	0,00	0	0,00	0
Sum	**236**	**42 480,00**	**2 676**	**481 680,00**	**2 912**	**524 160,00**	**38**

Miljøtema Klimarådgivning
Aktivitetsområde Klimarådgivning
Tiltak Klimarådgivning **Climate Advising, total**
Utmåling stk

		Grupperådgiving		To-til-en rådgiving		En-ti-en rådgiving			
Navn	**Antall (stk)**	**Tilskudd**	**Antall (stk)**	**Tilskudd**	**Antall (stk)**	**Tilskudd**	**Totalt (stk)**	**Sum tilskudd**	**Antall søknader**
Kongsvinger	2	4 000,00	1	8 000,00	0	0,00	3	12 000,00	4
Hamar	0	0,00	0	0,00	0	0,00	0	0,00	1
Lillehammer	0	0,00	2	16 000,00	3	18 000,00	5	34 000,00	5
Gjøvik	1	2 000,00	3	24 000,00	1	6 000,00	5	32 000,00	5
Ringsaker	3	6 000,00	21	168 000,00	17	102 000,00	41	276 000,00	43
Løten	1	2 000,00	0	0,00	2	12 000,00	3	14 000,00	4
Stange	0	0,00	3	24 000,00	3	18 000,00	6	42 000,00	6
Nord-Odal	1	2 000,00	1	8 000,00	1	6 000,00	3	16 000,00	3
Sør-Odal	1	2 000,00	1	8 000,00	0	0,00	2	10 000,00	2
Eidskog	0	0,00	0	0,00	0	0,00	0	0,00	1
Grue	1	2 000,00	1	8 000,00	2	12 000,00	4	22 000,00	4
Åsnes	0	0,00	2	16 000,00	2	12 000,00	4	28 000,00	4
Våler	1	2 000,00	1	8 000,00	1	6 000,00	3	16 000,00	4
Elverum	1	2 000,00	1	8 000,00	1	6 000,00	3	16 000,00	3
Trysil	0	0,00	6	48 000,00	1	6 000,00	7	54 000,00	7
Åmot	0	0,00	0	0,00	0	0,00	0	0,00	0
Stor-Elvdal	0	0,00	0	0,00	1	6 000,00	1	6 000,00	2
Rendalen	0	0,00	5	40 000,00	1	6 000,00	6	46 000,00	6
Engerdal	0	0,00	0	0,00	1	6 000,00	1	6 000,00	1
Tolga	0	0,00	9	72 000,00	6	36 000,00	15	108 000,00	15
Tynset	0	0,00	15	120 000,00	2	12 000,00	17	132 000,00	17
Alvdal	0	0,00	10	80 000,00	1	6 000,00	11	86 000,00	11
Folldal	0	0,00	10	80 000,00	0	0,00	10	80 000,00	10
Os	1	2 000,00	8	64 000,00	2	12 000,00	11	78 000,00	11
Dovre	0	0,00	2	16 000,00	0	0,00	2	16 000,00	2
Lesja	2	4 000,00	6	48 000,00	4	24 000,00	12	76 000,00	12
Skjåk	1	2 000,00	12	96 000,00	3	18 000,00	16	116 000,00	16
Lom	0	0,00	7	56 000,00	6	36 000,00	13	92 000,00	13
Vågå	0	0,00	7	56 000,00	1	6 000,00	8	62 000,00	8
Nord-Fron	0	0,00	6	48 000,00	0	0,00	6	48 000,00	7
Sel	0	0,00	5	40 000,00	1	6 000,00	6	46 000,00	10
Sør-Fron	0	0,00	6	48 000,00	0	0,00	6	48 000,00	7
Ringebu	0	0,00	8	64 000,00	2	12 000,00	10	76 000,00	11
Øyer	0	0,00	4	32 000,00	2	12 000,00	6	44 000,00	6
Gausdal	0	0,00	5	40 000,00	1	6 000,00	6	46 000,00	6
Østre Toten	0	0,00	0	0,00	5	30 000,00	5	30 000,00	7
Vestre Toten	1	2 000,00	2	16 000,00	1	6 000,00	4	24 000,00	5
Gran	3	6 000,00	1	8 000,00	7	42 000,00	11	56 000,00	11
Søndre Land	1	2 000,00	0	0,00	1	6 000,00	2	8 000,00	2
Nordre Land	1	2 000,00	0	0,00	2	12 000,00	3	14 000,00	4
Sør-Aurdal	0	0,00	2	16 000,00	1	6 000,00	3	22 000,00	3
Etnedal	0	0,00	2	16 000,00	0	0,00	2	16 000,00	2
Nord-Aurdal	0	0,00	4	32 000,00	0	0,00	4	32 000,00	4
Vestre Slidre	2	4 000,00	4	32 000,00	2	12 000,00	8	48 000,00	8
Øystre Slidre	0	0,00	2	16 000,00	0	0,00	2	16 000,00	2
Vang	1	2 000,00	2	16 000,00	0	0,00	3	18 000,00	3
Sum	**25**	**50 000,00**	**187**	**1 496 000,00**	**87**	**522 000,00**	**299**	**2 068 000,00**	**318**

Miljøtema Jord og jordhelse
Aktivitetsområde Jordhelse og karbonlagring
Tiltak Fangvekster sådd etter høsting **Cover crop after harvesting**
Utmåling daa

		dvekst korn/oljevekster/belgvekster/fô		Hovedvekst grønnsaker/potet			
Navn	**Antall (daa)**	**Tilskudd**	**Antall (daa)**	**Tilskudd**	**Totalt (daa)**	**Sum tilskudd**	**Antall søknader**
Kongsvinger	0	0,00	0	0,00	0	0,00	0
Hamar	498	149 400,00	10	4 000,00	508	153 400,00	2
Lillehammer	0	0,00	0	0,00	0	0,00	0
Gjøvik	0	0,00	0	0,00	0	0,00	0
Ringsaker	78	23 400,00	0	0,00	78	23 400,00	1
Løten	0	0,00	0	0,00	0	0,00	0
Stange	0	0,00	0	0,00	0	0,00	0
Nord-Odal	153	45 900,00	0	0,00	153	45 900,00	1
Sør-Odal	801	240 300,00	0	0,00	801	240 300,00	2
Eidskog	215	64 500,00	0	0,00	215	64 500,00	2
Grue	231	69 300,00	175	70 000,00	406	139 300,00	5
Åsnes	1 869	560 700,00	48	19 200,00	1 917	579 900,00	10
Våler	50	15 000,00	170	68 000,00	220	83 000,00	2
Elverum	0	0,00	0	0,00	0	0,00	0
Trysil	0	0,00	0	0,00	0	0,00	0
Åmot	0	0,00	0	0,00	0	0,00	0
Stor-Elvdal	0	0,00	419	167 600,00	419	167 600,00	1
Rendalen	0	0,00	0	0,00	0	0,00	0
Engerdal	0	0,00	0	0,00	0	0,00	0
Tolga	0	0,00	0	0,00	0	0,00	0
Tynset	0	0,00	0	0,00	0	0,00	0
Alvdal	0	0,00	0	0,00	0	0,00	0
Folldal	0	0,00	0	0,00	0	0,00	0
Os	0	0,00	0	0,00	0	0,00	0
Dovre	0	0,00	0	0,00	0	0,00	0
Lesja	0	0,00	0	0,00	0	0,00	0
Skjåk	0	0,00	0	0,00	0	0,00	0
Lom	0	0,00	0	0,00	0	0,00	0
Vågå	0	0,00	0	0,00	0	0,00	0
Nord-Fron	0	0,00	0	0,00	0	0,00	0
Sel	0	0,00	0	0,00	0	0,00	0
Sør-Fron	0	0,00	0	0,00	0	0,00	0

Ringebu	63	18 900,00	0	0,00	63	18 900,00	1
Øyer	0	0,00	0	0,00	0	0,00	0
Gausdal	0	0,00	0	0,00	0	0,00	0
Østre Toten	917	275 100,00	272	108 800,00	1 189	383 900,00	7
Vestre Toten	0	0,00	0	0,00	0	0,00	0
Gran	0	0,00	0	0,00	0	0,00	0
Søndre Land	0	0,00	0	0,00	0	0,00	0
Nordre Land	0	0,00	0	0,00	0	0,00	0
Sør-Aurdal	0	0,00	0	0,00	0	0,00	0
Etnedal	0	0,00	0	0,00	0	0,00	0
Nord-Aurdal	0	0,00	0	0,00	0	0,00	0
Vestre Slidre	0	0,00	0	0,00	0	0,00	0
Øystre Slidre	0	0,00	0	0,00	0	0,00	0
Vang	0	0,00	0	0,00	0	0,00	0
Sum	**4 875**	**1 462 500,00**	**1 094**	**437 600,00**	**5 969**	**1 900 100,00**	**34**

APPENDIX G: REFLECTION NOTE

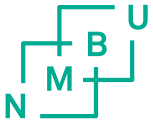
This separate Chapter briefly summarises what I learned about the content and process of my thesis. It is built on my weekly reflection notes, which aimed to help me reflect on my own learning throughout the semester.

Writing this Master thesis was an exciting experience with many ups and downs. Probably the most challenging part of the process was defining the focus of the research. When I started thinking of a topic in the Autumn of 2023, I imagined the possibility of collaborating with a research institute. I made contact with a former student of the Agroecology Master working at the Norwegian Center for Organic Agriculture (NORSØK). I discovered this institute's work on organic agriculture and quickly became passionate about the topic. I invested many hours reading and reflecting on the situation of organic agriculture in Norway.

When I submitted my first proposal, my supervisors were key to helping me realise how vast and complex this topic is. I became aware of the necessity of having critical supervisors. Their comments can sometimes be difficult to hear, but they must not be taken personally; the feedback aims to help the student understand scientific research. While I felt disappointed at first, I think I quickly reacted and found the (also passionating) topic of the present thesis, which was more narrow and feasible in such a short period. I think this focus is essential as it helps find answers to why agriculture is not using the results from scientific research more. Even if there is always new knowledge to uncover, we already know a lot about how farmers can concretely reduce their cultivations' negative impacts on the soil, water and biodiversity. Still, alternative practices are not sufficiently used.

Once I found my topic, I had to recruit actors for the interviews. I realise today how important the key informants were for this step. Without them, finding participants would have taken many more days and weeks. The biggest lesson I have learned from this work is the importance of having key informants. I am also aware of the negative consequences that this can have. Information provided by key informants must be critically assessed and corroborated with external sources. The researcher must be aware that he must maintain his intellectual independence and not rely too much on informants. I believe I managed those inconveniences quite well, and that is reflected in the quality of my work.

However, I believe I have gathered too much data from the interviews, as reflected in the hours spent analysing the data. I could have better managed the data collection process. If I were to do a PhD, I would focus more on the research design and define the research question more accurately from the beginning to better target the data needed to be collected to answer it and, thus, use the limited time and resources more efficiently.



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