

**From production and protection
paradigms to a landscape approach**
**opportunities and challenges for cooperation between
Protected Areas and large conventional agricultural
companies**

Lisanne Kruiswijk March 2021



WAGENINGEN
UNIVERSITY & RESEARCH

Preface

Before you lies the report of the internship research performed at EUROPARC Federation from September 2020 to March 2021 as part of my MSc programme at the Forest Nature People chairgroup of Wageningen University. In spite of the COVID pandemic, I am glad to report that I experienced a diverse and meaningful internship in which I was able to produce an interesting analysis.

I want to give a very special thanks to the entire EUROPARC Team that helped me in the production of this analysis, especially my supervisor Stefania Petrosillo. I would also like to thank Jim van Laar for his support from the chairgroup FNP. My gratitude also goes out to all the participants of this analysis who have helped me through meaningful and interesting responses and conversations, especially the interview respondents!

The analysis was finalised with a webinar that was presented the 31st of March 2021. More information can be found on the EUROPARC Website. Final thanks go out to the presenters, organisers and participants of the webinar.

Disclaimer

This report is produced by a student of Wageningen University as part of their MSc-internship at EUROPARC Federation. It is not an official publication of Wageningen University or EUROPARC Federation and the content herein does not represent any formal position or representation by Wageningen University or EUROPARC Federation.*

***About EUROPARC Federation:**

EUROPARC is the representative body and network organization of Parks and Protected Areas of Europe. Its work, through international cooperation, capacity building and advocacy, brings knowledge and innovation in policy and practice to support those parks and promote sustainability by bringing people together, in order to protect our shared nature. EUROPARC's members manage Europe's Protected Areas, covering almost every regional, national, European and international designation, such as National Parks, Nature and Regional Parks, Natura 2000 Sites, Biosphere Reserves, Ramsar Sites, Geoparks, World Heritage Sites.

Summary

Traditionally, agriculture and nature conservation are at the opposite end of land planning discussions. Agriculture can have a devastating effect on nature through nutrient spillage and pesticide use. Nevertheless, more and more farmers are implementing sustainability measures on their land and more Protected Areas (PAs) are initiating cooperative projects with these farmers.

A group that is usually left out of this symbiosis is the group of large conventional agricultural enterprises*. PAs often initiate projects with small family farms or organic farmers, while conventional agriculture still makes up such a large share of the agricultural land. This analysis looks at the relation between PAs and conventional agriculture in Germany, the Netherlands and Luxembourg through the lens of paradigms. We ask ourselves three questions through interviews and a survey:

1. How are PAs influenced by conventional agriculture and how do they work with large conventional farms in Germany, the Netherlands and Luxembourg?
2. What are the prevailing paradigms of PAs towards conventional agriculture?
3. What opportunities can be found to cooperate with conventional agriculture?

Many PAs cooperate with (conventional) agriculture in different ways. Nevertheless, there is still a difference in perception on agriculture. The nature conservation paradigm is mostly critical towards agriculture and focuses on natural values of the landscape. The landscape paradigm is more open towards conventional agriculture and understands its value in the land better.

By looking at the landscape and all its different values with an open mind, more opportunities can arise. PAs are more open towards looking at technical agricultural solutions and market approaches that make it easier for farmers to adopt sustainability measures.

Moreover, it is important to keep the discussion alive among PAs on how to cooperate with conventional agriculture because there are still many different perspectives and situations that they can learn from or draw inspiration from.

***Terminology note:**

Definitions will always be difficult and subjective to some extent. This analysis attempted to focus on PAs dealing with these types of agroindustry:

- *Conventional agriculture refers to farming systems which include the use of synthetic chemical fertilizers, pesticides, herbicides and other continual inputs, genetically modified organisms, concentrated animal feeding operations, heavy irrigations, intensive tillage or concentrated monoculture production. This type of agriculture is typically highly resource and energy intensive, but also highly productive.*
- *Industrial organic agriculture is a method of agriculture which combines aspects of conventional agriculture with organic production methods.*

Table of Contents

1.	Introduction.....	5
1.1	Research objective	5
1.2	Research questions.....	6
2.	Theoretical Framework	7
2.1	Paradigm theory.....	7
2.2	Paradigm shift.....	7
2.3	Landscape approach.....	7
3.	Method.....	9
3.1	Q methodology.....	9
3.2	Interviews	9
3.3	Survey	9
4.	Case studies.....	11
4.1	Circular farming on the Island of Schiermonnikoog, the Netherlands.....	11
4.2	Naturpark Öewersauer and LAKU drinking water project, Luxembourg	13
4.3	Farmer paradigm shifts in Luxembourg	15
4.4	Insect conservation in agriculture in Germany	16
5.	Survey Results.....	18
5.1	Types of agriculture in the Protected Area	18
5.2	Involvement of farmers in PAs	20
5.3	Main issues concerning PAs and conventional agriculture	21
5.4	Perceptions on conventional agriculture in Pas.....	22
5.5	Perceptions on environmental and agricultural regulation	24
6.	Synthesis.....	26
6.1	Discussion on theoretical framework and method.....	26
6.2	How are PAs influenced by conventional agriculture and how do they work with large conventional farms in Germany, the Netherlands and Luxembourg?	26
6.3	What are the prevailing paradigms of PAs towards conventional agriculture?.....	27
6.4	What opportunities can be found to cooperate with conventional agriculture?	28
6.5	Conclusions.....	29
6.6	Recommendations.....	30
6.7	Webinar	30
	Sources:	32
	Appendix 1: Interview guide	34
	Appendix 2 : Survey	34

1. Introduction

In the next 10 years, the EU Biodiversity Strategy aims to increase Protected Area¹ coverage to 30% on land and sea by 2030 (European Commission, 2020, 1). Because agricultural land (including natural grassland) accounts for almost half of the European territory (48%) (European Commission, DG Agriculture and Rural Development, 2018), it is now especially essential to make the connection between nature and agriculture. These ambitions should therefore not only be translated into nature conservation policy, but also through policies such as the Common Agriculture Policy (CAP) and Farm to Fork Strategy². As agriculture is the most important sector in rural areas, EUROPARC is actively involved in supporting dialogue and partnership between Protected Area managers and farmers (See EUROPARC [knowledge hub](#), [Policy Paper on PAs and sustainable agriculture](#) and [agriculture and PAs commission](#)).

Currently, the cooperation between PAs and farmers often focusses on small, family or organic agriculture. This type of agriculture tends to recognise environmental values and works to protect them. While clearly important, PAs are sometimes also linked to bigger agroindustry that can influence species and habitats. Even though the number of organic farms is increasing, only 7% of EU agricultural land is organic (European Commission, DG Agriculture and Rural Development, 2019). Moreover, it becomes harder to be a farmer in general, as the current agro-economical system rewards intensification and low prices. This results in the number of farms decreasing and the average age of farmers rising. While individual farms increase in size, the total amount of agricultural land decreases, partially due to urbanisation and land abandonment (European Commission, DG Agriculture and Rural Development, 2018).

This challenging backdrop leads to a fundamental question: Does one protect the environment and produce less or increase production and food safety and ensure farmer revenue (Aarts et al., 2015)? Protests enlighten that both choices are favoured by different groups (think of extinction rebellion and the farmers taking to the street in the Netherlands and France).

1.1 Research objective

What we hear much less of, is when nature and agriculture find common ground. Together, Agricultural land and forests make up 85% of EU's land (European Commission, DG Agriculture and Rural Development, 2018), making them the main land use types in the EU. Both farmers and Protected Area managers are therefore important stakeholders for rural development and the provision of ecosystem services. Moreover, dialogue among PA managers and farmers can be essential for assessing reciprocal impacts and for supporting the development of sustainable management practices, which work both for PAs and farmers.

The question is therefore to what extent cooperation between PAs and conventional agriculture is taking place, how conventional agriculture is being perceived, and what opportunities can be found to improve cooperation. Possible advantages of cooperation with conventional agriculture could be better communication, understanding and cooperation and finally trust between the agricultural and

¹ **Protected Areas** are clearly defined geographical spaces with a planning, management and governance approach for area based biodiversity and ecosystem conservation (Watson et al., 2014).

² The **Common Agriculture Policy** is the largest EU policy in terms of funding. The policy aims to support farmers, ensure food safety and maintain the rural landscape and economy. The policy consists of direct payments for farmers, market measures and a rural development budget (European Commission, 2020, 2). The **Farm to Fork Strategy** is part of the EU Green Deal from the European Commission. The strategy consists of targets that aim to make food systems fair, healthy and environmentally-friendly (European Commission, 2020, 3)

nature protection sector. This analysis aims to explore the different ways in which PAs think about and deal with conventional agriculture. This information will provide useful as insight for EUROPARCs future dialogues on agriculture but also as inspiration for PAs and future cooperative projects.

1.2 Research questions

Because so little cooperation between PAs and conventional agriculture exists, and because conventional agriculture makes up a large share of European land, it is important to analyse how this cooperation can be facilitated. This can be done by researching to what extent cooperation takes place now, how this cooperation is going and what we can learn from it. Therefore, the three following research questions are distilled:

1. How are PAs influenced by conventional agriculture and how do they work with large conventional farms in Germany, the Netherlands and Luxembourg?
2. What are the prevailing paradigms of PAs towards conventional agriculture?
3. What opportunities can be found to cooperate with conventional agriculture?

This analysis will only entail PAs that are affected by large agricultural enterprises. Moreover, the focus will lie on large, conventional agricultural enterprises and PAs. Because of this specific focus and because this analysis is a first exploration, the scope will also consist of the countries of Germany, the Netherlands and Luxembourg. The reason being that these countries have a higher share of conventional agriculture.

The following chapters will introduce the conceptual framework used to set up this analysis (Chapter 2) and the method used (Chapter 3). Chapter 4 will reflect on the different cases that came out of the interviews and the lessons learned from each case. Chapter 5 shows the results of the survey, from the type of agriculture in each PA to the perceptions on agriculture. Finally, chapter 6 will reflect on all the collected results and translate these to tangible recommendations.

2. Theoretical Framework

This analysis will be supported by the theory of paradigms. This theory is the lense through which data will be understood. The chapter below indicates what paradigm theory is and how it is used in this analysis.

2.1 Paradigm theory

“though the world does not change with a change of paradigm, the scientist afterward works in a different world.” (Kuhn, 2012)

A Paradigm is a scientific term for a ‘scientific truth’. Scientific philosopher Thomas Kuhn first used this term to describe the development of scientific knowledge. Paradigms are theories that explain observations of the world around us (Kuhn, 1962). Paradigms are constantly changing as scientists keep proving and debunking theories and creating new ones. Our history can be described through sets of paradigms that are debunked and changed (like when people though the Earth was the centre of the universe and now believe that the Earth moves around the sun). Apart from pure science, paradigms are present in almost any field in which the world around us is explained by theories. Therefore, they can also be found in the field of agriculture.

For more than half a century European agriculture has focused on maximizing production. The paradigm, or prevailing belief system was that agriculture should increase production through efficiency and growth to enhance food safety. This paradigm is still relevant as populations are growing and food demand is still rising. However, this constant battle for efficiency caused new pressures on the natural and thus agricultural system. All of a sudden, agriculture not only needed to be high in production and economically efficient, but also needed to consider environmental bounds and limits. Together with this awareness for environmental quality, landscape and social responsibility of farmers became important factors to incorporate in the agricultural model.

2.2 Paradigm shift

When a paradigm is being replaced by a new theory that is gaining more and more support, like what happens in the example above, we speak of a paradigm shift. One can say we are now in the middle of this paradigm shift as scientists are currently asking for a different model of agriculture that takes into account ecosystems and their services to maintain them (Frison, 2016).

Nevertheless, there is also quite some criticism towards this new paradigm and many farmers still work with an intensive agriculture business model based on the production paradigm. Because this type of agriculture is considered to be bad for the environment, nature conservation stakeholders plea for a total ‘agricultural transformation’, that is no longer focused on the production paradigm, and demands a decrease in agricultural production (Shiva, V., 2019). There is a dichotomy between nature and agriculture that is divided on the following question: ‘can nature be facilitated at the expense of agriculture or the other way around?’ (Aarts et al., 2015). Farmers and PAs have been debating these questions, together with matters on land use and ownership rights for decades (Koomen et al., 2008).

2.3 Landscape approach

In the midst of all these paradigms that support different values, a new theory emerged that does not necessarily support one stakeholder or stakeholder group but rather looks at different people with different values integrally, with at its core the landscape. This approach is rightly called, the landscape approach. The landscape approach is gaining rising popularity in PA and landscape management (Morgan et al., 2020). That way, systems of mutual benefits can be found between stakeholder groups with competing land uses. This approach can therefore hold the potential for cooperation between PAs and conventional agriculture, but the question remains whether this is also true in practice.

It is important to see to what extent above paradigms are supported in practice. This can give us an indication to what extent PAs that are member of EUROPARC value nature protection and agricultural production as part of their landscape and to what extent they are willing to cooperate with conventional agriculture (and vice versa), meaning that energy needs to be invested in this sector.

3. Method

This analysis consists of two parts: Five semi-structured interviews and a survey with mostly closed questions. This is based on the methodological tool of Q methodology. The section below explains how the interviews were done and how the survey was made.

3.1 Q methodology

A qualitative and quantitative way to distil paradigms is better known as Q methodology. It is a systematic study of participant's viewpoints or paradigms by having participants rank statements (Brown & Rhoades, 2019). There are different ways in which scientists use q methodology, but these are the main characteristics of the tool:

The first step of Q methodology is the qualitative judgement of the researcher in defining the problem and developing statements to investigate perspectives. This is done through interviews with key informants, but statements might also be distilled from literature, focus groups or expert knowledge. The next step is to collect the statements in a survey and to ask respondents to 'sort' the statements to a degree of agreement or like-mindedness. This process of sorting is called a Q-sort (Brown & Rhoades, 2019). This is done in a pre-defined grid of a fixed amount point scale.

Of course, this analysis is too small to do a complete, fully scientific q methodology. That is why this paper will only use the key elements of q methodology as a basis for a more simplified version that is more feasible in the course and timeframe of this analysis. How these key elements of q methodology are used in the analysis is explained in the next chapter.

3.2 Interviews

The first part of the analysis consists of five semi-structured interviews with the duration of 30-45 minutes. The interviewees were chosen non-randomly because of their unique contributions or perspectives on the topic and diverse demographics (Germany, the Netherlands and Luxembourg are represented). The interviews were held online in Dutch and English. An interview guide was prepared and used to keep the main lines of the interview structured (See appendix 1). During the interview, notes were taken that would be used for both the case studies and the statements.

As based on the q methodology framework, these interviews are the basis for the statements that are used in the survey. Moreover, interesting cases that are derived from the interviews are worked out as qualitative case studies to complement the quantitative results of the survey. Some literature was used to support the cases. These cases are then used to answer the three research questions.

3.3 Survey

The second part of this analysis is a survey. The programme used to make and disseminate the survey is Qualtrics (www.qualtrics.com). This Programme is well-known at Wageningen University and often used for thesis analyses. The link to the preview version of the survey can be found in Appendix 2. The survey was distributed to members of EUROPARC (46 contacts) who were also asked to help distribute the survey further, meaning that snowball sampling was used. The contacts were retrieved from the EUROPARC database. The survey, being only intended for PA managers that have some kind of involvement with conventional agriculture was then filled in only by PAs that have conventional agriculture in or around their borders and by managers that had some involvement with agriculture.

The survey consists of two main parts. The first part is an inventory of the types of agriculture present in and around each PA, the level at which the PA involves farmers and the issues that arise concerning PA management and conventional agriculture. This data can be used to answer the first research question. The second part of the survey consists of the statements derived from the interviews. These

can be used for the second research question on paradigms towards conventional agriculture. Respondents can fill in to what extent they agree to each statement by using a scale from 0 to 6 (0: I don't know, 1:strongly disagree, 2:disagree, 3:slightly disagree, 4:slightly agree, 5: agree and 6:strongly agree). Figure 1 shows two of the statements that were used in the survey to show what this looks like for a respondent. The first sections of statements were focused on perceptions on agriculture and the second section was focused on perceptions on agriculture policy.



Figure 1: Snapshot from the survey

4. Case studies

From the semi-structured interviews, four different cases (one of the five interviews did not specifically focus on a case but was an interview with a key informant to discuss the topic more generally) were distilled about agriculture and PAs in Germany, the Netherlands and Luxembourg. The next section will briefly introduce each case after which the lessons learned are distilled.

4.1 Circular farming on the Island of Schiermonnikoog, the Netherlands

The project

Schiermonnikoog is one of the Dutch Waddensea islands. The island houses both, a National Park and seven dairy farmers, that also produce cattle feed. These farms are mostly average-sized conventional agricultural enterprises. Unfortunately, the nitrogen deposition was too high for the barren dunes of the National Park. The province wanted to buy out some of the farmers so that the number of farms and thus nitrogen deposition on the island would be reduced. That way, a buffer zone could be created between the National Park and the farms.

However, none of the farmers wanted to leave, which is why they asked for an alternative solution. They would decrease the amount of cattle by 35% and thus decrease nitrogen deposition cooperatively. This was the start of a project towards circular agriculture on the island. The project is designed on the basis of three pillars:

1. The realization of a biodiverse agriculture on the island: Measures will be implemented to make agriculture on the island more biodiverse, such as strip cultivation, healthier soil life and a substantial reduction in livestock.
2. Producing and selling own dairy products from the Island: The loss of income due to the downsizing of the livestock of the cows will be compensated by selling island cheese products. This enables the farmers to work more extensively.
3. Residual flows: The farmers take care of the residual flows that agricultural production entails. For example, farmers are investigating how best to deal with matters such as:
 - Grass clippings from the salt marsh
 - Verge clippings
 - Cleaning the locks
 - Whey from future cheese production
 - Solid manure

To realise circular agriculture on the island, a revenue model needs to be realised. Luckily, the farmers on the island have an advantaged position because of the visitors and tourists that are willing to spend more on fair and local products. The state also supports the transition of the farmers financially, given that they act within a certain frame. The CAP could also be a source of funding for the ecosystem services that farmers will provide. Rewarding farmers for doing less is a rather interesting idea, which is why a pilot is being set up.



Figure 2: Schiermonnikoog (maps.google.com)

So far, the attitude of the different stakeholders on the island is positive and the cooperation is going well. The island is small, but popular among the Dutch population, which makes this project quite visible and liked, thus providing a higher chance of success. Stakeholders like Rabobank (bank) and Friesland Campina (dairy cooperation) are also involved, which is interesting because extensivisation of agriculture usually leads to capital being 'dissolved' which is not attractive to these types of organisations. The current idea is that the CAP and state funding can be used to create a dairy cooperation and a dairy factory for local dairy products.

Another important characteristic of the island is the natural boundaries made by the sea. This natural zoning, together with the small scale of the island create a strong need to care for the island by locals. The agricultural sector has always asked farmers to produce more, but the issue of nitrogen caused the farmers here to change course. The farms also have side businesses like horse stables and guest accommodations, places where they can explain their story to guests. Finally, the local population is also supportive.

The decrease in cattle will start in the first quarter of 2021. The future will tell if this project becomes a success, but the circumstances are close to ideal and the stakeholders are positive and motivated!

"The farmers hope that the first results of their efforts will be visible on the island in the course of 2021 and have the ambition to reduce their livestock by 1 January 2021. The project is a complex, but beautiful process that ensures a harmonious balance between farmer and nature on Schiermonnikoog!"



Figure 3: Schiermonnikoog, Netherlands by Ilja Zonneveld

Lessons learned

One of the biggest advantages of this project is the location on the island of Schiermonnikoog. Stakeholders are dependent on each other, because of the natural boundaries of the island, and need to cooperate. This need arises with both the farmers and the nature managers, thus making it easier

to cooperate. In a landscape that is not clearly defined by e.g. the boundaries of an island, there are usually farmers that want to extensivate but also farmers that don't and there is no shared mission or clear zoning.

Schiermonnikoog also has a very old and good working stakeholder consultation organ. This helps a lot with sharing information and building trust. Water supply, farmers and nature managers participate on an equal level, which facilitates thinking integrally about the park. This is especially important in the relation between farm and nature: Constantly talking to each other and both giving and taking. That might sound redundant, but it is essential. For example, the nature managing organisation 'Natuurmonumenten' has the capacity to draw visitors and spread awareness of the farmer's projects.

These small projects can also help larger institutions like dairy cooperative 'Friesland Campina' and bank 'Rabobank' to think differently about agriculture. A project like this doesn't fit in their current business model, but they are willing to think along about new, local and socially responsible business models.

Find more info on this case study [here](#).

4.2 Naturpark Öewersauer and LAKU drinking water project, Luxembourg

The project

Nature Park Öewersauer is situated around a tap water lake in Luxembourg. The area also houses several farms of various sizes. The main product of the area is milk and there is a slightly higher share of organic agriculture (8%) than the national average.

Five years ago, a stakeholder cooperation called the LAKU project was set up to assure the drinking water quality of the national drinking water reserve in the area. The cause was the discharge of nutrients and pesticides from agricultural land into rivers, lakes and drinking water reserves. The LAKU project is a working group in the nature park that consists of four farmers, the water supplier and nature managers to discuss water protection in terms of information, technical solutions and possible financial sources. The project is funded for the majority by the government.

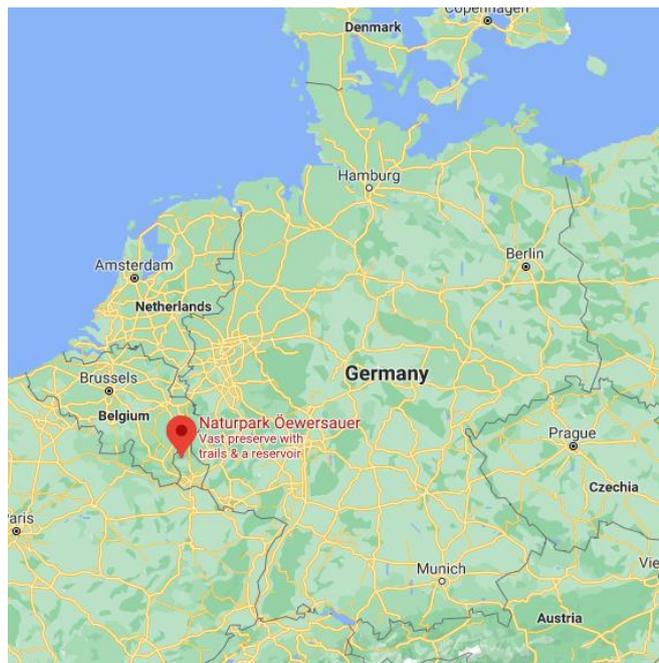


Figure 4: Naturpark Öewersauer (maps.google.com)

The project is set up as action programme with different targeted projects like the injection of cattle slurry (fertilizer) into the land to prevent spillage through e.g. surface water. Moreover, the use of liquid fertilizer was more efficient and caused less weeds to grow. The group also samples soil on nutrient values and creates educative conferences about creating fertilizer plans and innovative agriculture to protect water quality. The working group discusses many technical aspects of agriculture, like the iron of the plough and other details.

All in all, there were quite some revolutions in working with farmers, not just organic farmers. However, the ministries that funded the project believed that there was not enough of a transition towards extensive agriculture. For farmers, this is usually not profitable enough yet. Luxembourg buys its organic products from foreign countries because they are less expensive than local organic products. That is why only a small share of the Luxembourg farms are organic. By looking at the project through the lens of not wasting nutrients, the working group created a win-win for water and agriculture, as it doesn't make sense to waste. And it has proven to work. Farmers calculated the difference in harvest with the decreased and more efficient use of manure and it was similar.



Figure 5: Nature Park Öewersauer by Frank Richarz

Lessons learned

Part of the success of the project was for the different stakeholders to sit together and talk directly to each other. There was an understanding between the spirit of farming and the one of nature protection. In this project still, two worlds could be envisioned: one wanting to protect nature and the other having an understanding of farming. This project broke this barrier by working together with 'normal farmers' while PAs are usually more likely to cooperate with extensive or organic farmers. This is important because intensive agriculture is potentially more harmful than alternative types of agriculture. Moreover, the project is voluntary, so farmers do not get anything out of it directly. That way, there must be some type of (financial) gain for farmers to join.

In this project, understanding between farmers and nature managers came about through a shared care for drinking water quality. This 'politically neutral' and technical subject paved the way for farmers to think about soil and water quality and have a more open mind on nature protection, although so far in the technical sense.

Outside stakeholders couldn't always understand how 'normal farming' could still be good for nature. The image of farmers is now quite negative, which is not always fair. It is important to keep an open mind towards intensive agriculture, so that the opportunity for cooperation and win-wins stays open.

Farmers and protected area managers work in the same landscape, so they have to work together. Finally, farmers are the experts in their field, so it is important to keep an open mind and respect for what they do and what solutions they might come with.

Find more info on this case study [here](#).

4.3 Farmer paradigm shifts in Luxembourg

The project

The whole of Luxembourg is dominated by dairy farming, with some meat production. These farms have around 60-100 cows. Organic dairy farming in Luxembourg consists of only twelve farmers. A dissertation on 'anticipating future challenges at the Nexus of Luxembourg's water and food systems' done by Kristina Hondrila focused mainly on the relationship between water management, protected areas and agriculture in Luxembourg (Hondrila, 2020). The study was done through the lens of paradigms on water and land governance and management and social learning.

Two key areas of interest were the upper Sûre area (home of nature park Öewersauer) and the Syr area. The Sûre area is an important example of social learning because many different farmers (organic and conventional), the water supplier and nature managers have a space to talk. The technical topic also gave an urgent reason to come together. Finally, the organisational structure was being arranged, which meant that the stakeholders only had to 'show up' and everyone was willing and engaged to solve rather technical issues together. A key moment was an excursion to an artificial dam in Germany, where the stakeholders shared a new experience that they could talk about collectively. Further down the process, experts were invited and data and knowledge was coupled to farmers experience. This led to engaged and committed discussions on environmental impact. From discussions, the working group quickly went to experimentation and then action. Farmers did not want to discuss endlessly and going into action was good for the stakeholder dynamic. It became apparent that farmers were very strongly connected to technology and that they are strongly committed to securing the future and maintaining their business model.

During the experiments and cooperation, narratives and identities started to change somewhat. The traditional production paradigm shifted a little. Traditionally, farmers feel very strongly that they are food producers and not landscape caretakers, which is associated with gardening. Receiving subsidies for environmental measures was therefore not associated with farming. This paradigm did not change drastically. The farmers still mostly felt like producers who found financial incentives and some pride in a shared narrative of becoming a water producer as well. Farmers are usually already quite aware of climate change and their impact on the environment. By discussing water quality, soil quality became a subject that was more and more attractive to farmers. A better soil leads to healthy plants and less pesticides needed.

Why farmers then hold on to the production paradigm is mostly for traditional reasons, namely to produce for the market as they have done in generations. Receiving subsidies means receiving money for doing less, which does not always fit into this mentality. Moreover, by not receiving income from consumers but from the state farmers become dependent of the state, which most do not want. The added issue of subsidization is more bureaucracy. Nevertheless, many farmers are still earning lower wages. In Luxembourg, farming is one of the lowest income jobs in the country (45.000 net profit yearly). There is more financial pressure as land and goods also become more expensive.

In the Syr area, a workshop was hosted for sustainable food practices. This workshop proved that the farmers wanted to become more independent from the global market, producing for more domestic

customers. Many considered to become organic because local customers are relatively rich. However, Luxembourg consumers preferred organic products from abroad because they are cheaper. There are not many local speciality products yet. The farmers expressed the need for brands and labels for these kinds of speciality products for which consumers are willing to pay more. Farmers don't have time or knowhow for these kinds of products. There is now one such project in Luxembourg in which buys meat from farmers and markets it to local restaurants. However, many of these kinds of projects also failed.

Lessons learned

First, there needs to be a good reason for stakeholders to come together. Farmers are often busy and their time needs to be spent effectively. Therefore, meetings need to be meaningful, quick and action also needs to be done relatively quickly. Learning is done by doing and not by discussing. So much inspiration can already be shared on the ground by farmers and stakeholders in different circumstances, so this must be an important element of cooperation.

Moreover, different stakeholders need to sit together, like scientists and water producers in this example. The missing link in these cases is the retail, which is so full of opportunity in this relatively wealthy part of the world. Then, as protected area managers, it is important to talk to farmers with an open mind. What they perceive as ideological is different from other people, which can make them feel misunderstood.

Regulations alone will not do the trick. Farmers area already quite strained by regulations, which is why many farmers quit and land-displacement is taking place. For example, regulations on dates for manure and grazing do not correspond with growth periods of vegetation. In this case flexibility (farmers deal with for example weather circumstances) is key. Moreover, these regulations reduce the possibilities to become organic due to e.g. bureaucracy. Farmers don't have free space or time to change models or practices. Subsidies are not enough either, farmers want to keep producing for markets. Only with these kinds of considerations can we expect effective cooperation and paradigm shifts.

Find the full dissertation [here](#).

4.4 Insect conservation in agriculture in Germany



Figure 6: The five biosphere reserves of the project from the website

The project

In Germany, an insect protection project launched in 2020. The project is funded by the ministry of nature conservation and initiated by WWF, 'nationale naturlandschaften' and two other partners. Currently, the project is working with five biosphere reserves in Germany: Rhön, Mittelelbe, Schaalsee, Schorfheide-Chorin and Schwarzwald. Agriculture in Germany and also in these five reserves is very varied. Farms in the east of Germany are usually larger in size because they originated from the DDR period. Farms in the south of Germany, in Rhön and Schwarzwald, are generally speaking much smaller. Chorin houses a large share of ecological agriculture, also on quite a big scale.

The aim is to enhance measures for insect conservation on agricultural land and 'green' lands in the public sector to involve local communities in these measures. As the project is still in the beginning phase, project managers in the reserves are currently trying to get in contact with these local stakeholders. The centre for agriculture science is making an inventory of the types of areas involved and the types of measures and indicators fit for these ecosystems. The idea is then to implement these measures, to find out what works and doesn't work and also to further develop measures in the next couple of years. A lot of biodiversity conservation measures are already being done and these will also be taken into account.

Another part of the project is phone interviews with farmers to find out what they think of insect protection and measures to enhance insect conservation. The respondents are asked what factors would stimulate them to get involved and what factors would prevent them. The findings of these interviews will probably be published in the first half of 2021.

There is also quite some literature already present that will be used for this project. An interesting example is the F.R.A.N.Z. project that interviewed farmers about biodiversity-stimulating measures in general. This analysis found, for example, that it is important to prevent as much bureaucracy as possible when supporting farmers. Knowledge on the subject of conservation is also an important factor, of which there is often too little. This is especially true for insect conservation, for which specific and concrete projects are still rare.

Lessons learned

In Germany there is already a large variety in landscapes and projects. A top-down policy creation process like with the CAP is therefore not always preferred. A lot of good things are happening on the ground, but, it is also important to translate them to national and European policy. This is partially because there is still a lack of oversight on these different projects, especially in the specific case of insect conservation. A project like this can provide such essential oversight and provide best practices.

"There was a meeting last year on European insect conservation. [...] Sweden, Norway, Georgia, Italy Germany and other countries were there. It was a conference in the south of Germany in the Alps. There we got some insights about other countries. But they didn't have a plan or oversight of what is going on in their countries."

For implementing these types of projects and specific biodiversity and insect conservation projects, funding is needed. Funding currently comes for a large part from the ministry, but it is good to have more sources. How the Common Agriculture Policy will be implemented nationally what sources the funding will go to are also very important, especially for CAP Pillar II (Rural Development) payments.

Find more information on this website (in German) [here](#).

Find more information about the F.R.A.N.Z. project (in German) [here](#).

respondent from the Netherlands indicated averagely medium size farms. For these survey responses, the average farm size in Germany is larger, but Germany also has more variety in farm sizes.

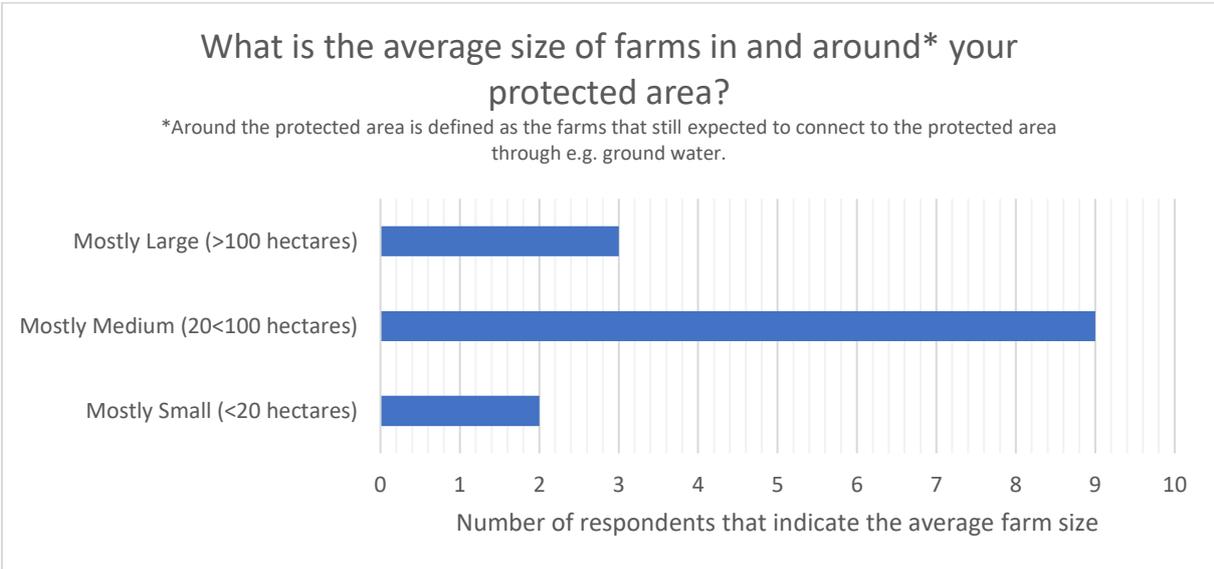


Figure 8: Average farm size from survey respondents

Figure 9 is a boxplot³ that shows the share of agricultural elements in Protected areas in percentages. **Note that the total of the elements is not 100%. First of all, respondents were free to fill in any number Second, a farm can be both arable and conventional or cattle and organic.** For visual support, the averages are also displayed in pie charts in figure 10. As can be seen, there are three outlier instances: One case indicates a large percentage of ‘other’ category agriculture (another respondent from the same area indicated 90% dairy/cattle agriculture) and two cases show a low percentage of conventional agriculture. A possible explanation for the latter outliers could be that the respondents assumed that a large share of agriculture in their area is neither conventional nor organic. There are a lot of farmers that implement some sort of sustainability measures on their land but do not fall under the category of ‘organic’. Nevertheless, the responses are too little to do any statistics on this data or to prove these ‘outliers’ truly are outliers.

Looking at the averages is in this situation more interesting than the outliers. We can see that there is on average a little more dairy/cattle farming than arable farming close to the respondent PAs, but that the two are usually present more than the ‘other’ types of agriculture. Also interesting is that all PAs have a combination of dairy/cattle and arable farming and none are exclusively one type of agriculture. We can also see that there is an average of 10% of organic agriculture and 80% conventional agriculture. Yet the median of conventional agriculture is much higher because it weighs the outliers much less.

³ A boxplot is a standard figure that consists of five elements that tell you about data distribution. The most important elements are the mean (marked with an X) and the median (marked with a horizontal line). While the mean is the average value, the median is the middle value. The box indicates the upper and lower quartiles, meaning that 50% of the data should reside within the box. The lines outside the box show the minimum and maximum values which are calculated statistically. The individual dots are individual points of data. If a dot is outside of the boxplot, it means that the data point is an outlier (Fridge, 1989).

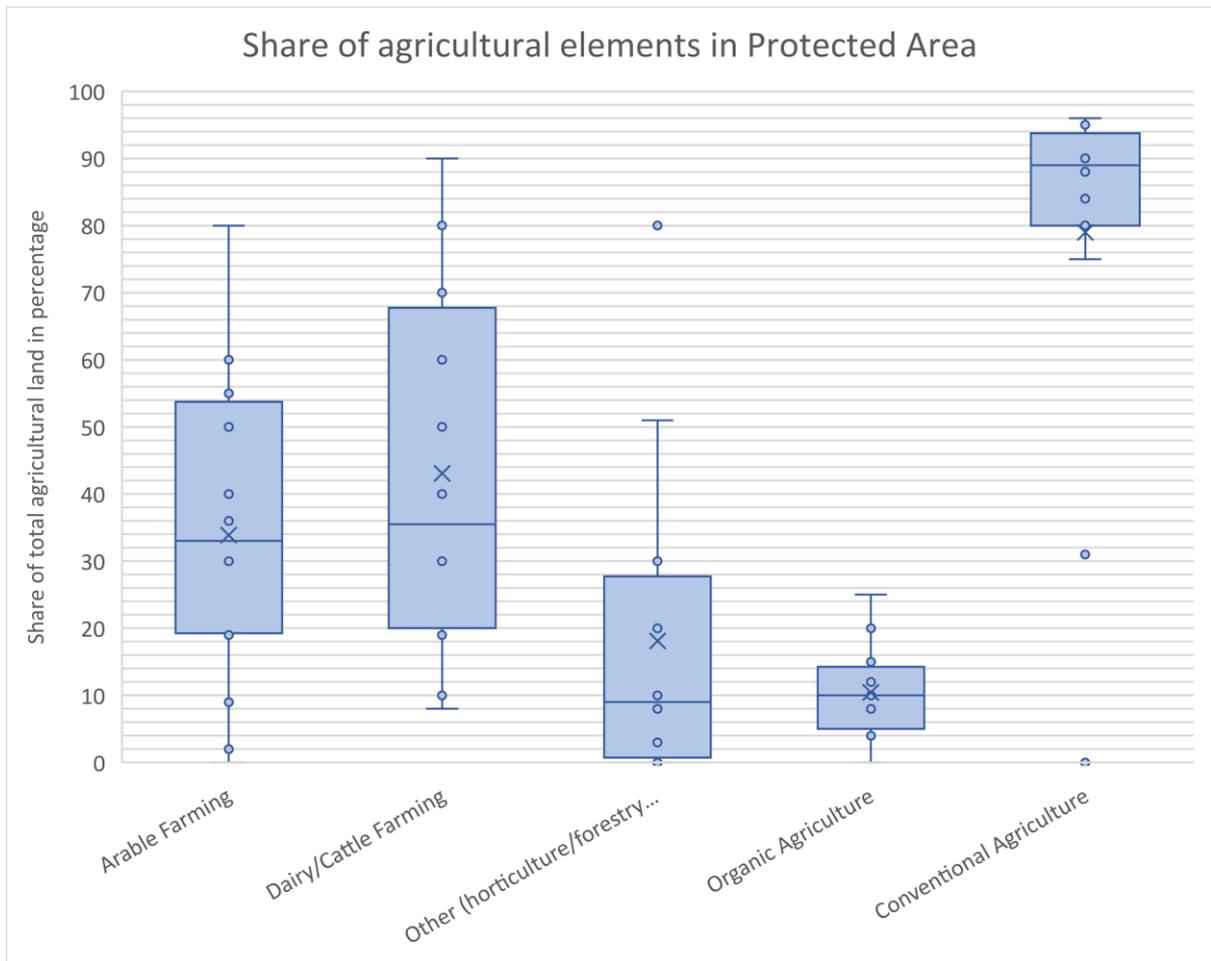


Figure 10: Boxplot of share of agricultural elements from survey respondents

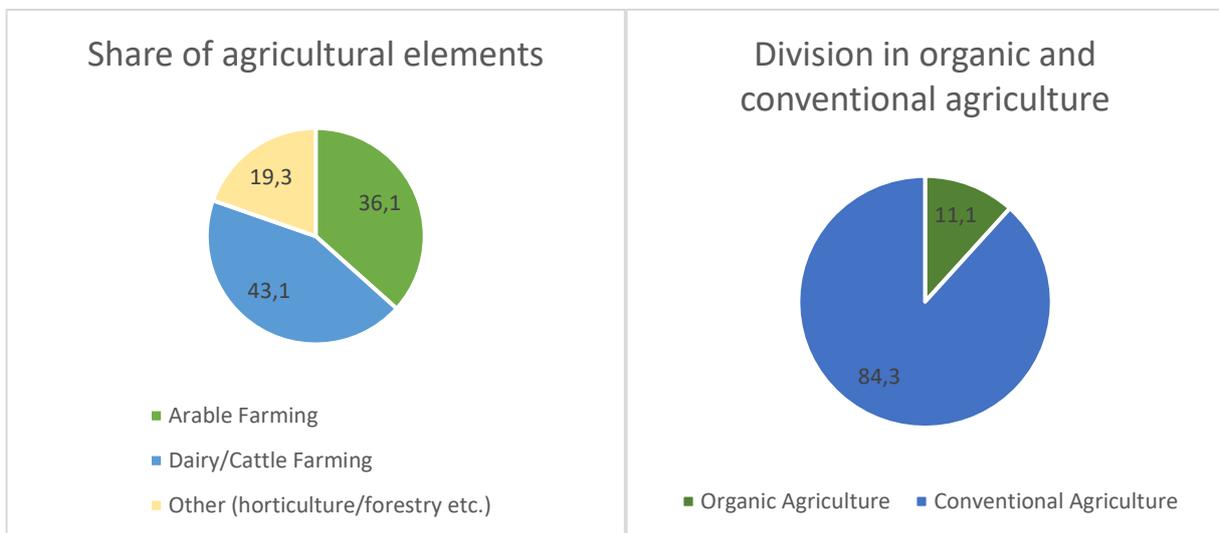


Figure 9: Pie charts of average share of agricultural elements

5.2 Involvement of farmers in PAs

Table 1 indicates in what ways the respondents involve farmers in PA management. Note that there were two instances of two respondents coming from the same PA. For this table, these respondents count as one to give a balanced overview of the PAs and not the individual respondents, thus making

the amount of respondents 14 instead of 16. **Note that these two cases filled in the table differently, thus making it possible to score 0,5 if one of the respondents from the same area replied positive and the other one negative.** This also indicates that it is not that easy to categorise in what ways PAs involve farmers.

When looking at involvement of farmers, we can see that almost all of the respondents provide farmers with information on PA management and involve farmers in projects in the PA. five of the respondents asked farmers for feedback and 5,5 involved farmers as co-decision makers. Moreover, every respondent took at least two of the actions in the table below (with the exception of none of the above) which means that every respondent works with farmer involvement in the PA. Yet, the ways in which farmers are involved are very diverse.

The PA...	Number of PAs
...Provides farmers with information on the Protected Area management.	13,5
...Involves farmers in projects in the Protected Area.	13
...Involves farmers as co-decision makers.	5,5
...Asks farmers for feedback on Protected Area management.	5
...Does none of the above.	0

Table 1: Types of involvement of agriculture by survey respondents

Respondents were also asked to briefly explain how farmers in the PA are involved. The methods of involvement varied from representation in boards and consultation bodies (Farmer representatives and/or individual farmers) to partnerships and projects (CAP pillar II and agri-environmental schemes were mentioned) to information provision on a regular basis or ad hoc basis to cooperative events and committees for information and best practices. It would be interesting to look at all these types of involvement individually to see if there are lessons to be learned from each other, especially for the governance models in which farmers are involved.

“Farmers have an essential role in developing a robust National Park so that goals (landscape, nature, water, biodiversity) can be reached. In order to do so, you have to involve them in the development of your PA.”

“It is also very important to provide information for the farmers working in the landscape spaces of our region. Our problem is less the increase in intensive agriculture than more the loss of active farmers. So we involve farmers in projects in the protected area and give them the feedback of their important work for nature conservation and development.”

Grasslands are recognised as areas of high importance for nature conservation which is why agriculture of this kind is often an important element of a PA. Landscape and biodiversity are often mentioned as important elements of cooperation by the respondents.

5.3 Main issues concerning PAs and conventional agriculture

The table below indicates the different issues that respondents could identify concerning the PAs and large conventional agricultural enterprises and the number of respondents that recognised these issues. Again, the question in the survey was followed by an open question in which respondents could provide different issues or explain further the issues they identified. For this question, I decided to use all 16 responses individually (not 14 organisations but 16 respondents) because within an organisation, there can be different opinions.

As the table indicates, the largest issue identified by all-but-one respondent is biodiversity loss. This topic is closely followed by water use/drought, nutrient spillage, pesticide use and climate change. Further down the line, less than half of the respondents also recognised socio-economic issues like

communication, financial profit and land abandonment as main issues. None of the respondents identified none of these issues. Of course, these issues are interlinked, as pesticides and nutrients can be harmful to biodiversity, but it is clear that issues linked to nature quality are identified most as main issues, followed by socio-economic issues.

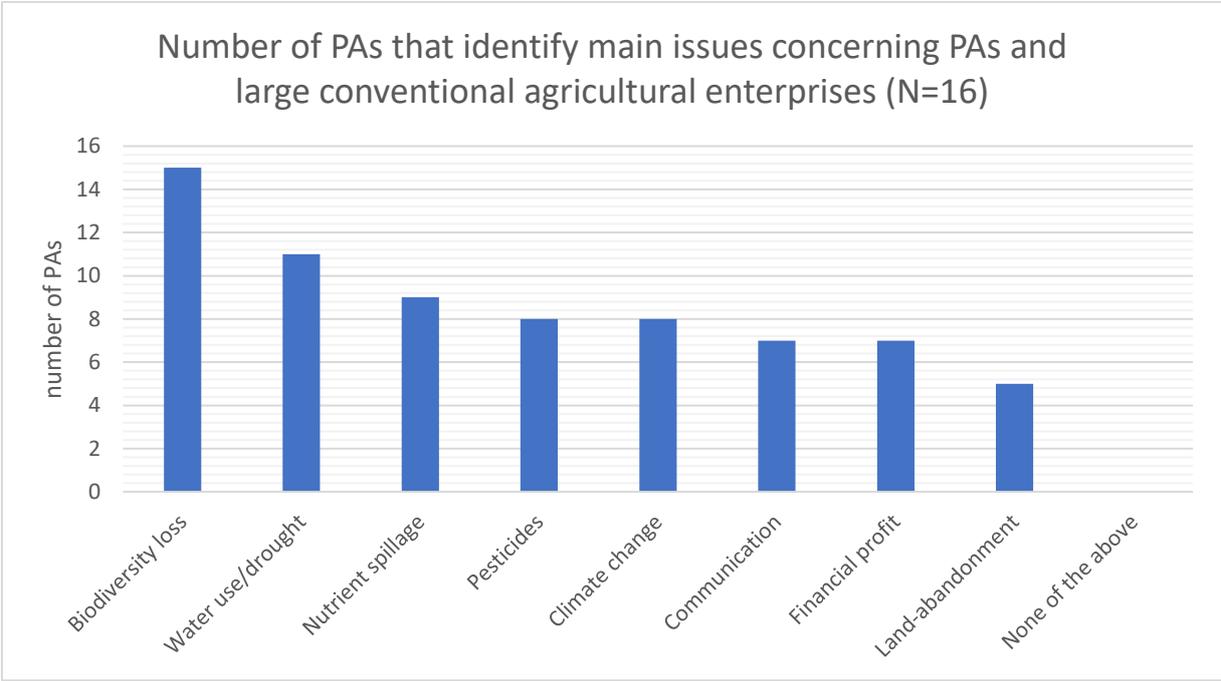


Figure 11: Main issues concerning Protected Areas and conventional agriculture by survey respondents

When looking at the open question, other concerns that arose with respondents were the installation of solar fields, farmer education (or the lack thereof) concerning sustainability, the balance between nature protection and food production, large predators and goose, land availability and land prices and finally pride and (lack of) trust. Many respondents also noted that sustainable agriculture is just not yet sufficiently financially feasible.

“Farmers need to be paid for their work for nature, for biodiversity and for protecting the soils they use. The products of farming are too cheap for consumers. The payment for ecological working farmers is too less and the consumers do not value the work of farmers for nature and ecology. So farmers often do not value ecology.”

5.4 Perceptions on conventional agriculture in Pas

The next figure shows a set of statement for which respondents were asked to indicate to what extent they agreed with them. The colour red is ‘strongly disagree’, dark green is ‘strongly agree’ and grey is ‘I don’t know’.

Respondents were very positive towards statements that focus on a win-win situation and a shared care for the landscape between PAs and farmers. Respondents also believed that PAs should focus on farmers that want to become more sustainable and that the entire food production chain needs to be addressed when talking about a sustainability transformation. Finally, on average respondents slightly agreed that there should be more information available on PA and agriculture projects throughout Europe.

The other half of the statements provided a more mixed response between agreement and disagreement. These statements were also more controversial, so it makes sense that not everyone agrees with them, yet it is good to know. Intensive agriculture is welcomed only by less than half of

the respondents even though it is more efficient and in prevents land abandonment. These two statements were also the only two to which some respondents strongly disagreed. Statements where the general opinion was half positive and half negative stated that the image of farmers on the media is misplaced, the focus should be on technical aspects and innovation in agriculture and that there is no market for all farmers to sell organic or other sustainable products for a higher price.

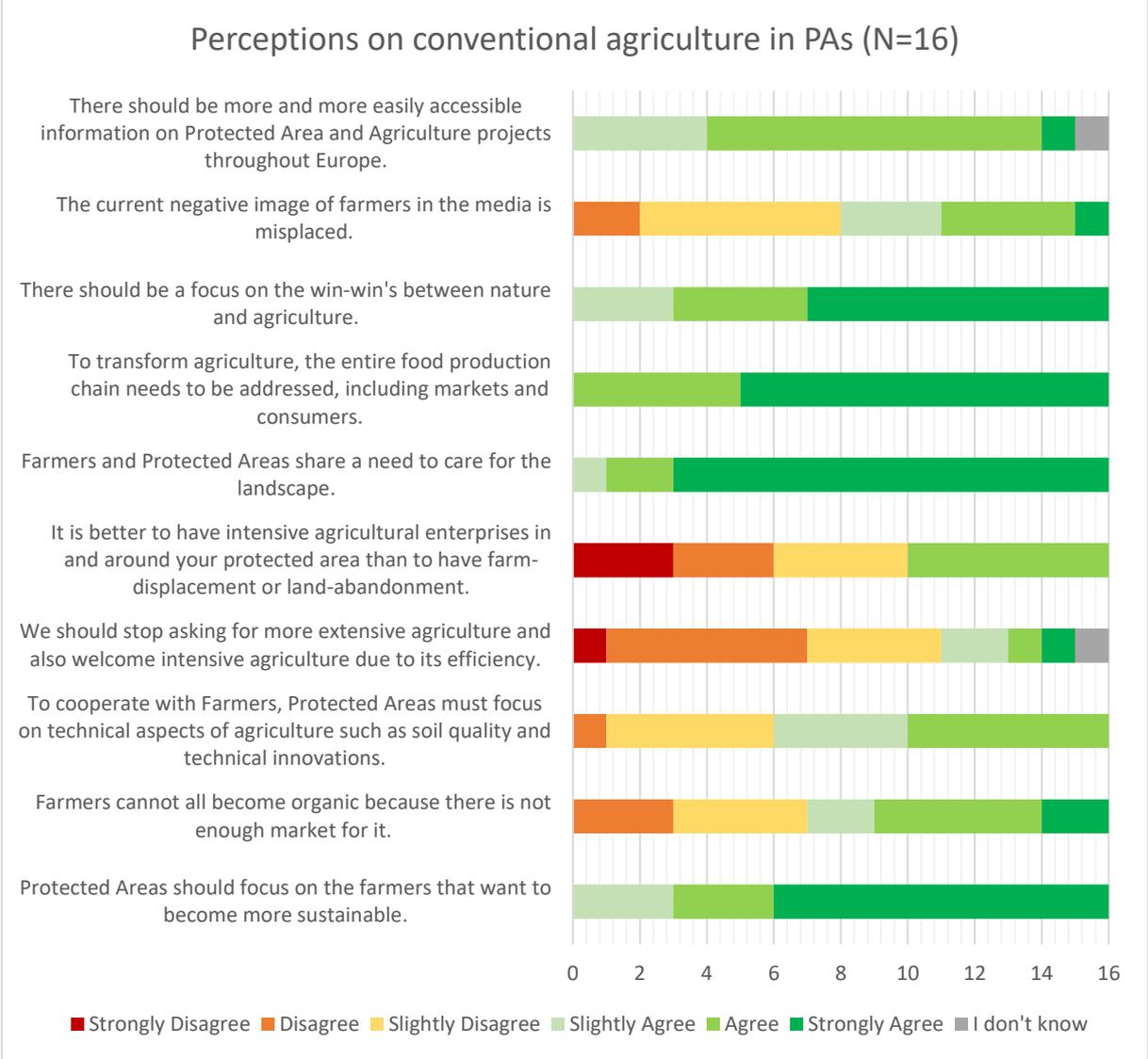


Figure 12: Perceptions on conventional agriculture by survey respondents

Of course, above statements are rough simplifications of a more nuanced story. Respondents again had room to elaborate on their opinion in an open question. These additional comments again made clear that it is time to move away from the mistrust and opposition between nature and agriculture. Moreover, there should be a focus on positive, tailor-made solutions that might take time to come up with.

“The discourse, that agricultural goals and nature protection are contradictory should stop. Both must go hand in hand. In our PA, most farm enterprises are “conventional” in the sense that they don't have any organic certification. Yet, their activities are mostly sustainable (due to the high level of subsidies, especially AECM are paid).”

However, a respondent rightly pointed out that PAs believe that it is in many ways in the interest of both farmers and PAs to enhance sustainable farming while another respondent noted that the right way to care for the landscape differs for PAs and farmers. So, while there are shared values between agriculture and PAs, there are also quite some differences in vision. This dilemma, together with a history of mistrust between PAs and farmers is a major challenge in promoting sustainable agriculture.

“In short: enhancing sustainable farming (in many ways) is a mutual interest of farmers and NPs.”

“Both [farmers and PAs] care for the landscape, but have often different opinions on what is meant by “good care” and how to care properly for a landscape.”

5.5 Perceptions on environmental and agricultural regulation

The next figure shows a set of statements for which respondents were asked to indicate to what extent they agreed with them. The colour red is ‘strongly disagree’, dark green is ‘strongly agree’ and grey is ‘I don’t know’.

The respondents agreed in varying degrees that there should be more transparency on EU policies like the CAP and that there should be more EU funding for sustainability measures. Most respondents agreed (but two slightly disagreed) with the statements that farmers cannot rely solely on subsidies but must also produce for the market and that there should be more flexibility in regulations for farmers. These points are slightly more controversial, but generally most respondents agreed. Then, a few respondents slightly disagreed or disagreed that there should be stricter regulation on environmental measures in the CAP and other agriculture policies and that there should be less bureaucracy in EU agricultural policy. This is interesting because while the majority agrees with more flexibility for farmers, they also agree with stricter regulations which usually do not go hand in hand. Finally, the majority of the respondents disagreed with the statement that more environmental regulations reduce the possibilities for farmers to become more sustainable because farmers have less freedom in their business plan.

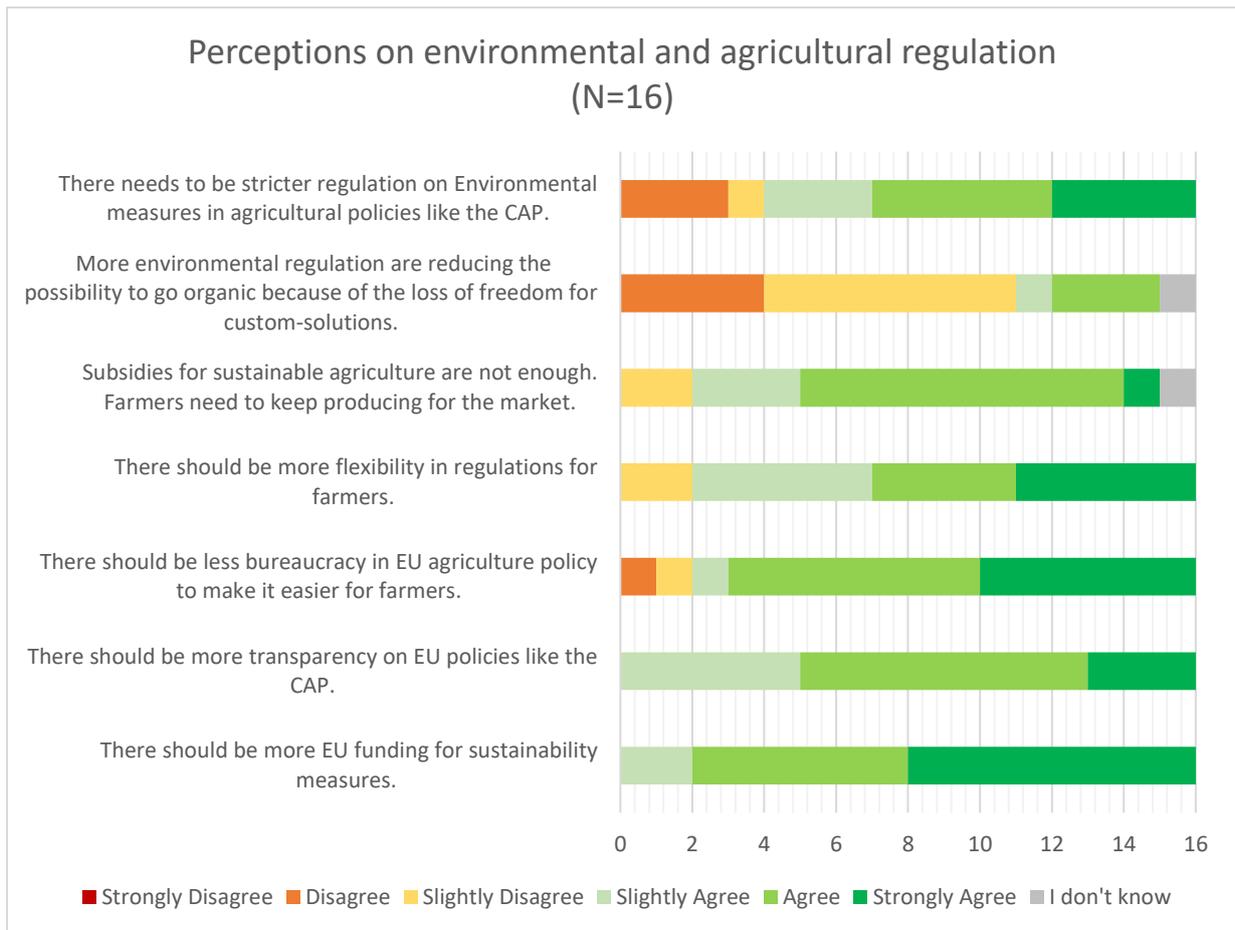


Figure 13: Perceptions on environmental and agricultural regulation by survey respondents

When looking at the open question, in which respondents had room to elaborate on their response, it becomes clear that many respondents agreed that CAP policy and funding is now often used for contradictory purposes. Agriculture policies like the CAP, according to respondents, should be focused on small scale solutions, public goods and services, effective and funding should be allocated to have the right impact. Finally, one respondent mentioned the importance of the EU enforcing proper national implementation of the CAP.

“The slogan “public money for public goods” should be taken seriously and strongly implemented in the CAP”

One respondent identified that farmers focused on maximising revenue have higher revenues than those focused on maximising yield. Nevertheless, farmers also want to be independent of public support and this was also recognised in one of the statements above. The market should therefore also be redesigned so that customers pay the ‘real’ price for the product. This could also mean, as one respondent called it, a higher price for environmentally unfriendly products in the shape of e.g. taxes.

“In a global perspective and to be independent of public support, production should be re-considered. For this, premium price marketing mechanisms must be developed (and unified under one label) which is not equivalent to being organic. One idea could be to develop a European label for products from protected areas.”

6. Synthesis

The following chapter synthesises the results into concrete conclusions and recommendations. First, the concepts and methods that were used are discussed, followed by a discussion on the results of the three research questions: (1.) How are PAs influenced by conventional agriculture and how do they work with large conventional farms in Germany, the Netherlands and Luxembourg? (2.) What are the prevailing paradigms of PAs towards conventional agriculture? (3.) What opportunities can be found to cooperate with conventional agriculture? The chapter will close with a short set of conclusions and a list of tangible recommendations.

6.1 Discussion on theoretical framework and method

This analysis had to be done within constraints of time and fully online. Moreover, this analysis is a first exploration into the possibilities of cooperation between PAs and conventional agriculture on a transnational level. Moreover, it is important to note that it is hard to define conventional agriculture and there is a large grey area between small family farms and large conventional agricultural enterprises. Moreover, each situation is different, meaning that it is hard to compare agriculture on a national level, let alone transnationally. Therefore, all the conclusions that will be drawn from the results have to be carefully considered. It is advised to continue collecting cases and data from different cooperative structures between PAs and conventional agriculture to get a more accurate view of all projects on the field and especially the best practices.

When working with the theory of paradigms, a researcher often uses the constructivist epistemology (Murphy, 1997). Because scientific truth is a theory that can be replaced, the researcher must believe in the possibility of multiple 'realities, depending on the perception of the person. This epistemology, or belief system is often critiqued as many researchers still adhere to a realist epistemology that identifies one objective truth, and people's perceptions of that truth (Matthews, 1993).

Q methodology is seen as a meaningful methodology for rural social scientists because of its potential for quantitative research, which can lead to new insights. It can be critiqued that the method used in this analysis is a rough simplification of the full Q methodology. Q methodology, if done properly, can be very time consuming (Kanim, 2000). Moreover, true Q methodology preferably uses face-to-face interviews and sorting in order to get an observation next to the real response (Brown, 1989). Due to COVID and distance, this is unpractical and barely possible. Luckily, other researchers have succeeded in using this methodology through a mailed questionnaire (Thomas & Watson 2002).

For the interview section, only four cases have been analysed, and even though these are all unique examples of cooperative projects, there are many more different types of cases to be collected and reviewed. Each PA is different so it cannot be expected that the solutions in these four cases can be copied to all other PAs. For the survey, the response rate was 16, which is about a third of the EUROAPRC members in the Netherlands, Germany and Luxembourg. Unfortunately, no survey respondents came from Luxembourg which means that we do not know if the respondents there would have had similar responses. We cannot draw conclusions out of the survey for Luxembourg.

6.2 How are PAs influenced by conventional agriculture and how do they work with large conventional farms in Germany, the Netherlands and Luxembourg?

Quite a substantial share of PAs in Germany and the Netherlands are connected to conventional farms (average of 80% conventional agriculture as share of total agriculture by respondents). The majority of the farms is between 20 and 100 ha. Only three respondents noted that average farm size was below 20 ha and three respondents noted that average farm sizes are above 100 ha. Combined with the substantial presence of conventional agriculture in the case studies, it can be confirmed that farms

from the respondent PAs in Germany, the Netherlands and Luxembourg are mostly medium to large in size and conventional of nature. Note that we were also looking for these types of Protected Areas

In terms of cooperation, each PA has multiple different strategies to cooperate with farmers. The most popular are providing farmers with information and involving them in projects. Actions that require higher levels of involvement, like asking farmers for feedback and involving them in co-decision making are practiced by less than half of the respondents. The case studies of Sûre and Schiermonnikoog show that working groups with different stakeholders can be very beneficial for all stakeholders in the area, both in terms of understanding and inspiration and in terms of custom solutions for the area.

Of course, PAs recognise a lot of nature-related issues that arise partially caused by conventional agriculture, one of the main issues being biodiversity loss.

6.3 What are the prevailing paradigms of PAs towards conventional agriculture?

Based on the case studies and the survey, some paradigms can be identified that view conventional agriculture and PA management in different ways. These paradigms are quite similar to the ones from the literature of the Conceptual Framework (Chapter 2). Of course, these paradigms are rough simplifications and we should not forget that there is always more nuance to them. Moreover, people can adhere to multiple paradigms as they are not mutually exclusive.

Nature conservation paradigm

The first paradigm that can be identified is the traditional nature conservation paradigm. This paradigm is focused on the protection of biodiversity and nature, partially due to the ecosystems services (water supply, natural buffers to disasters) it provides us with and partially because of the intrinsic value of nature. As can be seen in the survey, the main issues concerning conventional agriculture and PAs are natural issues like biodiversity loss, water use/drought and climate change. Nutrient spillage from agriculture and pesticide use are also identified as major issues, linked to e.g. biodiversity loss.

This paradigm is often coupled with criticism and mistrust towards conventional farmers. Respondents that strongly disagreed with the statement that 'intensive agriculture is better than land displacement' and that 'the negative image of farmers in the media is misplaced' are thought to adhere to the nature conservation paradigm. The efficiency of conventional agriculture is not appreciated and stricter regulations, often leading to less flexibility for farmers is wished for.

In some areas, this type of strict attitude and response towards agriculture might be needed. Essentially, it is in the best interest of farmers to become more extensive because conventional agriculture is not only a threat to the PA but also to agricultural soil and production. Nevertheless, most interview respondents and many survey respondents stress the need for cooperation between nature conservation and agriculture. Nevertheless, cooperation is harder if it is done from a basis of mistrust. Criticism towards agriculture in your own area might therefore cause a break on cooperation and progress, rather than a step forward.

Landscape paradigm

A more inclusive perspective on conventional agriculture and PAs is not just focused on nature but also other values and purposes in the landscape. Each PA is different: some will be more focused on water supply and quality, others on agriculture and others on tourism and recreation, but all of them deal with nature conservation in landscapes that have multiple stakeholders with different values.

In the case of Schiermonnikoog it becomes evident that the natural boundaries and small scale contribute to the connection of the PA managers, farmers and local population to the area. This leads to a shared need to care for the area, in whichever way possible. This opens up the possibility for

different stakeholders to discuss management openly leading to more understanding and more flexibility on either side.

In the case of Öewersauer, these discussions between water supplier, farmers and PA managers led to technical solutions on the agricultural fields. Through the injection of slurry, manure could be used more efficiently and therefore less. Farmers didn't have any loss in production and the water and soil quality improved. Of course, farmers didn't become more extensive, but it can be seen as a win for water, nature and agriculture, nevertheless.

People that adhere to this paradigm understand that conventional agriculture also has its value, not only biodiversity and nature conservation. This paradigm and the previous paradigm can be the explanation for the disagreement on the controversial statements in the survey by PA managers: one side is more critical towards conventional farming and its negative impact and the other is more understanding of the different values of conventional agriculture and the potentials for cooperation.

This approach is quite popular in literature as it is a rather novel and inclusive approach to land planning (Morgan et al., 2020). Because of its newness, there are also a few shortcomings. There is still a limited theoretical and conceptual basis and a variety of different principles are still being tested. Moreover, a landscape is a very complex entity with sometimes unclear borders and stakeholders. And if you manage to map the stakeholders, the second challenge is to involve them in PA governance. Morgan et al. (2020) identifies three major pillars for effective management: ecosystem integrity, strong governance systems and effective planning processes.

Market paradigm

Farmers do not only farm the way they do because they want to. Farmers are only a small part of a large and complex food chain. In Luxembourg, many farmers cannot become organic because the country only buys the less expensive organic products from abroad. Moreover, the true cost price of food products is often higher than the market price. These types of issues should be addressed before farmers can change their business models. The statement that the entire market should be addressed when it comes to sustainable agriculture was the most strongly agreed to statement in the survey, which indicates that all survey respondents to some extent adhere to this paradigm.

In the case of Schiermonnikoog, farmers want to create their own local, sustainable and high quality dairy products. In order to attract customers for these types of products, the national park should do its share in promotion and information-sharing. This has the added advantage of creating awareness of consumers on where food products come from and what the true cost price of a product is.

The section above sums up three different paradigms found in the responses of this analysis. When thinking about these different lenses through which you can look at PAs and conventional agriculture, it is important to consider that these are paradigms derived from only PA managers. When working in a landscape with many different stakeholders, there will be many more perspectives to deal with. How to care for the landscape can differ for these stakeholders and understanding this will facilitate better communication.

6.4 What opportunities can be found to cooperate with conventional agriculture?

How to cooperate with farmers and what solutions can be found for agriculture to become more sustainable will of course be different for each PA. Nevertheless, it can be useful to draw inspiration from best practices. Moreover, for the survey respondents that indicate a large share of conventional agriculture it is important to find ways to cooperate.

Whether a PA thinks it is in the interest of the farmers to have stricter environmental regulations or in the interest of the PA to work with intensive agriculture on technical solutions, it is important to understand stakeholders with different values, like farmers. A survey respondent noted that there is decades of mutual mistrust to bridge. Protected areas that have an open attitude towards conventional agriculture, just like conventional farmers that have an open attitude towards nature managers, are the pioneers for cooperation. Communication is the beginning of any type of cooperation and while that might seem redundant, it is actually very important to facilitate good communication.

The survey showed that many respondents already involve farmers in different ways, but that some are also critical to agriculture and its impact on nature. To approach farmers from a shared need to care for the landscape, or as mentioned above, the landscape paradigm, is often a more successful approach for cooperation between PAs and farmers. The case of Schiermonnikoog shows how a shared feeling of caring for the landscape can facilitate cooperation between stakeholders with different values. It is important to look for landscape features that connect communities.

Moreover, there is still a limited share of PAs that involve farmers in their governance structures. It can be very interesting to explore governance structures in which farmers have an advisory or even a co-decision-making role and to copy existing best practices. This can bring farmers and PAs more on an equal footing which can facilitate better communication and trust.

Through the lens of the landscape, PAs are open to discuss more technical solutions for agriculture, like the example of the slurry manure. These might not be drastic agricultural transformations, but they can improve soil and water quality and thus improve nature quality and ecosystem services.

Moreover, even though it is further away from PA management, it is important to consider the entire food production chain when talking about agriculture and opportunities for making it more sustainable. The cases in Luxembourg showed that many farmers want to become more sustainable, but that they are restrained by the market. PAs can use their visibility and educative position to promote local and sustainable produce to visitors and consumers. Shorter food production chains can be sustainable and profitable!

Each situation is different but there are already a plethora of initiatives in Europe on different types of cooperation projects for different landscapes. PAs don't have to reinvent the wheel: managers can look at the diversity of projects already there. The case on German insect conservation initiatives in agriculture is a good example of centralising sustainability practices for agriculture so that it is easier to copy successful existing initiatives.

6.5 Conclusions

Almost all PAs that are connected to agriculture are involving farmers in PA management. Yet, there are still different perceptions towards conventional agriculture. This makes sense because conventional agriculture can have a severe negative effect on biodiversity and nature quality. Nevertheless, by looking at the landscape more integrally and understanding the values of agriculture, PAs can create more opportunities for cooperation through e.g. technical innovations and win-win solutions. By doing this cooperatively with farmers, they can also create some understanding for soil quality, water quality and essentially quality of nature as an important landscape value.

Through their central roles in the landscapes, PAs can also offer visibility and respect of local societies and visitors towards farmers new markets for more sustainable and local agricultural products. The types of solutions are vast and differ for each PA and their context, but there is a lot to be learned from

each other, both in terms of projects and governance structures. It is important to stay open to these kinds of projects, and initiatives like the German insect conservation project are key.

EUROPARC Federation is already playing an important role in centralising best practices by collecting case studies in their knowledge hub on the website. Moreover, the connection between agriculture and nature is continuously explored and challenged in their agriculture and Pas commission and their advocacy work on EU policies such as the CAP and the Farm to Fork Strategy (Find more info [here](#)).

6.6 Recommendations

Based on these conclusions, some recommendations can be derived:

- As organisations that are used to looking at landscape systems integrally, PAs have the opportunity to build a bridge between agriculture and nature conservation if they **keep an open mind towards different values and paradigms**.
- Based on the survey, there are still different opinions of PAs on conventional agriculture. It is important and interesting to **discuss the fundamental differences between a stricter nature conservation paradigm and open-minded landscape paradigm** to find new insights and understanding.
- It is important to **explore technical solutions** for conventional agriculture that do not harm agricultural production or profit, but can increase soil and water quality and therefore the quality of nature.
- PAs should use their positions of visibility to **offer farmers new possible markets and facilitate local and sustainable consumption**. PAs recognise the importance of the entire market for sustainable food production, but focus less on retail and consumption. Moreover, through provision of information, PAs can create an understanding and respect for agriculture and food products by visitors.
- It would be interesting to explore ways to **involve farmers in PA governance structures** as co-decision makers or advising roles in PAs. This can increase mutual understanding and respect between farmers and PAs which can facilitate trust, communication and new possibilities for cooperation.
- There are already many wonderful initiatives on different cooperative projects between PAs and agriculture. It is important to **keep collecting and centralising best practices and new ideas**, especially concerning retail and consumption, technical agricultural solutions and governance structures that involve farmers.
- Finally, it is important to continue to advocate for **sustainability priorities, sufficient finances and transparency in EU agriculture policies like the CAP and the implementation of the Farm to Fork strategy**. CAP funding now still goes to contradictory sources, whilst it is supposed to be public money for public goods. Moreover, make sure the policies are **result-based** so that farmers have the flexibility to figure out financially profitable ways to become more sustainable.

6.7 Webinar

EUROPARC Federation hosted a webinar on 30/03/2021 on the topic of protected areas and conventional agriculture. Here, the results, together with two case studies were presented and discussed. First of all, there was no hard criticism towards the conclusions and the recommendations of this analysis. Nevertheless, there was a difference in perception on the main purpose of PAs in Europe: is it purely nature protection or more multifunctional. This stresses the need to keep communicating openly between PAs and the paradigms they adhere to.

The webinar, in its content highlighted the joint efforts that are being done by farmers and Protected Area Managers to find common solutions that fit different objectives and confirmed the crucial importance of establishing trust and equal level relation between the different parties, as strongly underlined by the case study areas and their presentations. Finally, the closing speaker reminded the audience of the responsibility that we, as consumers, have when choosing eco-friendly food and paying a fair price.

There was a lot of interest from the guests in how to approach farmers. Participants were afraid of reluctancy of farmers and there were questions on examples of technical solutions and communication strategies. These will be different for each area, but it is important to keep discussing best practices and lessons learned from events such as these to gain new insights and try new behaviours in different settings.

Finally, it is important to keep reminding people about their paradigm in a world full of different paradigms in which 'good care for the landscape' can be different things.

Sources:

- Aarts, N., Ruysenaars, B., & Steuten, C. D. M. (2015). Natuur en beleid betwist: een analyse van de aard en het verloop van online discussies over implementatie van natuurbeleid in Nederland (No. 9). Wetenschappelijke Raad voor het Regeringsbeleid.
- Brommi (2020). Gemeinsam Insekten schützen. Retrieved on 10-02-2020 from: <https://brommi.org/#Insektenschutz-massnahmen>
- Brown, S.R. (1989) A feeling for the organism: understanding and interpreting political subjectivity. *Operant Subjectivity* 12 (3/4) pp. 81–97
- Brown, S., & Rhoades, G. (2019). *Q methodology. Using Innovative Methods in Early Years Research: Beyond the Conventional*, 202.
- EUROPARC (2020), 1. EUROPARC AGRI PA COMMISSION. Retrieved on 10-03-2021 from: <https://www.euoparc.org/about-us/network/europarc-commissions/agriculture-protected-areas-commission/>
- EUROPARC (2020), 2. EUROPARC Knowledge hub. Retrieved on 10-03-2021 from: <https://www.euoparc.org/knowledge-hub/sustainable-agriculture/>
- EUROPARC (2020), 3. EUROPARC Case study Oewesauer: <https://www.euoparc.org/case-studies/cooperation-between-the-drinking-water-supplier-the-nature-park-and-farmers-to-protect-water-without-economic-disadvantages/>
- EUROPARC (2020), 4. EUROPARC Case study Schiermonnikoog. Retrieved on 10-03-2021 from: <https://www.euoparc.org/case-studies/biodiverse-farming-on-schiermonnikoog/>
- EUROPARC (2020), 5. EUROPARC Policy paper Protected Areas and Sustainable Agriculture. Retrieved on 10-03-2021 from: https://www.euoparc.org/wp-content/uploads/2018/03/Protected-Areas-and-Sustainable-Agriculture_Position-Paper_EUROPARC.pdf
- EUROPARC (2020), 6. Next webinar: Protected Areas and Conventional Agriculture: opportunities and challenges for cooperation. Retrieved on 30-03-2021 from: <https://www.euoparc.org/news/2021/03/next-webinar-protected-areas-and-conventional-agriculture-opportunities-and-challenges-for-cooperation/>
- European Commission. (2020), 1. *EU Biodiversity Strategy for 2030 Bringing nature back into our lives*. Retrieved on 03-03-2021 from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1590574123338&uri=CELEX:52020DC0380>
- European Commission. (2020), 2. The common agricultural policy at a glance. Retrieved on 24-03-2021 from https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_en
- European Commission. (2020), 3. Farm to Fork Strategy. Retrieved on 24-03-2021 from https://ec.europa.eu/food/farm2fork_en
- European Commission, DG Agriculture and Rural Development. (2018). *Land Cover Use*. Retrieved on 07-03-2021 from: https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/land-cover-use_en.pdf
- European Commission, DG Agriculture and Rural Development. (2019). *Market brief; organic farming in the EU*. Retrieved on 07-03-2021 from: https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/market-brief-organic-farming-in-the-eu_mar2019_en.pdf
- European Environmental Agency (2015) *De Europese landbouw: hoe maken we voedsel betaalbaar, gezond en 'groen'?*. Retrieved on 01-02-2021 from: <https://www.eea.europa.eu/nl/articles/de-europese-landbouw-hoe-maken>

- F.R.A.N.Z. (2020). Gemeinsam für mehr Vielfalt in der Agrarlandschaft. Retrieved on 10-03-2020 from: <https://www.franz-projekt.de/>
- Frigge, M., Hoaglin, D. C., & Iglewicz, B. (1989). Some implementations of the boxplot. *The American Statistician*, 43(1), 50-54.
- Frison, E. A. (2016). From uniformity to diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. Retrieved on 10-03-2021 from: <https://cgspace.cgiar.org/handle/10568/75659>
- Hondrila, K. (2020). Actionable knowledge for sustainability at the water-land nexus: An inquiry into governance and social learning in two river basins in Luxembourg. Retrieved on 10-03-2021 from: <https://orbilu.uni.lu/handle/10993/46488>
- Kanim, K. (2000) Q methodology – advantages and the disadvantages of this research method. *Journal of Community Nursing* 15 (4) pp. 8–12
- Koomen, E., Dekkers, J., & van Dijk, T. (2008). Open-space preservation in the Netherlands: Planning, practice and prospects. *Land use policy*, 25(3), 361-377.
- Kuhn, T. S. (2012). *The structure of scientific revolutions*. University of Chicago press.
- Matthews, M. R. (1993). Constructivism and science education: Some epistemological problems. *Journal of Science Education and Technology*, 2(1), 359-370.
- Morgan, E. A., Cadman, T., & Mackey, B. (2020). Integrating forest management across the landscape: a three pillar framework. *Journal of Environmental Planning and Management*, 1-35.
- Murphy, E. (1997). *Constructivism: From Philosophy to Practice*. Retrieved on 10-03-2021 from <https://eric.ed.gov/?id=ED444966>
- Qualtrics (2020). Qualtrics surveys. Retrieved on 02-02-2020 from www.qualtrics.com
- Shiva, V. (2019). *This is not a drill: an Extinction Rebellion handbook*. Penguin UK.
- Thomas, D.M. and R.T. Watson (2002) Q sorting and MIS research: a primer. *Communications of the Association of Information Systems* 8 (9) pp. 141–156
- Thomas S Kuhn, *The structure of scientific revolutions* (1st. ed., Chicago: Univ. of Chicago Press, 1962)
- Watson, J. E., Dudley, N., Segan, D. B., & Hockings, M. (2014). The performance and potential of protected areas. *Nature*, 515(7525), 67-73. <https://www.nature.com/articles/nature13947.pdf>

Appendix 1: Interview guide

**This interview guide should be used the following way: First, you address the respondent like written in the paragraph below. Then you ask some general questions about their involvement in either PA management or agriculture. The third part consists of specific questions about communication, cooperation between PAs and large conventional agricultural companies and the possible role of EUROPARC. The sub-questions are optional follow-up questions and do not have to be asked. Finally, a time schedule is coupled to each question section.*

Thank you for participating in this analysis. I am a master student from Wageningen University and I am now doing my graduating internship at EUROPARC Federation. Are you familiar with EUROPARC already? (Optional: Explain what EUROPARC is and does)
For this internship, I want to find out what the relationship between PAs and large conventional agricultural enterprises is like, how it can be improved and what role EUROPARC can play. I will take notes and send them to you afterwards so you can check if I missed something or interpreted it wrongly. Finally, the interview is anonymous so I will not use your name.

I will start with some general questions:

1. Can you introduce yourself briefly?

I now have some questions for you about cooperation between PAs and large conventional Agricultural companies:

2. What is your relationship with PA's and/or agriculture?
3. What is your opinion on PAs or agriculture?
4. How do you communicate with PA's and/or agriculture?
5. What can be improved in this communication?
6. What opportunities do you see for cooperation?

My final questions consider what EUROPARC can do to facilitate communication and cooperation between PA's and agriculture:

7. What role do you think EUROPARC should play in this cooperation?

This was my last question. Do you have anything to add that we didn't discuss?

If you are interested, I can send you the results when it is finished. Thank you for our time. If you have any questions or comments afterwards, please let me know.

Appendix 2 : Survey

The preview version of the survey can be found through this link:

https://qfreeaccountssjc1.az1.qualtrics.com/jfe/preview/SV_8jM6Ozwi1DnXDKZ?Q_CHL=preview&Q_SurveyVersionID=current