



AGRICULTURAL CONSERVATION OF NATURE: WHY DO FARMERS PARTICIPATE?

Reasons for farmers to execute Agri-environmental
measures in the Province of Overijssel

Arnold Kaashoek

Student number: 2204959

a.c.kaashoek@student.utwente.nl

Master Public Administration
Track: Sustainability

University of Twente:
First supervisor: Dr. P.J. Klok
Second supervisor: Dr. M. Arentsen

Supervisor from province of Overijssel:
Drs. O. Brandsma

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Preface

The report titled "Agricultural conservation of nature: why do farmers participate?" is in front of you. This research is commissioned by the province of Overijssel. Reason for this research is that the province of Overijssel wants to increase the number of participants in agricultural conservation of nature. In order to increase the amount of participants it is valuable to know what drives farmers and other landowners to participate. This research is conducted to fulfil the requirements for the Master of Public Administration at the University of Twente. From July 2019 to February 2020 I conducted research to find out what motivates farmers to participate in agricultural conservation of nature. This research included several interviews with stakeholders and a survey among farmers and land owners.

One year ago I was not aware of the existence of agricultural conservation of nature. Nevertheless, I always had an interest in nature and the policies connected to nature. Therefore I was interested in conducting research about the motivations and demotivation's of farmers to participate in agricultural conservation of nature. During my thesis I learned a lot about nature and what the province of Overijssel does to protect nature.

All this learning would not be possible without the help and advice of a number of people. First, I want to thank my supervisor from the province of Overijssel, Obe Brandsma. With his help I learned a lot about the policies regarding agricultural conservation of nature. In addition to that I would like to thank my supervisors from the University, Pieter-Jan Klok and Maarten Arentsen. Their feedback improved this research. Thirdly, I would like to thank everybody who cooperated in this research. I would like to thank all farmers and land owners for filling in the questionnaire. Next, I want to thank the stakeholders of agricultural conservation of nature, for example the agricultural collectives. They provided new insights and assisted in data collection.

Arnold Kaashoek
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Abstract

Agricultural conservation of nature involves the execution of voluntary measures by farmers and land owners on their land in order to improve or maintain the biodiversity on their land. The execution of these measures is compensated in the form of subsidies by the province of Overijssel. Measures of agricultural conservation of nature are usually executed by farmers, sometimes land owners or private persons owning some land. The amount of participation in agricultural conservation of nature is an important factor determining the extent of the effect on biodiversity. That is why this research aims to find out what motivates or demotivates farmers in the province of Overijssel to participate in agricultural conservation of nature.

An analysis of the current state of agricultural conservation of nature showed that different types of agricultural conservation of nature are applied by farmers and land owners in the province of Overijssel. In general measures of agricultural conservation of nature are divided into the following three habitat areas: open grassland, *droge dooradering* and category water. Open grassland mostly includes measures focussed on the protection of meadow birds. This habitat is mostly present in the northwest of Overijssel. Droge dooradering includes measures aimed at providing a habitat for birds and reptiles. Usually this involves measures in the form of maintaining landscape elements. The recently introduced category water involves measures aimed at the improvement of water and soil quality. Participants in this last category mostly reside in Noordoost Twente, the east of the province Overijssel. The number of participants in agricultural conservation of nature has fluctuated in recent years. After decreasing after 2011 the number of participants have been increasing since 2016.

From literature the four theoretical dimensions ability to participate, willingness to participate, social influences, and policy influences were derived to categorize the motivations and demotivation's of participants and non-participants to participate in agricultural conservation of nature. With regard to the willingness to participate farmers appeared to be participating for different reasons. Results of the survey show that financial reasons are a reason to participate for participants, nevertheless also a reason not to participate for non-participants. The majority of participants indicated to participate because they view the viability of the countryside as important. Predation (the eating of eggs and chickens by predators such as foxes) demotivated to participate for a small majority of non-participants. The fit between agricultural conservation of nature and the farm-management plan was both a reason to participate and a reason not to participate, when a lack of fit existed. With regard to the characteristics of the farm and the farmer participants and non-participants both appeared to have a similar status of succession and a similar amount of hectares in use. However, participants were on average older and more experienced in managing a farm than non-participants in agricultural conservation of nature.

On the subject of social influences a majority of both participants and non-participants indicated to perceive no pressure from society or farmers to participate. Nevertheless, results of the survey indicated that a majority of participants indicated to participate to show sustainability in the sense of agricultural conservation of nature to civilians. A small majority of participants even participated to improve their image towards civilians. With regard to policy influences a majority of participants in agricultural conservation of nature is satisfied with the work of the agricultural collectives. Additionally, a small majority of participants is satisfied with the current financial compensation for executing agricultural conservation of nature. On the subject of results of agricultural conservation of nature a majority of participants in agricultural conservation of nature wants more (policy) room to combat predators.

Table of contents

1. Introduction	5
2. Theoretical framework	7
2.1 Literature review.....	7
2.2 Conceptualization of variables.....	9
2.3 Hypotheses	11
3. Methodology.....	12
3.1 Operationalization	12
3.2 Data collection	12
3.3 Data analysis	13
3.4 Representativeness of the collected data (via survey)	14
3.5 Validity and reliability of this research	15
4. State of the art in agricultural conservation of nature in the province of Overijssel	16
4.1 Policies regarding agricultural conservation of nature.....	16
4.1.1 The past policies.....	16
4.1.2 Present policies	16
4.1.3 Budget.....	18
4.2 Defining agricultural conservation of nature.....	19
4.3 Participation of farmers in agricultural conservation of nature	20
4.3.1 Habitats in agricultural conservation of nature	20
4.3.2 State of the art in participation of farmers in agricultural conservation of nature.....	21
4.3.3 Subsidies for conservation	23
5. What motivates farmers to participate or not?.....	25
5.1 Distribution and participation in interviews and survey.....	25
5.2 Advantages and disadvantages of agricultural conservation of nature	26
5.3 Motivations and demotivation's to participate	27
5.3.1 Willingness to participate	27
5.3.2 Ability to participate	30
5.3.3 Social influences.....	34
5.3.4 Policy influences.....	39
6. Conclusion.....	43

7. Discussion.....	44
7.1 Comparison with other research	44
7.2 Limitations.....	46
7.3 Recommendations	47
Bibliography	49
Appendixes:.....	54
Appendix 1: Operationalization and hypotheses.....	54
Appendix 2: Compensations per year for the different conservation packages.	57
Appendix 3: Hectares agricultural conservation of nature in 2019 in the province of Overijssel (ANLb)	61

1. Introduction

The biggest part of the rural area in the Netherlands consists of agricultural land (2,4 million hectares) (CBS, 2016). According to the OECD (2015) the Dutch agriculture produces a high agricultural value per hectare farming land, compared with other countries. This high production is, among other factors, caused by controlling nature and aiming the environment towards agriculture (Grin et al., 2015). As a reaction on this way of farming a number of stakeholders promoted nature inclusive farming (Van Doorn et al., 2016). Nature inclusive farming is part of the new Dutch nature policy, which emphasizes the role of market and society (Rijksoverheid, 2019). As a part of this nature inclusive farming farmers execute agricultural conservation of nature, consisting of measures farmers take in order to maintain and improve biodiversity and the quality of the landscape.

According to BoerenNatuur, the central organization of agricultural collectives, 9,492 of circa 54,000 farmers participated with circa 80.000 hectares in agricultural conservation of nature in 2018 (Boerderij, 2019). Government institutions aim to increase this participation by providing subsidies to farmers executing agricultural conservation of nature. This so called agricultural conservation mostly takes place in the form of agri-environmental schemes (AES). These AES have been among the most important EU policy instruments in rural areas in motivating farmers to improve environmental conditions (Vesterager et al., 2016). They are part of the Rural Development Program (RDP), a national plan which supports farmers' income and farm continuity and regulates the impact of agricultural production in the European environment (European Commission, 2015). For AES to be effective, and have a clear and positive effect on biodiversity, programs have to attain sufficient participation by farmers across a landscape (Merkcx et al., 2009). Therefore, the main research question is:

“Why do farmers participate or not in agricultural conservation of nature in the province of Overijssel?”

Factors affecting the participation of farmers in agricultural conservation of nature will be the focus of this research. Implementation of subsidised measures to protect biodiversity is voluntary for farmers. In order to know which policy instruments are suitable in stimulating farmers to participate, research will be performed about the factors affecting the participation of farmers in agricultural conservation of nature. Therefore the main goal of this research is to gain insight in the motivations and demotivation's of farmers in the province of Overijssel to participate in agricultural conservation of nature. This main goal will be accomplished by answering the following four sub-questions:

1. What is understood by agricultural conservation of nature?
2. What kind of agricultural conservation of nature is applied by farmers in the province of Overijssel?
3. What are the advantages and disadvantages for farmers regarding agricultural conservation of nature?
4. What factors motivate or demotivate farmers in the province of Overijssel to participate in agricultural conservation of nature?

Relevance of this research

This research aims to find out what factors motivate or demotivate farmers to participate in the agricultural conservation of nature. By finding out what stimulates or restricts farmers to participate, the province of Overijssel gains insight in possible policy instruments which can be used to stimulate participation. In addition to that this research can be used to show the opinions and concerns of the farmers regarding agricultural conservation of nature. By testing the existence of relationships between a number of factors and participation a theoretical framework can be formed, which can be of added value to science. Current existing literature already confirmed relationships between a number of

factors and participation, however focused on farmers in different regions and on older policies regarding agricultural conservation of nature. Therefore, this research is able to add value to science.

2. Theoretical framework

This chapter elaborates on the relevant theory on the subject of agricultural conservation of nature.

2.1 Literature review

In order to elaborate on the topic of factors affecting participation of farmers in agricultural conservation of nature the relevant literature is reviewed.

Factors affecting participation in agricultural conservation can be divided in different categories. According to the theory of planned behaviour of Ajzen (1991) behavioural intentions can be predicted via: attitude, subjective norms and perceived behavioural control. Siebert et al. (2006) uses this theory in dividing factors affecting European farmers' participation in biodiversity enhancing practices. The factors are divided in four categories: (1) factors affecting farmers' willingness to participate; (2) factors affecting farmers' ability to participate; (3) more general social influences and (4) the effect of policy. The authors stress the importance to view support for practices oriented towards biodiversity protection not as a situation determined by one or several influencing factors – but rather as a process marked by interaction. Siebert et al. (2006) argued that financial compensation is necessary, however not sufficient on its own. The following paragraphs will elaborate on the four categories of factors affecting participation of farmers in agricultural conservation of nature.

Willingness of farmers to participate

Factors affecting farmers' willingness to participate generally consist of the attitude of farmers towards agricultural conservation of nature and economic incentives. Fielden et al. (2008) connected the previously mentioned theory of planned behaviour with participation in sustainable agricultural practices. According to Fielden et al. (2008) farmers which tend to be more positive and have a bigger feeling of control over agricultural conservation of nature, are more willing to participate in sustainable agricultural practices. From research of Wilson and Hart (2000) economic incentives appeared to be the most important reasons for farmers to participate in agricultural conservation of nature. In addition to that respondents mentioned security of income and the suitability of conservation with the current development plans of the farm (goodness of fit) as reasons to participate. However the non-participants mentioned the (un)suitability of conservation with the current farm-management plans also as a reason not to participate in agricultural conservation of nature (Wilson & Hart, 2000). According to Siebert et al. (2006) economic motives are usually accompanied by other factors, such as the wish to promote environmental conservation.

Ability of farmers to participate

The ability of farmers to participate is influenced by type of organisation, the biogeographical conditions and the characteristics of the farmer. According to Sanders et al. (2002) the participation of farmers differs per type of organisation. Especially the farms with grazing animals and the mixed farms, with both grazing animals and arable farming, participate in agricultural conservation of nature. Other types of organisations, such as arable farms, intensive livestock farms and horticulture have less possibilities to participate in agricultural conservation of nature (Sanders et al., 2002). Brotherton (1989, 1991) mentions the characteristics of the farm and the farmer, for example his age, education, status of succession and the intensity of the farm, as important determinants influencing participation. Wilson et al. (1997) adds that information available to the farmer about conservation of nature is an important factor affecting participation. With regard to information Van der Meulen (1996) mentions that present knowledge, available machines and labour influence the participation of farmers in agricultural conservation of nature. In addition to the previously mentioned factors, it is important to mention the

role of the collectives. Farmers can decide to participate, however the agricultural collectives decide if farmers actually can participate. Section 4.1 will elaborate on that.

An analysis of the characteristics of different farms with and without participation in agricultural conservation of nature shows that participating farms do relatively well compared to non-participants. De Snoo et al. (2016) actualised research from Voskuilen and De Koeijer (2006) about characteristics of participating and non-participating farms. This comparison showed that farms with agricultural conservation of nature have a lower farm intensity than farms not participating in 2013. However, participating farms had a higher income than non-participating farms. On average participants earned 62,000 per year, whereas non-participants earned 45,000. In addition to that the status of succession is better on participatory farms than on non-participating farms. The average age of farmers was in both groups almost the same, nevertheless the interest to take over the company was higher at participating farms – 47 percent compared to 33 percent of farmers being 55 years or older with a successor (De Snoo et al., 2016). In sum, they concluded that farmers executing agricultural conservation of nature had a lower intensity in their farming activities, nevertheless they had a better income and a better perspective of the future than farmers without agricultural conservation of nature.

Social influences

Social influences affecting participation of farmers are about direct social interaction and the (in)direct social influences. A number of authors mention the importance of the neighbouring farmers in deciding to participate in agricultural conservation of nature. Wilson et al. (1997) describes the social influences as the dynamics of regional agriculture and mentions innovation and neighbouring farmers as an important part of that. According to Fielding et al. (2008) participation of farmers is influenced by their relations with other farmers: it matters what neighbouring farmers think of certain ways of conservation and which measures they execute. In accordance with that Lokhorst et al. (2011) mention that farmers are more willing to participate once they feel that others in their environment appreciate conservation of nature. However, research of Oksanen (2003) showed that when farmers experienced pressure from the local community to take environmentally friendly measures, farmers opposed these measures, even though they were not against it.

More direct influences stem from relevant others and stakeholders of agricultural conservation of nature. Westerink et al. (2013) underline the importance of the opinion of the so called relevant others regarding the motivation of farmers to participate. An example of a relevant other is Friesland-Campina, acting out of societal pressure or corporate social responsibility such organisations increasingly demand that their suppliers meet certain sustainability requirements. Sanders et al. (2002) add that the presence and activity of 'Agrarische Natuurverenigingen (ANV's)' leads to differences in presence of participation by farmers.

Effects of policy

The previously mentioned willingness and ability of farmers to participate in agricultural conservation of nature are influenced by the effects of policy. With regard to the policy design farmers prefer voluntary measures, inclusive direct payments for experienced costs (Lettman, 1995; Kroger, 2002; Kaljoenen, 2002). According to Aarts and Woerkum (1994) flexibility of the scheme is an important characteristic to the farmer, whether or not the farmer is able to assess if the characteristics of his/her farm are similar or can be adjusted to the prerequisites for participation of the scheme.

Brotherton (1989, 1991) acknowledges the length of the conservation agreements, the height of the financial compensation and the informing about agricultural conservation of nature by the government

as policy related factors influencing the willingness of farmers to participate. Greiner et al. (2015) found that farmers require a greater monetary incentive to sign up to longer contract periods. Additionally, farmers favour any type of flexibility in contractual agreements. According to Schrijver et al. (2008) the costs of agricultural conservation of nature increase above average, after a certain amount of hectares, because of the increasing amount of changes the farmer has to make in farm-management. The authors argue that these increasing costs will limit a larger participation in hectares per farmer. In the next section table 2.1 shows a summary of the factors affecting the participation of farmers in agricultural conservation of nature.

2.2 Conceptualization of variables

This section will elaborate on the meaning of the most important variables in this research. The variables will be conceptualized in order to clarify the meaning of the different concepts.

The dependent variable **agricultural conservation of nature** refers to farmers taking voluntary measures on their land, with subsidy of the government, to maintain and improve biodiversity and the quality of the landscape (Overijssel, 2019). According to the policy documents of the province of Overijssel (2019) the subsidised measures farmers can take are divided into four categories, referring to habitat types. First off, the so called *droge dooradering*, this type of conservation consists of networks of line shaped landscape-elements. Measures in this habitat type focus on (creation and) maintenance of elements in landscape, such as hedges and bushes. In addition to that it is about conservation of meadow borders, which are adjacent to the *dooradering* (green or blue elements such as hedges or ditches). The second category is open grassland. Measures of this type of conservation are focused on survival of meadow birds' nests and chickens. For example, the farmer mows around nests of meadow birds such as the black-tailed godwit. Open akkerland is the third habitat type of agricultural conservation. Examples of measures are creating nourishment fields in winter or improving biodiversity on the borders of farm land. In the province of Overijssel agricultural conservation of nature is present on a small scale regarding the type open akkerland (Overijssel, 2019). Participation in conservation in this habitat type is only possible in a few areas. The last category focusses on the quality of soil and water. In this case water management is about conservation focused on valuable waters on agricultural ground. Participation in this form of conservation is relatively small, because this form of agricultural conservation of nature is relatively new.

Another variable of interest is the variable **participation in** (agricultural conservation of nature). A farmer is seen as participating when he/she sees himself as someone executing measures in order to improve or maintain biodiversity on his/her land. This participation is then divided by how the farmer is rewarded for his/her participation. Some farmers are not rewarded, nevertheless execute measures to improve biodiversity without getting any rewards (Van Dijk et al., 2016). When a farmer is rewarded for executing measures, two types of rewards are common. First, dairy farmers are rewarded by purchasers of dairy, such as Friesland Campina and Rouveen Kaasspecialiteiten, via bonus-malus systems. These dairy organisations reward dairy farmers for executing agricultural conservation of nature by giving a higher price per litre milk (Runhaar et al., 2017). The most common way of rewarding participation in agricultural conservation of nature is via the subsidy scheme of the province of Overijssel, called *Agrarisch Natuur- en Landschapsbeheer (ANLb)*. Chapter 4 elaborates on the content of this scheme and the participation of farmers in Overijssel in this scheme.

As previously discussed, there are quite a lot of factors that affect the choice of farmers to participate or not in agricultural conservation of nature. These **factors affecting participation** are the independent variables of this research, since they affect the dependent variable participation. According to Siebert et al. (2006) factors affecting the participation of farmers in biodiversity policies can be divided in to the previously mentioned four categories. These four categories are divided in a number of relevant indicators, as shown in table 2.1.

Dimensions of factors affecting participation:	Indicators/factors affecting participation
<u>Dimension 1: Factors affecting willingness to participate</u>	
1.1 Attitude of farmers towards agricultural conservation of nature	Interest of the farmer in agricultural conservation of nature
	Awareness of the farmer regarding agricultural conservation of nature
	Experience with seeing results from agricultural conservation of nature
	Perception of predation (the consumption of eggs and chickens of birds by predators such as foxes) keeping from participation
	Importance of liveability of countryside
1.2 Economic incentives	Participates or not because of financial reasons
	Suitability with the farm-management plans
	Suitability with future farm development plans
<u>Dimension 2: Factors affecting the ability of farmers to participate</u>	
2.1 Type and organisation of the farm	Type of farm (conceptualised before)
	Size in hectares of land (hectares of land in use)
2.2 Characteristics of the farmer	Age of the respondent
	Status of succession
	Extent to which farmer has enough time to execute conservation
	Experience in farm management, measured in years of managing a farm
	Experience with executing agricultural conservation of nature (in years)
	Perception of having enough knowledge to execute agricultural conservation of nature.
<u>Dimension 3: Social influences</u>	
3.1 Direct social influences	Pressure from neighbouring farmers to participate
	Rewards received upon participation in agricultural conservation of nature
	Activity of environmental cooperatives / collectives on participation
	Satisfaction about the provided information about conservation of nature
	Satisfaction with the work of the environmental cooperatives
3.2 General social influences	Participating to improve the image of farmers
	Participating to show that farmers act sustainable
<u>Dimension 4: Policy influences</u>	
4.1 Design of policy instruments	Satisfaction with current policy on predation
	Position of respondent towards current policies concerning (combating) predation
	Satisfaction with the flexibility of conservation contracts
4.2 Content of policy instruments	Satisfaction of farmers with the financial compensation (subsidy) for executing agricultural conservation of nature
	Perception about the amount of rules limiting participation

Table 2.1: Factors affecting participation in agricultural conservation of nature

2.3 Hypotheses

Based on the framework and literature a number of hypotheses can be formulated. With regard to willingness to participate it is hypothesized that the fit between agricultural conservation of nature and the farm-management plan is both a reason for participation and non-participation. This hypothesis is based on previously mentioned research of Wilson & Hart (2000), they argue that this is an important reason for participation and non-participation.

On the topic of ability to participate it is expected that the perception of available time and knowledge is positively related to participation, because this is what Van der Meulen et al. (1996) and Greiner et al. (2015) found as important determinants of participation. Based on research of De Snoo et al. (2016) it is estimated that participants in agricultural conservation of nature have a better status of succession.

With regard to the social influences it is expected that the environmental cooperatives (collectives) have a positive effect on participation. This hypothesis is based on research of Van Dijk et al. (2015), because they found a positive relationship between the amount of facilitation offered by the environmental cooperatives and the intention of farmers to conserve.

The policy aspect that is expected to be mentioned frequently by farmers is the current policy regarding predation. The population of meadow birds is affected by predation, meaning that predators such as foxes eat eggs and chickens of meadow birds and thereby affect the population of meadow birds (Teunissen et al., 2008). Since this affects the results of the measures farmers take to improve biodiversity, it is expected that predation can keep from participation in agricultural conservation of nature.

3. Methodology

This section elaborates on the operationalisation, collection and analysis of the data. After the operationalisation, section 3.2 elaborates on the collection of the necessary data to answer the main research question: “Why do farmers participate or not in agricultural conservation of nature in the province of Overijssel?”. Section 3.3 about the data-analysis contains a short description and argumentation of the procedures for data analysis. Subsequently the representativeness, validity and reliability of this research are discussed.

3.1 Operationalization

Operationalization is about the process of measuring a concept. In this case it involves the kind of questions that are asked in the survey based on theoretical constructs or on interviews. Section 2.2 mentioned the four theoretical dimensions. These dimensions were divided by a number of indicators. The indicators mentioned in that section are operationalized with the help of literature and the interviews. The items connected to these indicators can be found in appendix 1. This first appendix clarifies per survey question its origin. In short, the questions of the survey are divided by the four dimensions willingness to participate, ability to participate, social influences and policy influences.

3.2 Data collection

The collection of the relevant data differs per sub-question. The data regarding the first sub-question about the understanding of the concept agricultural conservation of nature data is collected via a literature review. Data for the second question about the ways to execute agricultural conservation of nature is collected via literature review and the survey, however the only relevant part of the survey, regarding this sub-question, is the earlier on specified type of participation. The qualitative data to answer the third sub-question about the disadvantages and advantages is collected via interviews with stakeholders of the agricultural conservation of nature. Stakeholders are staff members of the province of Overijssel, representatives of the agricultural collectives in Overijssel, agricultural nature associations (ANV's) and farmers in the province of Overijssel. The semi-structured interviews are meant to create a general insight in motivations of farmers to participate or not to participate in agricultural conservation of nature. Not all factors mentioned in table 2.1 are discussed in the interviews, the questions were asked on a general level about their perceptions of motivations and restrictions regarding participation. Most importantly, these interviews are used in creating the questions for the survey. In addition to that the interviews are used to elaborate and explain the results of the survey (see chapter 5).

Lastly the fourth sub-question about what motivates or demotivates the farmers to participate is about quantitative data. This data is collected via an online survey, held among farmers in the province of Overijssel. An online survey was chosen, because this was expected to be most convenient for respondents. These respondents are divided in participants and non-participants in agricultural conservation of nature in order to make comparisons between participants and non-participants. Due to the fact that it is not always possible to know from the start if the respondent is a participant or not, the survey is constructed in such a way that it can be filled in by either a participant or a non-participant. This means that the survey asks questions about participation, after answering these questions the split between participant and non-participant is made in the data-collection. In addition to that, participants are divided in the data-collection by their type of participation in agricultural conservation of nature, namely *droge dooradering*, *open grassland* and *open akkerland*. This is done, because it is expected that the motivations differ per type of conservation, since the work differs per type.

The survey aims to confirm or deny causal relations between factors (mentioned in table 2.1) and participation of farmers in agricultural conservation of nature. According to the CBS (2019) the total population of farms in the province of Overijssel is circa 6,800, which amount participates in agricultural conservation of nature is not yet clear. Of this total of 6,800 companies 1,000 are excluded, since the characteristics of these companies make it unlikely to participate in agricultural conservation of nature. This means that circa 5,800 companies in the province of Overijssel can execute agricultural conservation of nature. The survey is distributed via the three collectives of the province of Overijssel, members of these collectives are all participants in agricultural conservation of nature. With regards to the approach of the population non-participants, this is done via the Land en Tuinbouw Organisatie (LTO), representing their members which are for the most part farmers. The main goal of the survey is to test causal relationships, so this survey does not aim to have a representative sample. However section 3.4 will pay attention to comparing the sample with the population of farmers in Overijssel in order to know if generalizations for the province of Overijssel can be made.

3.3 Data analysis

For each sub-question the collected data is analysed in a different way. The first conceptual sub-question about the meaning of agricultural conservation of nature is answered via literature and interviews with stakeholders in agricultural conservation of nature. The transcripts of the interviews are coded and analysed.

To answer the second and third sub-question, about the different ways of agricultural conservation of nature and their advantages and disadvantages, desk- and field research is done. Relevant policy documents and literature is examined and interviews are held to gain insight in measures related to agricultural conservation of nature. The concepts mentioned in policy documents and the interviews are used in coding the transcripts of the interviews and in creating the questions for the survey.

With regard to the fourth sub-question, about the factors motivating or demotivating farmers to participate, quantitative data and qualitative data is analysed. As mentioned in table 2.1 the factors motivating farmers to participate in agricultural conservation of nature can be divided in the following categories (Siebert et al., 2006):

- Factors affecting farmers willingness to participate: quantitative data is collected via survey;
- Factors affecting farmers ability to participate: quantitative data is collected via survey;
- More general social influences: quantitative data is collected via survey;
- The effect of policy: qualitative data is collected via interviews (in the sense of perceptions of the respondents about concepts and norms and values) and quantitative data is collected via survey and via interview (by using coding, for example respondent mentioned subsidy as reason for participation x number of times).

To find out which factors affect participation the mean of the answers and percentage of agreement on the statements of the survey are calculated. Answers on survey questions posed as statements range from totally disagree, disagree, neutral, agree and totally agree, just as in a 5-point Likert-scale. When the mean is lower than 3 (on a 5 point Likert scale) and the percentage of agreement is lower than 50, the factor is considered not relevant for explaining the participation in agricultural conservation of nature. A mean lower than 3 is chosen, because this means that the respondents mainly answered that he disagreed or remained neutral about a certain factor influencing his decision to participate. With regard to indicating the strength of factors the previous process is done the other way around. When a factor scores high on a certain question with an answer as agree or totally agree, this means that the factor is perceived to have a high influence on the participation of farmers. However, while doing this

the standard deviation is of importance, because there can be small groups within the population which deviate from general opinion (indicated by a high standard deviation).

With regard to describing the factors of ratio level, for example the years of experience in managing the farm, these factors will be described with the mean and the standard deviation. The independent T-test is used in order to find out if the differences between participants and non-participants are significant. That way differences between participants and non-participants of agricultural conservation of nature become clear.

3.4 Representativeness of the collected data (via survey)

Before elaborating on the representativeness of the collected data the response of the survey is shortly discussed. As mentioned before the survey is distributed via four different channels. This resulted in 139 respondents filling in the survey. The response rate of LTO Noord is difficult to calculate, since this organisation used a newsletter and social media to distribute the survey. The collectives Noordwest Overijssel and Midden Overijssel distributed the survey via their newsletter and obtained a response of 4% and 8%. The collective Noordoost Twente distributed the survey via a direct mail to their members, resulting in a response of 22%. Taking this together the total response is circa 12%. Section 5.1 elaborates on the type of respondents.

In order to know if the sample is representative for the population of farmers in the province of Overijssel a few comparisons are made between the sample and the total population. The main goal of the survey is to find out the most important motives for participation and non-participation. That is why the representativeness is important in order to know which motives are important for which part of the population. The sample contains:

- 54 dairy farmers;
- 11 arable farmers;
- 32 mixed farms with both keeping animals and harvesting crops;
- 24 private land owners;
- 3 pig farm;
- 15 other.

On the one hand this diversity in the sample makes it easier to make generalizations about the sample, but on the other hand the small number per group makes it harder to say something about a type of farm. The average amount of hectares per farm is 36 (std. dev.= 31) in the sample, this is comparable with the 29 hectares per company in the total population in the province of Overijssel (CBS, 2016). The standard deviation of 31 is high, because the amount of hectares in use differs from 1 to 150. Quite a large group of respondents (23 out of 102) owns less than 10 hectares. Further investigation of the data shows that this group mostly consists of private persons owning some land. On the other hand, large farms with more than 50 hectares are mostly dairy farmers (20 out of 26) and sometimes arable farmers or mixed farms.

As mentioned before the response rate is quite low, meaning that only a small part of the total population is represented in the sample. This makes it harder to say something about the whole population. It is possible that the share of people interested in agricultural conservation of nature is quite large in the sample, compared to those not interested. The sample contained relatively much participants in agricultural conservation of nature, respectively 101 out of the total 139 respondents. According the Netherlands Enterprise Agency (NEA) 833 out of circa 5,000 potential participants (17%) in Overijssel actually participated in agricultural conservation of nature in 2019 (NEA, 2019). In other

words, the sample differs from the actual population with regard to the proportion participants compared to non-participants in agricultural conservation of nature. In addition to that 62 out of 139 respondents is a member of the collective Noordoost Twente, meaning that being a member of that collective influenced the results.

3.5 Validity and reliability of this research

Validity in general refers to measuring what you want to measure. Content validity refers to 'the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration' (Babbie, 2013). Covering the range of meanings within a concept, content validity, is improved by asking a number of people (supervisors and agricultural collectives in Overijssel) to evaluate and advise on the operationalization and (survey) questions. Regarding validity in general the response bias can be an issue, which means that respondents tend to give social desirable answers. In order to reduce this the survey is anonymized.

The internal validity, the extent to which a causal conclusion based on a study is justified, can be an issue, because other (excluded) factors could influence the participation of farmers in agricultural conservation of nature and thereby give an alternative explanation for the relationship found. To improve the internal validity, many factors are included which were derived from previous research and literature.

The external validity refers to the extent to which the results can be generalized to and across other situations. In this case it refers to generalizing the results of the sample to the population of farmers in the province of Overijssel. The comparisons of section 3.3 showed that the sample and the total population are relatively similar on a number of characteristics. Nevertheless, a majority of the respondents is a member of the collective Noordoost Twente. This collective resides in a region with different possibilities for conservation than the region in the northwest of Overijssel. Section 5.1 elaborates on the types of conservation respondents execute. Taking this into account the external validity of the sample towards the population in Overijssel seems to be of an average level.

Reliability refers to obtaining the same results after repeating the study. The reliability of the survey can be an issue, since the Likert-scale is used in categorising the answers ranging from 1 to 5. When a respondent answers 2 (disagree) or 4 (agree) the reliability can decrease, because respondents might have different ideas about the difference between the answers agree and fully agree. The reliability is improved by mostly asking closed questions in the survey, meaning that every respondent has the same answers to choose from. Later on in the discussion of this paper the reliability of the survey and interviews will be reviewed as well.

4. State of the art in agricultural conservation of nature in the province of Overijssel

Before understanding the reasons of farmers to participate in agricultural conservation of nature it is necessary to understand the background of agricultural conservation of nature in the Netherlands and especially in the province of Overijssel. For that reason this chapter provides information about the relevant policies and participation regarding agricultural conservation of nature.

4.1 Policies regarding agricultural conservation of nature

This section elaborates on the past and current policies regarding agricultural conservation of nature.

4.1.1 The past policies

Policies in the agricultural sector in the past sixty years are characterized by shifting between dividing and connecting nature and agriculture. After the second World War the focus was on the production of food. However, due to the success of this, production surplus of food arose. In addition to that the intensification of agriculture led to environmental problems (Algemene Rekenkamer, 1990). As a reaction on that the government published the *Relatienota* in 1975. One of the goals of this *Relatienota* was protection of nature (100,000 hectares), however without creating reserves. This protection of nature would be achieved by inviting farmers to voluntarily contribute to conservation of nature. In order to contribute to the conservation of nature farmers could choose a conservation package and additionally conclude a contract with the government to ensure commitment and subsidy.

Regarding the concluding of conservation contracts a shift took place between an individual and a collective approach: at the start individual contracts between farmers and the government were present, whereas since 2015 a collective approach took over. Since 2015 all contracts were made between farmers and the collectives. In 2016 the new scheme Agrarisch Natuur en Landschapsbeheer (ANLb) took over the old scheme Subsidiestelsel Natuur en Landschapsbeheer (SNL). The new scheme was meant to decrease bureaucracy and increase the effectivity of the agricultural conservation of nature (De Snoo et. al., 2016). According to the ex-ante evaluation of Melman et al. (2016) the effectivity of the new scheme (policy system) is higher than in the old system. Rijnhaar et al. (2017) add that the new scheme has a better quality than the old scheme, in the sense of a higher ecological ambition than before.

4.1.2 Present policies

In the past the national government was responsible for agricultural conservation of nature. This changed in 2007, when the provinces became responsible. De Snoo et. al. (2016) argue that after the decentralization of the directive powers from the national government to the provinces in 2007, the policy came closer to farmers. On the other hand, this decentralisation creates the threat of a lack of nationwide synchronization of priorities. The provinces are responsible for the realisation and execution of the (agricultural) nature policy, however the national government is still responsible towards Europe on European nature goals (De Snoo et. al., 2016).

The province (of Overijssel) maps the possibilities for subsidy via their nature conservation plan (*Natuurbeheerplan*). This plan describes where in the province of Overijssel what kind of nature is present and what kind of conservational goals apply to these areas. On the subject of agricultural conservation of nature the province of Overijssel strives to preserve a number of species which are of

international importance. In order to be ecologically effective a number of habitats have been defined in the rural area. In these habitats it is possible to apply agricultural conservation of nature. These areas are chosen after consultations with the agricultural collectives and on the basis of current existing ecological capital (for example the amount of meadow birds). The implementation of the policies is a responsibility of the collectives. In the province of Overijssel these collectives are Noordwest-, Midden Overijssel and Noordoost-Twente. Application of the policies is done by means of guidelines mentioned in the nature conservation plan. Part of this application is that the collectives conclude agreements with farmers about agricultural conservation of nature at the hand of these guidelines.

Field operatives, employed by the collectives, consult with farmers about the possibilities of agricultural conservation of nature on their land. This consultation consists of contacting existing and potential participants and inform and advise them about agricultural conservation of nature. Participation is only possible when land of the participant is located in the previously mentioned habitats. When a participant decides to participate with a number of hectares of land then this is concluded in a contract. The field operatives aim to conclude contracts in such a way that connections between certain areas are made. Enforcement of these contracts is done by observing committees of the collectives. When the quality of conservation is considered low, the collectives can decide to terminate the conservation of nature (Collectives of Overijssel, 2019).

Part of the application of policies by the collectives is the yearly inventarisation of farmers interested in executing agricultural conservation of nature. The field operatives of the collectives perform conversations with farmers in order to find out their intentions of concluding contracts for conservation. With the results of this inventarisation a concept conservation plan is drawn up. Additionally, an area application is submitted once a year, in this plan collectives have elaborated on how they want to achieve the goals from the nature conservation plan (*Natuurbeheerplan*). The province (of Overijssel) consults on a regular basis with the collectives about the application on the hand of the conservation strategy and the conservation plan of the collectives. The areal application is submitted to the *Rijksdienst voor Ondernemend Nederland (RVO)* by the collectives. Subsequently, the province advises the RVO about the areal application. After that the province determines the available budget. The RVO then executes the payments to the participants of agricultural conservation of nature (Collectives of Overijssel, 2019).

This new way of working, the collectives exist since 2015, means that the policy gains more shape on headlines and more on an area level than on a parcel level. This is why the province registered the desired types of conservation in the provincial conservation of nature plan. Subsequently, the collective translates this (ecologically tested) to farms and parcels. Inside the habitats core areas have been selected on the basis of presence of certain species. The borders of these core areas have been sharpened in order to execute agricultural conservation of nature in these areas where it seems most effective (De Snoo et. al., 2016). As a consequence of that it is not possible for a farmer with land outside these habitats to execute subsidized agricultural conservation of nature. In figure 4.1 the subsidy map of the province of Overijssel is indicated. This map shows per region which habitats are present and therefore where subsidies for these habitats are possible. Green indicates open grassland, whereas cursive orange indicates open arable land and vertical orange indicates the habitat droge dooradering.

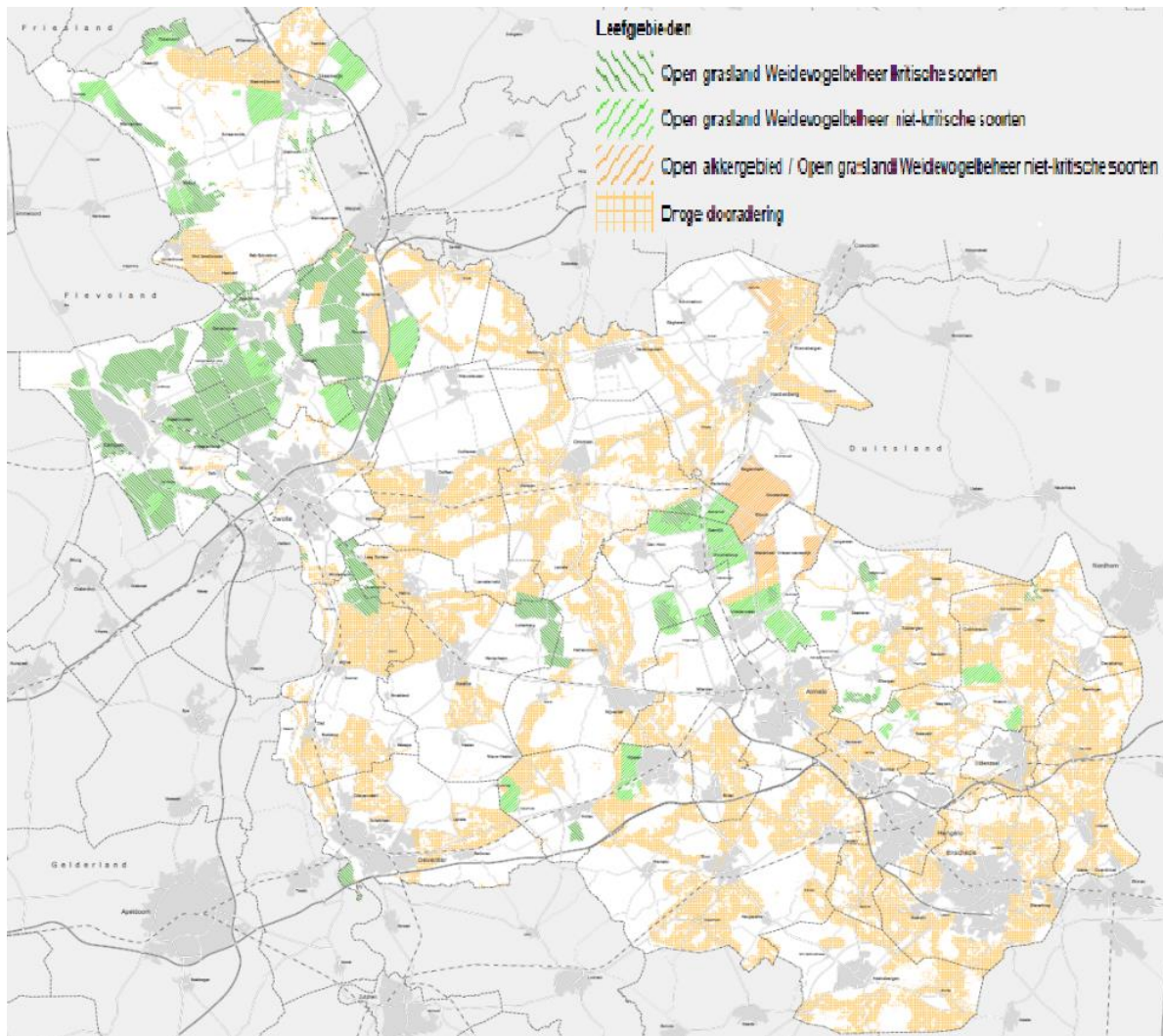


Figure 4.1: Subsidy map Overijssel, indicating the regions in which type of conservation can be subsidized

4.1.3 Budget

The subsidy for agricultural conservation of nature is financed by the Dutch government and the European Union. Half of this budget is financed by the European Union from the Common Agricultural Policy (CAP). This CAP consists of two pillars. The second pillar is relevant for agricultural conservation of nature, via this pillar 50% of the agricultural conservation of nature is financed. This financing from the EU implies obligations, the subsidies provided to farmers have to be justified. When it does not go by the rules of the EU, the conservation of nature will not be compensated (De Snoo et. al., 2016).

The budgets the collectives receive from the province are for a large part derived from budgets of the old subsidy scheme Natuur en Landschap. The collective Noordwest Overijssel receives a larger budget than other collectives, since a large amount of hectares was present in the old scheme. It has occurred before that a farmer could not conclude conservation contracts due to the reason that the budget in the collectives Midden Overijssel and Noordoost Twente could not support that. Other reasons for rejecting conservation of nature by farmers could be insufficient quality of land or conservation or the parcel of land was located in a place which the collective saw as unsuitable (Collectives of Overijssel, 2019).

4.2 Defining agricultural conservation of nature

This section elaborates on the different definitions of agricultural conservation of nature. The first sub-question “What is understood by agricultural conservation of nature?” will be answered in this section. Since 1990 the care for nature on agricultural land is referred to as agricultural conservation of nature (De Snoo et al., 2016). However definitions of agricultural conservation of nature differ per organisation. Bij12, the national organisation supporting the twelve provinces in executing policies, defines agricultural conservation of nature as: “Conservation on or adjacent to agricultural land focused on improving nature and/or landscape, inclusive water quality.”.

The perception of what is understood by agricultural conservation of nature differs from farmer to farmer. Research of Runhaar et al. (2018) shows that a large majority of the farmers voluntarily executes activities aimed at agricultural conservation of nature, even though they are not financially compensated for the execution of these measures. Examples of these activities are installing nesting boxes for owls, maintaining hedges and rows of trees. Of all 314 respondents 295 indicated he or she were making barns, sheds or other buildings accessible for swallows and other birds (Runhaar et al., 2018). This shows that different measures are executed by farmers even though they do not receive subsidies for these measures.

The University of Wageningen (2019) defines the concept as follows on their website: “Agricultural conservation of nature is a concept in which agricultural entrepreneurs take different measures on and around their company in favour of nature and landscape”.

In the book of De Snoo et.al. (2016) agricultural conservation of nature is defined in Dutch as: *“Agrarisch natuurbeheer betreft alle maatregelen die boeren en anderen op landbouwbedrijven nemen om te komen tot behoud of verbetering van de kwaliteit van natuur en landschap”* (De Snoo et. al., 2016, p. 26). This roughly translates to: Agricultural conservation of nature is about all measures taken by farmers and others on farms in order to preserve or improve the quality of nature and landscape. With the so called others, the authors refer to the possibility that conservation can be executed by volunteers or by co-operators such as water boards. The Central Bureau of Statistics (CBS) defines agricultural conservation of nature on their website in a similar way: “The development and maintenance of the values of nature and landscape on agricultural land, for example conservation of meadow birds, management of parcel borders and the maintenance of wooded banks.”

In literature agricultural conservation of nature is mostly referred to by mentioning Agri Environmental Schemes (AES). As a part of these schemes agri-environment measures are taken. These measures are defined by the European Commission as: “agri-environment measures provide payments to farmers who subscribe, on a voluntary basis, to environmental commitments related to the preservation of the environment and maintaining the countryside” (European Commission, 2019). In short, the EC mentions that farmers get paid to perform activities in favour of the natural environment.

The current policy of the province of Overijssel regarding agricultural conservation of nature can be considered as an AES as well, since it provides payments to farmers executing measures. In section 4.1 the concept of agricultural conservation of nature was considered as something that can only be executed if it meets certain (policy) requirements. Only farmers situated in certain areas could receive subsidies when they execute agricultural conservation of nature. That way the effectiveness of measures is increased, since the measures focus on certain areas. Nevertheless, some farmers are excluded of participating in the subsidy scheme. Taking this into account the policy definition of agricultural conservation can be formulated as: Agricultural conservation of nature concerns measures, executed by farmers, focussed on maintaining or improving biodiversity in ecologically relevant areas.

Conclusion

The similarity in these definitions is that all cases mention the execution of measures in favour of biodiversity. Most definitions mention farmers as the executioners of these measures, however de Snoo et. al. (2016) added the group others. Additionally, most definitions limit themselves by just mentioning the word measures, whereas the CBS is more concrete in mentioning possible measures. This paper will continue to use the previously mentioned policy definition of agricultural conservation, since this paper mostly looks at participation in the subsidy scheme of the province of Overijssel. Nevertheless, participation in agricultural conservation of nature in another way than the subsidy scheme of the province of Overijssel is considered to be relevant as well. As mentioned before, a farmer is seen as participating in agricultural conservation of nature, when he sees himself as participating. That is why the survey, discussed in chapter 5, distinguishes between different forms of participation. This distinction is made, because some farmers can perceive themselves as participants, even though they are not rewarded for participation in agricultural conservation of nature.

4.3 Participation of farmers in agricultural conservation of nature

In order to answer the second sub-question: “What kind of agricultural conservation of nature is applied by farmers in the province of Overijssel?”. This section will elaborate on the habitats defined in agricultural conservation of nature. In addition to that the subsidies provided for agricultural conservation of nature will be discussed. Further on the background of the participants is described. This section only deals with participation in agricultural conservation of nature which is rewarded with subsidy from the province of Overijssel. It excludes participation without compensation or another form of compensation than subsidy from the province of Overijssel.

Before elaborating on the current situation of agricultural conservation of nature it has to be clarified who can participate in conservation. Obviously a participant has to own land in order to participate in agricultural conservation of nature. However, the occupation of the land owner differs per participant. Participants are usually dairy farmers, but can also farm goats, sheep, chickens or horses. In addition to that participants can be arable farmers harvesting crops. Another possibility is that a private person owns land in a rural area (which he or she hires out and) on which agricultural conservation of nature is practiced. These are all possible participants in agricultural conservation of nature. Further on they are referred to as participants or farmers.

4.3.1 Habitats in agricultural conservation of nature

The new subsidy scheme “Agrarisch Natuur en Landschapsbeheer (ANLb) started recently in 2016. The core of this system is an approach focussed on the habitats of (animal)species of international importance on the basis of a collective, area specific approach. The habitats are distinguished as follows: *open grassland*, *open akkerland* (refers to arable land), *droge dooradering* (refers to maintenance of landscape elements such as hedges) and *natte dooradering*. The province of Overijssel did not include the habitat *natte dooradering* as an independent habitat in their policy. Instead the potential habitats for species of *natte dooradering* are included under the habitats *open grassland* and *droge dooradering*. In addition to these habitats the category water is present and includes measures meant to improve the quality of water, and fertility of the soil in agricultural land. This category is relative new, since 2016 it is possible to conclude conservation contracts in this category (Overijssel, 2019).

In the province of Overijssel a variety of habitats exists (figure 4.1). In the northwest of Overijssel mainly the habitat *open grassland* is present. In the middle of Overijssel *open grassland* is present as well, but in addition to that the habitats *droge dooradering* and *open akkerland* are present. Regarding the

habitat *open akkerland* no conservation is present in the province of Overijssel in 2019, however a pilot involving this type of habitat will be started in 2020. In the region of northeast Twente (the east of Overijssel) the majority of conservation is present in the habitat *droge dooradering*. In addition to that, conservation contracts have been concluded in the relatively new category water (Province of Overijssel, 2019).

Concluding conservation contracts regarding agricultural conservation of nature can be done by farmers via the agricultural collectives in the province of Overijssel. Depending on the location of the land a farmer can approach collective Noordwest Overijssel, Midden Overijssel or Noordoost Twente. These collectives are responsible for composing a management plan. This management plan is based on the nature management plan of the province of Overijssel, wherein guidelines have been set regarding agricultural conservation of nature. The collectives are cooperation's of the 12 existing *Agrarische Natuurverenigingen* (ANVs) in Overijssel. These agricultural nature associations consist of members/farmers cooperating to execute or stimulate agricultural conservation of nature (Province of Overijssel, 2019). Section 4.1.2 already elaborated on the role of the collectives. The next section will go into detail about the current participation of farmers in agricultural conservation of nature.

4.3.2 State of the art in participation of farmers in agricultural conservation of nature

As shown in figure 4.2 the total amount of farms participating in agricultural conservation of nature has decreased in the last couple of years. However the amount of participatory farms in the province of Overijssel has fluctuated between 2008 and 2019 (CBS, 2016; RVO, 2019). As shown in figure 4.2 the participation has increased after 2008, decreased after 2011 and increased after 2016. This change in participation follows the countrywide trend of fluctuating participation in agricultural conservation of nature (Boonstra & van Nieuwenhuizen, 2019). According to Boonstra & van Nieuwenhuizen (2019), the introduction of the new system in 2015 played a role in the initial decrease of participants. They found that the countrywide number of participants in 2018 is almost at the same level as before the introduction of the new system.

Figure 4.2 shows that the amount of participants in the province of Overijssel is higher in 2019 than before the introduction of the new subsidy system. The increase in 2019 is mainly caused by extra resources for meadow bird protection, provided by the ministry of Agriculture, Nature and Food quality. The central organisation of the Dutch agricultural collectives, BoerenNatuur, reported that the amount of participants in the Netherlands was at 9.492 of the 53.910 in 2018 (Boerderij, 2019; CBS, 2019). In short, the amount of participants in agricultural conservation of nature is fluctuating on a provincial and national level, but increasing since 2016.

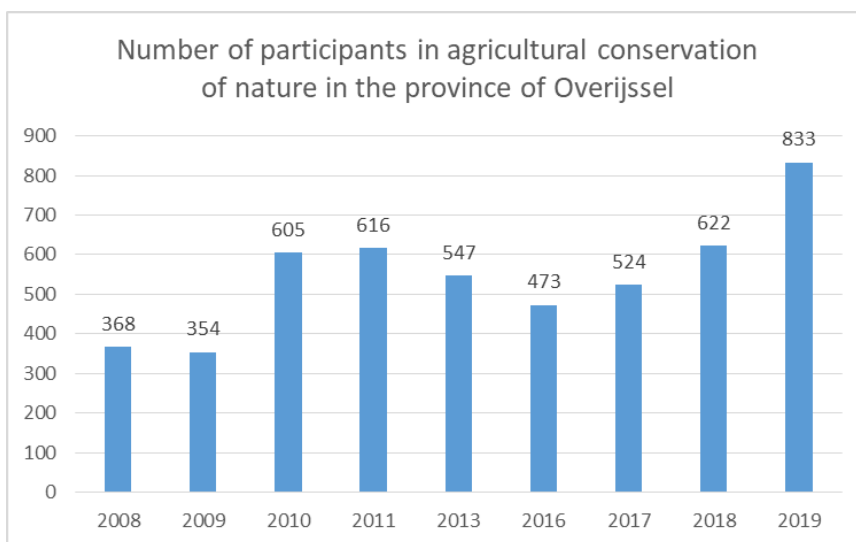


Figure 4.2: Number of participants in agricultural conservation of nature (CBS, 2016; RVO, 2019)

The number of hectares with agricultural conservation of nature fluctuated in recent years as well. The total amount of hectares of agricultural conservation was at circa 64,000 hectares in 1999. After a decrease after the year 2000 an increase in hectares appeared after 2009 till the total amount of almost 60,000 hectares in 2014 (CLO, 2015). However, comparing the amount of hectares between years is difficult, since the administration of hectares has undergone changes. In the past the development of the area of conservation was administered in hectares. With the introduction of *legselbeheer*, a light way of conservation whereby the farmer mows around the nests (of meadow birds), the need to weigh the heaviness of conservation management arose. This way of measurement has been changed a number of times in the past years (Brabers et. al., 2008). In the current measurement of the government *legselbeheer*, depending on the amount of species in the area, counts as 1.5 to 5 percent of the gross amount of hectares (the total amount of hectares in which conservation takes place). The result of the calculation is called the net amount of hectares.

The total net amount of subsidized agricultural conservation of nature in the province of Overijssel is 3,416 hectares in 2019. This total is exclusive *legselbeheer*, because this is taken apart as a different category. This is done because with this form of conservation the whole parcel is calculated as agricultural conservation of nature, however in reality only 50 square metres is mowed around nests, meaning a smaller area of actual conservation (RVO, 2019). The table below demonstrates the total amount of hectares per conservation package and per region.

CODE (Index Natuur en Landschap)	Type of conservation (package of conservation)	Coöperatie gebiedscolle ctief Noordoost Twente U.A.	Coöperatieve Agrarisch Natuur Collectief Midden Overijssel U.A.	Coöperatieve Agrarische Natuurvereni ging Noordwest Overijssel U.A.	Total sum of hectares
Habitat open grassland					
1	Grasland met rustperiode	25,6ha	76,3ha	594,4ha	696,2ha
2	Kuikenvelden			2,5ha	2,5ha
3	Plas-dras	2,8ha	4,1ha	41,5ha	48,4ha
4	Legselbeheer*	30,0ha	418,7ha	1.977,0ha	2.425,7ha
5	Kruidenrijk grasland	11,7ha	158,4ha	549,3ha	719,5ha
6	Extensief beweid grasland		11,9ha	30,1ha	42,0ha
7	Ruige mest - ruige mest*	22,1ha	166,4ha	1.015,8ha	1.204,3ha
Totale omvang beheer voor leefgebied open grasland		92,2ha	835,5ha	1217,8ha	2.712,9ha
Habitat Droge dooradering					
9	Poel en klein historisch water	0,4ha	1,8ha	0,5ha	2,6ha
10	Natuurvriendelijke oever - natuurvriendelijke oever		0,2ha		0,2ha
11	Rietzoom en klein rietperceel - brede rietzoom en rietperceel		0,0ha		0,0ha
13	Botanisch grasland	147,6ha	399,6ha	190,1ha	737,3ha
15	Wintervoedselakker	28,6ha	1,7ha		30,3ha
18	Kruidenrijke akker	85,6ha	73,0ha		158,6ha
19	Kruidenrijke akkerrand	56,8ha	53,1ha		109,9ha

20	Hakhoutbeheer	5,2ha	3,8ha	5,1ha	14,1ha
21	Beheer van bomenrijen - beheer van bomenrijen	0,0ha	0,3ha		0,3ha
22	Knip en scheerheg	0,2ha	0,1ha	0,0ha	0,3ha
23	Struweelhaag - cyclus 5 - 7 jaar	0,0ha	0,1ha		0,1ha
24	Struweelrand – struweelrand		2,9ha		2,9ha
25	Boom op landbouwgrond - boom op landbouwgrond		0,0ha		0,0ha
26	Half- en hoogstamboomgaard – hoogstamboomgaard	0,4ha	2,9ha		3,3ha
27	Hakhoutbosje	1,2ha	1,4ha	0,4ha	3,1ha
29	Bosje – bosje	1,2ha			1,2ha
Totale omvang beheer voor droge dooradering		372,2ha	540,9ha	196,1ha	1063,9ha
Category water					
39	Bodemverbetering (op gras- en bouwland) - op grasland	119,6ha	33,5ha		153,1ha
Aflopend SNL beheer (alle leefgebieden)					689,5ha
	Totaal	539,0ha	1.410,3ha	1.414ha	3.416ha**

Table 4.1: Agricultural conservation of nature in hectares in the province Overijssel in 2019 (RVO, 2019)

1 t/m 7 is habitat open grassland 9 t/m 29 is habitat droge dooradering 39 is category water

* Legselbeheer: Light package of conservation and therefore is not taken into account regarding the total amount of hectares

* Ruige mest: Is only taken in combination with another package and is therefore not taken into account in the total amount

** : This is the net amount of hectares. The gross amount of hectares is 7.046.

As indicated in the table above, most packages are possible in the category *droge dooradering*. However, the most hectares of conservation are present in the habitat *open grassland*. The table above also shows that in northwest Overijssel the biggest part of conservation consists of the habitat *open grassland*, whereas in the middle of Overijssel and northeast Twente most part of conservation consists of *droge dooradering*. The table above shows a summary of all possible forms of conservation packages, appendix 2 elaborates on all available packages of conservation.

The type of farm determines for a large part the possibilities of the farmer to execute agricultural conservation of nature. For example, a dairy farm has relatively much grassland and is therefore an important purchaser of conservation packages in the habitat *open grassland*. Logically, an arable farmer has more possibilities to execute conservation packages in the category *open akkerland*.

4.3.3 Subsidies for conservation

Farmers which execute agricultural conservation of nature receive subsidies from the government. These receiving's are determined by conservation contracts between the farmer and the agricultural collective. The goal of these subsidies is compensating the loss of income and specific measures of conservation. The government compensates the loss of income, because agricultural conservation of nature means that production will decrease. For example, when a farmer takes a measure in the form of postponing the mowing of his grass in a certain area from April to June, this decreases the production. With this measure the farmer provides nesting and hatching possibilities for typical meadow birds such as the black-tailed godwit (Collectives Overijssel, 2019). Postponing the mowing data of the grass means that the farmer can obtain less grass than usual and therefore he gets compensated.

Research from LEI Wageningen indicated that the revenue per company with agricultural conservation of nature differed, from a few hundred to ten thousands euro's per company. Arable farmers received 1,700 euro per hectare for their activities of conservation, whereas a dairy farmer received 600 euro per hectares on average (De Snoo et. al., 2016). The reason for this difference is that in (a few) conservation packages for dairy farmers measures are included whereby a reasonable production is still possible. This applies strongly for *legselbeheer*, the only obligation the farmer in this case has is to mow around the nests. The calculated subsidy is therefore much lower by dairy farmers than by specific conservation packages such as *akkerrandenbeheer*, whereby the area of conservation generates costs, but besides the subsidy few to no revenue.

Conclusion

The aim of section 4.3 was to find out what kind of and to what extent agricultural conservation of nature is applied by farmers in the province of Overijssel. Following the policy distinction three types of agricultural conservation can be applied. First of the habitat type open grassland provides opportunities to execute subsidised measures to protect meadow birds. Secondly the habitat droge dooradering includes measures aimed at the establishment and maintenance of landscape elements. The last category water provides measures to improve soil and water quality. Within these three categories different types of measures are present. The range of measures make it possible for farmers to choose measures that fit their farm-management plan.

The extent of participation is fluctuating in recent years. Initially the introduction of the new subsidy scheme led to a decrease in number of participants in agricultural conservation of nature in the province of Overijssel. However, after the introduction of the subsidy scheme the number of participants is increasing again.

5. What motivates farmers to participate or not?

This chapter will describe the results of the survey. The results of the interviews held with stakeholders of agricultural conservation of nature will be used to elaborate on the results from the survey. In order to answer the third sub-question 'What are advantages and disadvantages for farmers regarding agricultural conservation of nature?' section 5.2 shortly elaborates on the results of the interviews. Subsequently section 5.3 discusses the following sub-question: "What factors motivate or demotivate farmers in the province of Overijssel to participate in agricultural conservation of nature?".

5.1 Distribution and participation in interviews and survey

Before elaborating on the response of the survey the interviews are shortly discussed. Out of the twelve interviewed people, seven were connected to the collectives of Overijssel. Their roles differed from being a field worker to being a coordinator. Two out of these seven people were farmers as well and therefore provided insights in the practical issues regarding agricultural conservation. From the province of Overijssel three people were interviewed, mostly to understand the policies behind the agricultural conservation of nature. Besides these interviews one interview was conducted with a volunteer, someone who volunteered to find nests of meadow birds and assist farmers in protecting these nests. Lastly someone from a diary organisation was interviewed in order to find out what the diary organisation does to reward farmers executing measures for agricultural conservation of nature. Further on in this paper these organisations will be referred to as stakeholders. The rest of this chapter will elaborate on the results of the survey, while these will be compared with the results of the interviews.

As mentioned in chapter three the online survey was distributed via four channels. The distribution method differed per organisation. Whereas LTO Noord, collective Midden- and Noordwest Overijssel choose to distribute it via their newsletter, collective Noordoost Twente distributed the survey via a direct mail to their members. The direct mailing resulted in a higher response, 63 out of 283 (22%) members of the collective Noordoost Twente filled in the survey. Noordwest Overijssel and Midden Overijssel had a lower number of respondents with a similar amount of members, meaning that the response rate for these collectives is around 7%.

Distribution channel	Number of respondents	Number of participants	Number of non-participants	Distribution method
Collective Noordwest Overijssel	10	9	1	Newsletter
Collective Midden Overijssel	25	24	1	Newsletter + reminder
Collective Noordoost Twente	62	52	10	Direct mail
LTO Noord	42	16	26	Newsletter and social media
Total	139	101	38	

Table 5.1: Distribution and participation in the survey

The survey took on average 8 minutes to complete. In sum the total of amount of respondents is 139. This number was reached after filtering out unusable responses. As shown in table 5.1 most of the respondents are participants, this is partly due to the fact that the survey was mostly distributed via the collectives, which members are mostly participants in agricultural conservation of nature.

In order to categorize the participants in agricultural conservation of nature the participants were asked if they were rewarded for their efforts. As shown in table 5.2 most participants in agricultural conservation of nature are rewarded by the subsidy scheme. A smaller amount is not rewarded, whereas some others were rewarded by a dairy organisation. The rewards from dairy organisations are given in the form of a higher milk price in order to stimulate farmers to act sustainable.

	Rewarded by subsidy scheme	Rewarded by dairy organisation	Rewarded by both the subsidy scheme and the dairy organisation	Participates, but is not rewarded
Number of people rewarded	89*	14*	12	10
Total of participants	101	37 dairy farmers**	101	101

Table 5.2: Rewards received by participants for participating in agricultural conservation of nature

* = This amount includes the number of participants which is rewarded by both the subsidy scheme and the dairy organization.

** = 14 out of 37 dairy farmers participates and is rewarded by a dairy organization

As previously mentioned in chapter 4, the subsidy scheme includes three types of agricultural conservation of nature. Although not all participants participated in this subsidy scheme, they were asked what type of conservation they executed. The type of agricultural conservation of nature differs per collective in Overijssel, because of the differences in presence of habitat areas per collective. This is represented in the answers as well (figure 5.1). For example, the collective Noordoost Twente has quite a number of participants in the habitat type *droge dooradering*. This resulted in the conservation type *droge dooradering* being overrepresented compared to the conservation type *open grassland*. Since the collectives Noordwest Overijssel and Midden Overijssel are only represented by a small number of participants, it is difficult to state something about these groups.

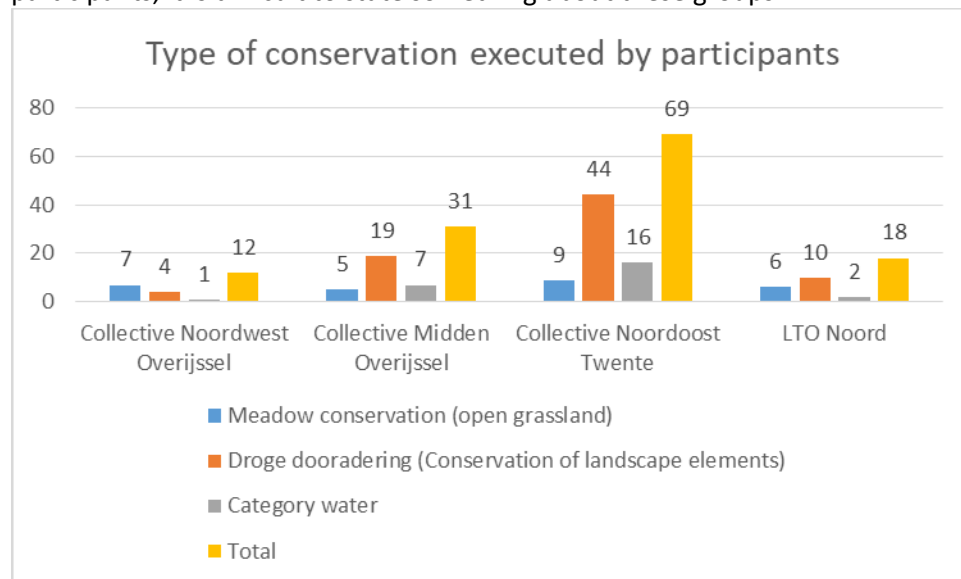


Figure 5.1: Type of conservation per distribution channel

5.2 Advantages and disadvantages of agricultural conservation of nature

Before elaborating on the motivations and demotivation's of farmers to participate in agricultural conservation of nature the perceived advantages and disadvantages of agricultural conservation of nature are discussed. The interviews resulted in the following advantages and disadvantages, mentioned by stakeholders of agricultural conservation of nature:

Advantages of agricultural conservation of nature	Disadvantages of agricultural conservation of nature
Compensation for loss of income	Loss of production
Dairy farmers: higher price per litre milk	Agricultural conservation of nature can have a negative effect on production
Show society that farmers do want to participate in agricultural conservation of nature and work on the viability of the countryside	Costs time to execute agricultural conservation of nature
It is voluntary	Administrative burden

Table 5.3: Advantages and disadvantages for farmers when executing agricultural conservation of nature

The loss of production requires some explanation. First of participation usually means that production on a piece of land is decreased in order to execute measures for agricultural conservation of nature. Nevertheless, in the case of herb rich borders on arable land it can lead to undesirable weeds on the rest of the land and thereby negatively affecting production. This loss of production is further explained in section 5.3. In that section the advantages and disadvantages of executing agricultural conservation of nature are discussed by asking respondents if those (dis)advantages motivated or demotivated to participate in agricultural conservation of nature.

5.3 Motivations and demotivation's to participate

This section elaborates on the motivations and demotivation's of respondents to participate or not. In addition to that, the differences between participants and non-participants will be discussed. The factors influencing participation are divided by the four theoretical dimensions, which were previously mentioned and explained in the literature review of section 2.1.

Before elaborating on the findings it is important to mention that some distinctions were made in the data-collection. Both participants and non-participants received the question about what motivated them to participate or not in conservation. Nevertheless, the reasons in the form of statements listed under these question differed slightly.

5.3.1 Willingness to participate

This section elaborates on reasons for participation, reasons for non-participation and prerequisites mentioned by participants to participate. These reasons are related to the willingness to participate, referring to the factors influencing the attitude of the farmer towards participation in agricultural conservation of nature.

Willingness: reasons for participation

Table 5.4 shows the mean (average score between 1 and 5) and the percentage of agreement by 101 participants in agricultural conservation of nature on statements about factors affecting their decision to participate.

	Participates because of:	Mean	Percentage of respondents that agrees (combined value 4 and 5)
Willingness	Importance of viability of countryside	4.2	84.6%
	Financial reasons	3.4	54.7%

Table 5.4: To what extent the factors above played a role in deciding to participate (answers ranges from 1 = totally disagree and 5 = totally agree)

The willingness of farmers to participate in agricultural conservation of nature depends on the attitude of the farmer. Part of this attitude is determined by financial incentives. Nevertheless, the percentage of agreement by participants on financial reasons (55%) as a reason to participate is lower than on other reasons in the survey. According to 3 respondents of the interviews the attitude of farmers towards agricultural conservation of nature has changed over the past. Previously this was seen as something negative, something that decreased production and therefore did not fit the image of a farmer. In recent years this changed to a more positive attitude. One respondent argues that it changed because of initiatives from the market, stimulating farmers to participate in agricultural conservation of nature. In addition to that (the benefits of) agricultural conservation of nature became more known. With regard to the willingness of farmers to participate financial reasons are frequently mentioned as a reason to participate. In the interviews all respondents mentioned economic incentives as an important reason for participation in agricultural conservation of nature.

In addition to these economic incentives other reasons are mentioned as well. The importance of nature on itself as a reason to participate is mentioned in different ways. In the survey the extent to which farmers perceived the care for landscape as a reason to participate was measured via the statement: 'I think the viability of the countryside is important'. As shown in table 5.4 this statement reached the highest percentage of agreement by respondents of the survey. Two respondents from the interviews confirmed this by saying that care for the landscape is a reason to participate. Someone else even mentioned that a small group is willing to produce less in order to increase the natural value on their land.

Willingness: reasons for non-participation

Whereas previously the willingness of participants to participate was discussed, table 5.5 elaborates on reasons for non-participation.

Theoretical dimension	Does <u>not</u> participate because of:	Mean	Percentage of respondents that agrees (combined values 4 and 5)
Willingness	Financial reasons	3.47	58.3%
	Predation keeps from participating	3.58	58.3%
	Not interested in conservation	2.67	25%

Table 5.5: To what extent the factors above played a role in deciding not to participate (ranges from 1 = totally disagree and 5 = totally agree) (n=36)

As previously mentioned the attitude of farmers towards agricultural conservation of nature has changed. Nevertheless, some farmers are still not interested in agricultural conservation of nature. The results of the survey show that 25% of the non-participants saw no interest in agricultural conservation of nature as a reason not to participate. As previously mentioned financial reasons can be reasons for participation in agricultural conservation of nature. Results from the survey indicate that 58% of non-participants view financial reasons as keeping from participation. Apparently financial reasons can also be reasons for non-participation. This partly is in contrast with the interviews, whereas 8 respondents of the interviews argued that the subsidy for executing agricultural conservation of nature attracts farmers to explore the possibilities of agricultural conservation of nature.

Financial reasons in this case relate to the farm-management plan. The fit of agricultural conservation of nature with the farm-management plan depends on the land necessary for production and the amount of room for agricultural conservation of nature. For example, when a dairy farmer decides to participate

in agricultural conservation of nature even though he needs all his land for production it will have financial consequences. Less land available for production leads to less food for the animals, meaning that it has to be bought somewhere else. All in all this implies costs, making it less likely that the dairy farmer in this example will participate in agricultural conservation of nature.

Predation of eggs and chickens of meadow birds by predators such as foxes can keep from participation. This predation affects the results of agricultural conservation of nature. On this subject the following statement was included in the survey: 'Predation keeps me from participating'. With a score of 58% agreement this apparently is a reason for relatively much farmers not to participate. Seeing results of agricultural conservation of nature is mentioned 3 times in the interviews as having a positive effect on participation. In these cases, an economic incentive is the initial reason for participation, however seeing results of conservation gives an extra motivation. With regard to these results the predation of meadow birds' nests and chicks is mentioned as something that decreases the results of measures and thereby has a discouraging effect on participation in conservation. Taking this all into account, the hypothesis that predation can keep from participation is partly confirmed.

Willingness: differences between participants and non-participants

The previous part elaborated on reasons for participants and non-participants to participate or not. These results were obtained by asking participants and non-participants different questions. This section elaborates on the differences between participants and non-participants by means of discussing the answers of non-participants and participants on the same questions. The table below shows the average scores of the participants and non-participants on a number of statements regarding agricultural conservation of nature.

Theoretical dimension	Item/question	Average score Participant:	Average score non-participant	Percentage agreed participant	Percentage agreed non-participant
Willingness	Agricultural conservation of nature is necessary to sustain the current biodiversity	2.7**	2.2**	74.7%	38.9%
	In my direct environment I see results of agricultural conservation of nature	2.6**	1.9**	68.4%	25%

Table 5.6: Differences between participants and non-participants of agricultural conservation of nature on the subject willingness (answers range from 1 = disagree to 3 = agree)

***= Significantly different at the 0.01 level (calculated via the Independent T-test)*

In order to measure the attitude of farmers towards agricultural conservation of nature they were asked if they thought agricultural conservation of nature is necessary to maintain the biodiversity. As shown in table 5.6 participants tend to agree more (75%) compared to non-participants (39%). In addition to that participants see more results of agricultural conservation of nature (68%) than non-participants (25%). It is likely that participants of agricultural conservation of nature see results because they execute measures and therefore pay attention to the results as well. In short, participants see more results of agricultural conservation and think different about the necessity of agricultural conservation of nature than non-participants.

Willingness: prerequisites for participation

Respondents of the survey had the opportunity to express their thoughts about agricultural conservation of nature by means of a few open questions. First off respondents were asked what kind of chances they saw for agricultural conservation of nature. Most respondents answered by indicating they stand positive or negative towards agricultural conservation of nature. Of the 99 respondents answering the open question 27 indicate to be positive, whereas 12 are negative and others are unclear about their position. In most cases they mention that they will be positive if something changes. When respondents are asked what conditions have to be fulfilled in order to participate they become more clear in their answers. Table 5.7 elaborates on the relevant answers of respondents on this question.

Theoretical dimension	Prerequisites mentioned by respondents for participating in agricultural conservation of nature	Number of times mentioned
Willingness		60 (=total)
Economic incentives	Money/compensation for agricultural conservation of nature	49
Attitude	Viability of countryside	4
	Awareness of what is necessary for nature	3
	Attention for biodiversity and nature inclusive farm management	5

Table 5.7: Prerequisites for participating in agricultural conservation of nature (mentioned by respondents of the survey)

Most respondents of the survey mention money as a prerequisite for participating in agricultural conservation of nature. In addition to that a number of respondents think that the attention to biodiversity is an important condition with regard to participating in agricultural conservation of nature.

5.3.2 Ability to participate

The structure of this section is similar to the previous section, since this section is also divided in reasons for participation, reasons for non-participation and prerequisites mentioned by respondents to participate. This section will focus on factors related to the ability to participate, which is influenced by the characteristics of the farm and the farmer.

Ability: reasons for participation

The table below shows the mean (average score between 1 and 5) and the percentage of agreement by 101 participants in agricultural conservation of nature on statements about factors affecting their ability to participate.

	Participates because of:	Mean	Percentage of respondents that agrees (combined value 4 and 5)
Ability	Fits with farm-management plans	3.6	63.9%
	Fits with future plans	3.6	59.8%

Table 5.8 To what extent the ability factors played a role in deciding to participate (answers ranges from 1 = totally disagree and 5 = totally agree)

The ability of farmers to participate in agricultural conservation of nature is measured in the survey via perceived fit with the farm-management plan and the perceived fit with future plans. Both items scored relatively similar, both indicate that most of the participants think that agricultural conservation of nature has to fit with their current and future farm-management. This is in line with the opinion of the respondents of the interviews. When asked about prerequisites for farmers to participate all

respondents mentioned the importance of fit with the farm-management plan. These findings confirm the hypothesis that the fit with the farm-management plan is a reason to participate in agricultural conservation of nature.

With regard to the farm-management plan the land owned compared to the amount of land needed for production is of central importance. For example, if a farmer needs all his land to produce grass for his animals, then this leaves no room for agricultural conservation of nature. This works the other way around as well, if not all land is needed for production, this implies possibilities for executing agricultural conservation of nature. Another factor of importance is the position of the land. Respondents of the interviews argue that land positioned far away from the farm is less suitable for production and therefore it is more likely that the farmer uses this bit of land to execute measures for agricultural conservation of nature.

Ability: reasons for non-participation

Theoretical dimension	Does <u>not</u> participate because of:	Mean	Percentage of respondents that agrees (combined values 4 and 5)
Ability	Does not fit with farm-management plans	3.6	52.8%
	Does not fit with future plans	3.3	33.4%
	Not enough knowledge	2.8	25%
	Not enough time	2.8	16.7%

Table 5.9: To what extent the factors above played a role in deciding not to participate (answers ranges from 1 = totally disagree and 5 = totally agree)

The ability of a farmer to participate concerns a number of relevant factors. For example the knowledge of farmers about agricultural conservation of nature. Results of the survey indicate that 25% saw the lack of knowledge about agricultural conservation of nature as a reason not to participate. According to interviewed stakeholders the knowledge of agricultural conservation has increased, nevertheless respondents of the interviews argue that the extent of knowledge differs. Farmers in general are aware of the meaning of the concept of agricultural conservation of nature. In addition to that farmers know the consequences of executing measures. Despite these facts, 4 respondents argue that non-participants are not aware of the possibilities, restrictions and consequences of executing conservation measures. According to one respondent this lack of knowledge is due to the complexity of the subsidy scheme. He argues that it is difficult for a farmer to figure out on his own what he can and cannot do with regard to agricultural conservation of nature. The role of rules in participation in agricultural conservation of nature are discussed in section 5.3.4.

Besides the lack of knowledge the lack of time was mentioned as well as a reason not to participate. Not having enough time to execute agricultural conservation of nature was perceived by 17% of the non-participants as a reason not to participate. Having enough time and knowledge is part of the farm-management plan, although these conditions alone are not necessarily enough to make participation possible. As previously mentioned, the location and availability of land play a role as well in deciding to participate or not. Results of the survey show that 53% of non-participants perceived the lack of fit between their farm-management plan and agricultural conservation of nature as a reason not to participate. This shows that having enough time and knowledge on itself is not sufficient to participate in agricultural conservation of nature.

Ability: differences between participants and non-participants

This section elaborates on the differences between participants and non-participants by means of discussing the answers of non-participants and participants on the same questions regarding ability.

Theoretical dimension	Item/question	Average score Participant:	Average score non-participant	Percentage agreed participant	Percentage agreed non-participant
Ability	Age of the respondent	55.2**	46.2**		
	Experience in farm management, measured in years of managing a farm ¹	23.6**	12.8**		
	Experience with executing agricultural conservation of nature (in years)	8.7**	1.1**		
	Number of hectares in use	36	36.8		
	Number of LSU per hectare	2.2	2		
	Extent to which farmer has enough time to execute conservation	2.5**	2**	58.9%	33.3%
	Perception of having enough knowledge to execute agricultural conservation of nature	2.7**	2.4**	75.8%	55.6%

Table 5.9: Differences between participants and non-participants on the subject ability to participate (answers range from 1 = disagree to 3 = agree)

**= Significantly different at the 0.01 level (calculated via the Independent T-test)

With regard to the ability of a farmer to participate in agricultural conservation of nature his characteristics are relevant in determining his possibilities to participate. As discussed in the literature review age is expected to differ among participants and non-participants in agricultural conservation of nature. Table 5.9 shows that participants in agricultural conservation of nature are on average older with 55 years compared to the 46 years of the non-participants. Since participants on average were older they have more experience with managing a farm (24 years) than non-participants (13 years). In addition to that participants have more experience with executing agricultural conservation of nature than non-participants. Only a small group of non-participants (7 out of 39) have participated in agricultural conservation of nature before. When asked about their reasons for stopping to participate 5 out of 7 respondents mention that the new subsidy scheme in 2016 made it impossible to continue participation in the subsidy scheme, since their land was not subsidized anymore. This has to do with the change in focus the government made, the decision was made to only subsidize those areas which seem to have a clear effect on biodiversity (see chapter 4).

¹ These averages is calculated by excluding private persons, since they do not have an agricultural company

Previously the lack of knowledge and time was mentioned as a reason for some non-participants to restrain from participation. Table 5.9 shows that participants and non-participants think different about their level of knowledge and time to execute agricultural conservation of nature. Most of the participants (59%) think that they have enough time to execute agricultural conservation of nature, compared to 33% of the non-participants who think they have enough time to execute agricultural conservation of nature. With regard to the perception of having enough knowledge the difference is shown in figure 5.2 Both participants and non-participants think they have enough knowledge to execute agricultural conservation of nature.

Although the percentage of agreement is significantly higher under participants than under non-participants. For these reasons the hypothesis that available time and knowledge are positively related to participants is partly confirmed.

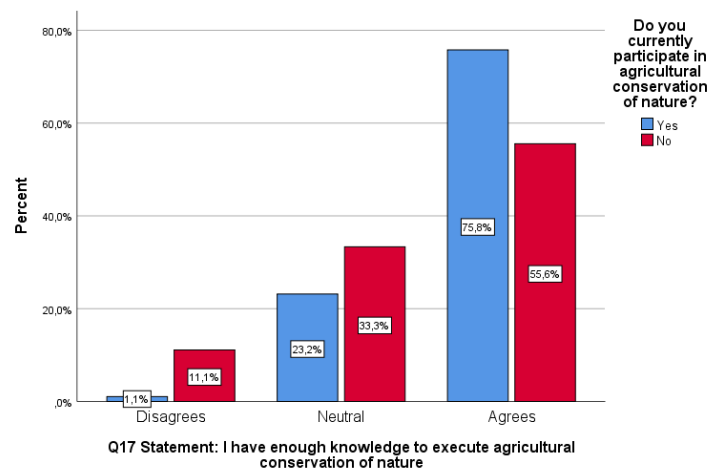


Figure 5.2: Percentage of agreement by participants and non-participants on the following statement: "I have enough knowledge to execute agricultural conservation of nature".

n = 131 (36 non-participants and 95 participants)

With regard to those farms with animals the Livestock Unit (LSU) says something about the intensity of a farm. The LSU is a reference unit which facilitates the aggregation of livestock from various species and age as per convention, via the use of specific coefficients established on the basis of the nutritional requirement of each type of animal. In other words, the LSU per hectare says something about the density of animals per hectare. The more animals per hectare, the more intensive a farm is considered to be. Table 5.9 indicated that participants have a higher LSU per hectares than non-participants, nevertheless this difference is not significant. The average LSU per hectare of the respondents in this sample is 2.15 (Std. dev. = 0.78) in the sample². Of the population in the province of Overijssel the average LSU per hectare was 2.36 in 2011 (CBS, 2011). On the basis of these findings the respondents in the sample appear to be less intensive farmers than those in the province of Overijssel³. This is in line with the findings of the interviews, three respondents of the interviews argued that farmers with an intensive farm-management are less likely to participate in agricultural conservation of nature.

² Respondents which indicated to have no animals were excluded in calculating the LSU per hectare.

³ According to the one sample t-test the difference between the average LSU per hectare from the sample and the total population in Overijssel is significant at the 0.05 level.

With regard to the ability to participate another variable is relevant, namely the status of succession. In section 2.3 it was hypothesized that participants of agricultural conservation of nature have a better status of succession than non-participants. Figure 5.3 shows that participants and non-participants have a similar status of succession. Participants and non-participants are both divided in groups which do, or do not, probably or do not know if they have a successor. That is why the hypothesis that participants of agricultural conservation of nature have a better status of succession than non-participants is rejected.

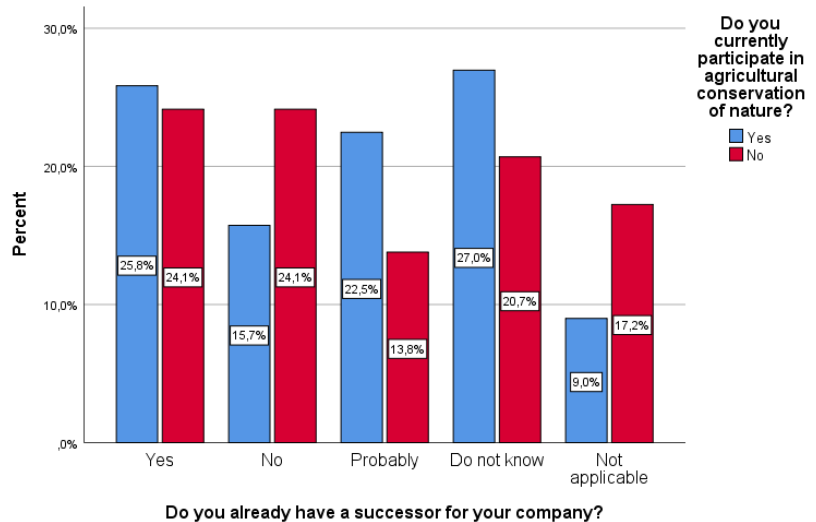


Figure 5.3: The status of succession for participants and non-participants in agricultural conservation of nature

Ability: prerequisites for participation

Respondents of the survey were asked what conditions have to be fulfilled in order to participate. Table 5.10 elaborates on the ability related answers of respondents on this question.

Theoretical dimension	Prerequisites mentioned by respondents for participating in agricultural conservation of nature	Number of times mentioned
Ability		12 (=total)
Farm-management plans	Fits in farm-management plans	9
	Space (availability of land) to execute measures	2
	With participation production still has to be preserved	1
	Results of executing measures should be visible	2

Table 5.10: Prerequisites for participating in agricultural conservation of nature (mentioned by respondents of the survey)

Most of the conditions mentioned in table 5.10 have been mentioned before. For example, the importance of the fit between farm-management plan and agricultural conservation of nature. Additionally, the availability of land to execute measures is mentioned before.

5.3.3 Social influences

This section discusses the reasons to participate or not related to the social influences respondents experience. In addition to that the differences between participants and non-participants on the subject social influences are discussed.

Social influences: reasons for participation

Table 5.11 shows the average score of participants and the percentage of agreement by respondents on different statements regarding social influences.

	Participates because of:	Mean	Percentage of respondents that agrees (combined value 4 and 5)
Social influences	Show sustainability to civilians	3.9	77.3%
	Improve the image of farmers	3.5	53.6%
	Stimulated by field workers	2.9	29.9%
	Bonus on the milk price	3.1	40%*
	Stimulated by farmers	2.4	10.3%

Table 5.11: To what extent the factors above played a role in deciding to participate (answers ranges from 1 = totally disagree and 5 = totally agree) (std. dev. Variates from 0.83 to 1.07)

** = this is the percentage of dairy farmers that agreed (14 out of 35). Other type of farms are excluded since this is irrelevant for them.*

In the direct environment of the farmer multiple actors are influencing the farmer in deciding to participate or not in agricultural conservation of nature. Respondents of the survey were asked if they felt stimulated by (neighbouring) farmers to participate in agricultural conservation of nature. This resulted in a low level of agreement by participants (10%) on the statement that other farmers stimulated them to participate. Considering the low level of agreement by participants on the factors stimulated by farmer or field worker it can be concluded that these factors do not play a significant role in deciding to participate in agricultural conservation of nature. However, respondents of the interviews argue that non-participants are more intrigued to listen to a farmer already participating in agricultural conservation of nature, compared to someone from the collective itself. Although this is not necessary a reason for participation it can provide insights for non-participants, possibly leading to participation.

In recent years dairy organisations have started programs to stimulate farmers to act sustainable. This sustainability is then rewarded with a higher price per litre milk. Part of this program is the participation in agricultural conservation of nature. Dairy farmers own grassland which occasionally is identified by the province of Overijssel as the habitat open grassland (see figure 4.1 in chapter 4). In this open grassland conservation measures are aimed at the protection of meadow birds. When a farmer proofs he executes those measures this leads to the dairy organization paying the farmer a higher price per litre milk. As shown in table 5.11 the bonus on the milk price was a reason to participate for 40% of the dairy farmers. The fact that the bonus on the milk price is not a reason for most respondents to participate might have to do with the bonus on the milk price being relatively new, introduced in 2018/2019 (Rouveen Kaaspecialiteiten, 2019; Friesland Campina, 2019). This is a possible explanation of the percentage of agreement on the bonus on the milk price.

With regard to the image of the farmer in society two variables are relevant. First of 77% agreed on the statement 'I think it is important to show society that I act sustainable'. Sustainable in this context refers to executing measures to protect and maintain biodiversity on their land. The second relevant factor influencing participation is improving the image of the farmer. Of all respondents 54% thought that improving the image is important. The agreement on these two variables shows that farmers do think that sustainability is important when it refers to agricultural conservation of nature. Additionally, they participate in agricultural conservation of nature because they value their image in society. In other

words, what society thinks about farmers plays a role in deciding to participate. These findings are confirmed by the interviews. According to 4 respondents of the interview getting appreciated by society as a farmer because of executing measures to maintain biodiversity is a reason to participate. In contrast to that, another respondents states that not all farmers think this way. He argues that farmers think of themselves as independent entrepreneurs, who do not want others to interfere in the management of the farm.

Social influences: reasons for non-participation

Theoretical dimension	Does <u>not</u> participate because of:	Mean	Percentage of respondents that agrees (combined values 4 and 5)
Social influences	Wants no volunteers on land	3.14	36.1%
	Insufficient informed about conservation	3	30.5%

Table 5.12: The percentage of agreement on statements about possible reasons for non-participants to refrain from participation (answers ranges from 1 = totally disagree and 5 = totally agree)

One of the social influences stems from volunteers, these volunteers execute voluntary work in order to protect nests and chickens of birds. Of all 39 non-participants 36% indicated that not wanting volunteers on their land was a reason not to participate in agricultural conservation of nature. According to 2 respondents of the interviews the influence of volunteers on farmers can go two ways. First off, farmers think of themselves as independent entrepreneurs, who do not want others to interfere in the management of the farm. Some farmers do not want to participate in agricultural conservation of nature, because they do not want volunteers on their land. These volunteers are usually looking for nests of meadow birds in order to protect these nests. According to one respondent of the interview non-participants see these volunteers as interfering in the management of their farm.

On the other hand volunteers are mentioned to have a positive influence on participation. Volunteers contact the field workers of collectives when they observe nests in an area that is not contracted for agricultural conservation of nature. As a result of this the field worker of the collective contacts the farmer of this land in order to ask if he wants to participate. This process sometimes leads to the conclusion of conservation contracts and thereby an increasing participation. As previously mentioned dairy farmers are stimulated by dairy organisations to protect meadow birds of the open grasslands. Volunteers are engaged in this program by providing the dairy organization with the proof that certain farmers execute measures for the protection of meadow birds. This proof, in combination with other measures, leads to a higher price per litre milk for the farmer.

With regard to the previously mentioned lack of knowledge the provided information plays a role. Of all 38 non-participants 31% did not participate because he did not receive or possess enough information about agricultural conservation of nature. According to two respondents of the interviews information about agricultural conservation of nature is provided via field workers from the collectives. They visit non-participants to inform them about the possibilities and restrictions of agricultural conservation of nature. Other sources of information, mentioned by one respondent of the interview, are magazines, flyers and meetings organized by the collectives in order to inform the participants and non-participants about agricultural conservation of nature. The meetings with participants are adjusted to the type of conservation they execute. In this process of acquiring participants in agricultural conservation of nature one respondent argued that trust is an important condition for the field workers of the collectives. He

argues that this trust is hard to acquire when the governmental rules change. The following section will elaborate on the social influences on participation in agricultural conservation of nature.

Social influences: differences between participants and non-participants

This section discusses the differences between participants and non-participants regarding social influences. Both participants and non-participants answered the same questions. The table below shows the average scores of the participants and non-participants on a number of statements regarding agricultural conservation of nature.

Theoretical dimension	Item/question	Average score Participant:	Average score non-participant	Percentage agreed participant	Percentage agreed non-participant
Social influences	Perceived pressure from neighbouring farmers to participate	1.2	1.2	0%	3.4%
	Perceived pressure from society to participate	1.7	1.8	11.4%	20.7%
	Activity of environmental cooperatives / collectives stimulates participation	2.3**	1.7**	40.9%	6.9%
	Satisfaction about the provided information about conservation of nature	2.5**	1.9**	55.7%	17.2%

Table 5.13: Differences between participants and non-participants on statements regarding social influences (answers range from 1 = disagree to 3 = agree)

*** = Significant difference between participants and non-participants at the 0.01 level (calculated via the Independent T-Test).*

With regard to social influences most respondents do not perceive pressure from neighbouring farmers to participate. Previously it was found that a large amount of participants did not feel stimulated by other farmers to participate. Related to this subject 0% of the participants and 3% of the non-participants felt pressured by neighbouring farmers to participate. It is possible that this has to do with the fact that farmers view themselves as independent entrepreneurs, who do not want others to interfere in their management of the farm. This argument was made by one of the respondents of the interviews and possibly also applies to the low level of agreement (14%) on the statement: 'I feel pressure from society (civilians) to participate in agricultural conservation of nature'. Even though most farmers do not feel pressured by society to participate, there is a group of participants who participates because they want to improve their image in society.

As previously mentioned the collectives influence the farmers in deciding to participate or not. They provide participants and non-participants information about agricultural conservation of nature. Table 5.13 showed that participants are more satisfied than non-participants about the information provided to them about agricultural conservation of nature. Most of the participants, 58%, is satisfied about the provided information, however only 17% of the non-participants is satisfied with the provided information.

In general a minority of respondents perceive the collectives as having an influence on farmers and land owners to participate. The perceived effect of the activity of the collectives on participation is measured via the following statement: 'The activity of the collectives stimulates to participate.' Whereas 41% of

the participants agrees, only 7% of the non-participants agrees. Taking a look at figure 5.4 it becomes clear that most non-participants stay neutral on this subject. In short, participants tend to be more positive about the collectives with regard to their activity and provided information compared to the non-participants.

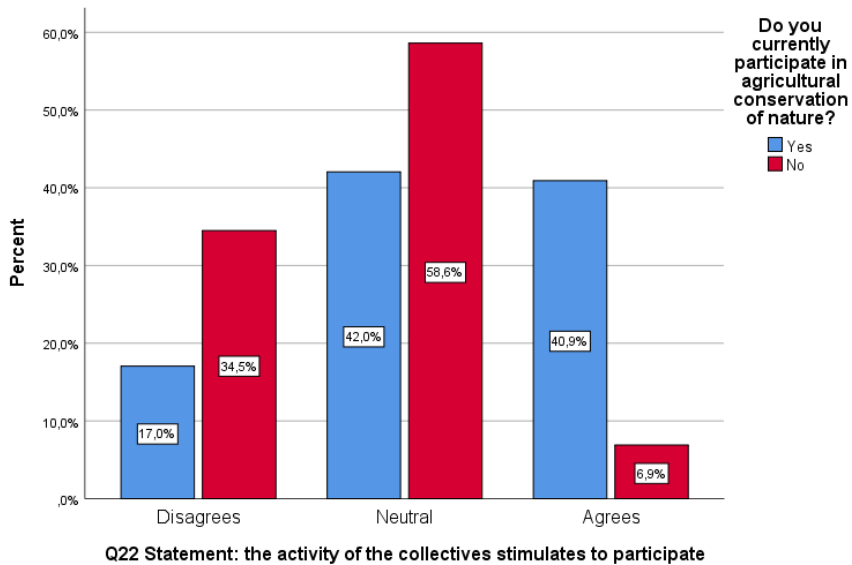


Figure 5.4: Answers of non-participants and participants in percentages on the statement that the activity of collectives stimulates to participate

Social influences: prerequisites for participation

Just as mentioned in the previous section respondents of the survey were asked what conditions have to be fulfilled in order to participate. Table 5.14 elaborates on the answers of respondents on this question, specifically on the social influences mentioned by respondents.

Theoretical dimension	Prerequisites mentioned by respondents for participating in agricultural conservation of nature	Number of times mentioned
Social influences		7 (=total)
Agricultural collectives	Regular individual consultation between farmer and (representative of) collective	2
Society	Acceptation by society	1
Dairy organisation	Planet proof milk, meaning a higher price per litre milk as a reward for participating in agricultural conservation of nature	4

Table 5.14: Prerequisites for participating in agricultural conservation of nature (mentioned by respondents of the survey)

Compared to the previously mentioned dimensions willingness and ability, social influences are mentioned less frequently by respondents. Nevertheless, the previously discussed influence of dairy organisations is mentioned as a condition for participation, thereby confirming that it has an influence on a number of respondents.

5.3.4 Policy influences

The policy influences will be discussed differently than the previously mentioned dimensions. Mainly because respondents of the survey were not specifically asked about policy influences as reasons for participation or non-participation. This section elaborates on the differences between participants and non-participants on the subject policy influences. In addition to that it elaborates on the opinion of participants in agricultural conservation of nature about some parts of the relevant policies.

Policy influences: differences between participants and non-participants

Theoretical dimension	Item/question	Average score Participant:	Average score non-participant	Percentage agreed participant	Percentage agreed non-participant
Policy influences	Satisfaction with the flexibility of conservation contracts	2*	1.7*	25%	6.9%
	Perception about the amount of rules limiting participation	2.3	2.3	45.5%	44.8%

Table 5.15 Results of questions asked both to participants and non-participants (With regard to the statements answers range from 1=disagree to 3=agree)

** = Average scores are significantly different at the 0.05 level (calculated via the Independent T-test)*

As the provider of subsidies and as a policy maker the government has a substantial role in agricultural conservation of nature. With regard to policies, one respondent of the survey mentions that he stopped with participation because he thought that participation would be used against him in the future and adds that he knows other farmers who fear the same. This fear of obligatory agricultural conservation of nature is mentioned by one respondent in the interviews as well. The respondent in the interview takes position against this, he argues that making it obligatory would have the opposite effect. He argues that agricultural conservation of nature depends on farmers with a heart for nature. In short, there seems to be a small group of farmers who fears that agricultural conservation of nature becomes obligatory.

Trust is an important condition for the field workers of the collectives in order to work with the farmers. The amount of governmental rules influences the trust farmers have in the government. Thereby it can affect participation in agricultural conservation of nature. Figure 5.5 shows the reactions of respondents on the following statement: 'The amount of rules makes it difficult to participate in agricultural conservation of nature'. Participants and non-participants mostly think the same about rules limiting participation, almost half of the group agrees, whereas a similar amount of respondents is neutral and another small group disagrees that rules limit participation. According to a respondent of the interview the trust of farmers is needed in order to conclude conservation contracts. He argues that this trust is hard to acquire when the governmental rules continuously change. Another respondent mentions the danger of bureaucratization of the collectives. He argues that sometimes it can take long to compensate costs for certain measures. This in turn can lead to distrust and unsatisfied farmers. With regard to trust in government in general 2 respondents mention that it is a difficult partner to work with for farmers, because of the changes in rules. In sum, the amount and change of rules can lead to distrust and thereby keep farmers from participating in agricultural conservation of nature.

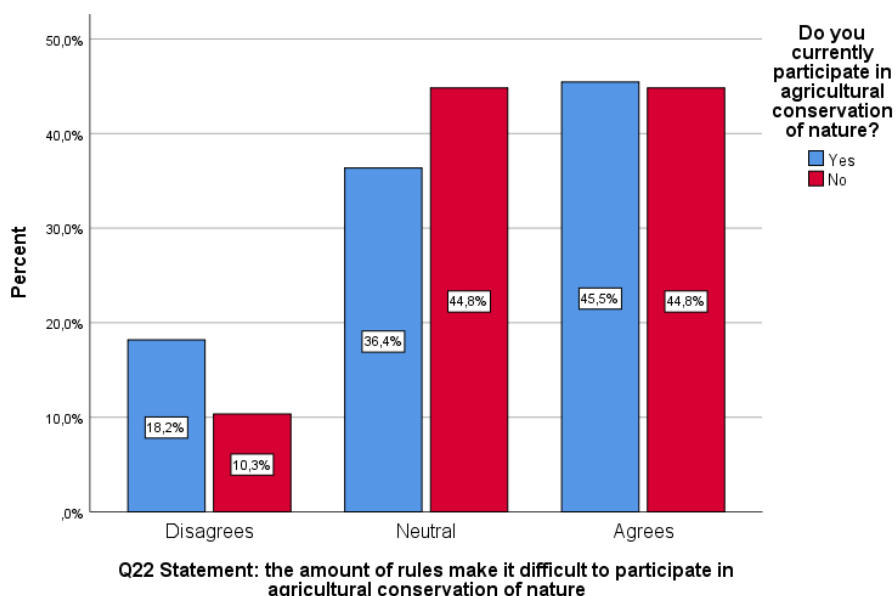


Figure 5.5: Answers of non-participants and participants in percentages on the statement that the amount of rules make it difficult to participate.

With regard to the current subsidy system respondents of the survey were asked if they were satisfied with the current flexibility of the conservation contracts. As shown in table 5.6 there is a significant difference between the participants and the non-participants with respect to this question. This difference is shown in figure 5.6, however a large group seems to remain neutral, whereas participants tend to agree a bit more than non-participants.

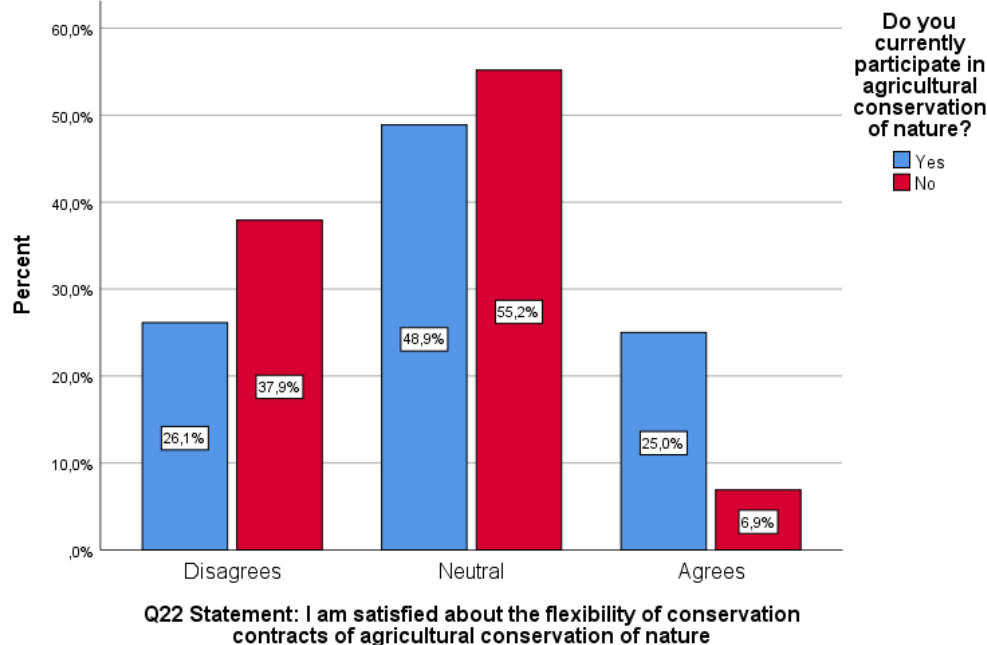


Figure 5.6: Answers of non-participants and participants in percentages on the statement that the respondent is satisfied with the flexibility of the conservation contracts.

Policy influences: opinion of participants about policy influences

The influence of policies on participation in agricultural conservation of nature has been discussed before. This section shortly elaborates on the policy influences, however the questions of this section are only asked to participants in agricultural conservation of nature. Table 5.16 elaborates on the opinion of participants in agricultural conservation of nature on four different statements regarding policies.

Statement	Totally disagree	Disagree	Neutral	Agree	Totally agree	Average score
I am satisfied with the current financial compensation for executing agricultural conservation of nature	2.5%	8.8%	31.3%	55%	2.5%	3.5
Current policies have to create more room for the repression of predators	1.3%	3.8%	12.5%	26.3%	56.3%	4.3
I am satisfied with the work of the collectives with regard to agricultural conservation of nature	0	5%	25%	50%	20%	3.9
I am satisfied with the control of the execution of agricultural conservation of nature by NVWA	1.3%	6.3%	43.8%	43.8%	5%	3.5

Table 5.16: Percentage of agreement by participants in agricultural conservation of nature on four different statements regarding policies (n= 80). Answers range from 1 (Totally disagree) to 5 (Totally agree)

As shown above most participants are satisfied with the current financial compensation and the work of the collectives. When it comes to the satisfaction of the farmers about the control of conservation by Nederlandse Voedsel en Waren Autoriteit (NVWA) only a small group is unsatisfied, whereas a relatively large group stays neutral and another group agrees, indicating that most of the farmers are satisfied. Previously predation of eggs and chickens by predators was mentioned as a reason for non-participants to refrain from participation. Table 5.16 shows that a majority of the participants in agricultural conservation of nature (83%) wants more room in the current policies to combat predators. Four respondents of the survey even mention in the comments that predators negatively affect their measures in agricultural conservation of nature.

Policy influences: prerequisites for participation

Table 5.17 elaborates on the policy related answers of respondents on the question what conditions have to be fulfilled in order to participate.

Theoretical dimension	Prerequisites mentioned by respondents for participating in agricultural conservation of nature	Number of times mentioned
Policy influences		29 (=total)
Predators	Reduce predators	4
Compensation	More money/compensation	2
	The government needs to have enough budget to finance the compensations	2
Execution of measures	Freedom to choose what measures to execute	4
	Realistic (policy) goals	4
	Flexibility of measures	5
Amount of rules	(Reward by giving) less rules and extra opportunities to grow	8
Audits/control	Improve discussing the audits	1

Table 5.17: Prerequisites for participating in agricultural conservation of nature (mentioned by respondents of the survey)

With regard to policy decreasing the amount of rules is mentioned a number of times. In some cases decreasing the amount of rules is mentioned as a reward for participation in agricultural conservation of nature. Additionally, flexibility of the measures is mentioned as a condition for participation in agricultural conservation of nature. Related to the flexibility of measures, some respondents mention freedom to choose what measures to execute as an important prerequisite for participation in agricultural conservation of nature.

Conclusion

In the first place this chapter answered the third sub-question about the (dis)advantages of executing agricultural conservation of nature was discussed. Loss of time, loss of production and therefore money are mentioned as disadvantages of agricultural conservation of nature. Of those disadvantages only the loss of income appeared to be a reason for most of the non-participants to restrain from participation in agricultural conservation of nature. With regard to the advantages the compensation for the loss of income appeared to be important for participants.

In addition to the third sub-question, this chapter answered the fourth sub-question about motivations and demotivation's of farmers to participate. For some farmers, reasons to participate relate to improving the image of the farmer. Although they want to improve their image, most of them do not feel pressured by other farmers or society to participate in agricultural conservation of nature. On the subject of policy influences most farmers are satisfied with the work of the collectives. On the other hand respondents want less rules and more room to combat predators.

With regard to motivations and demotivation's to participate a number of hypothesis were formulated.

- H1: The fit between agricultural conservation of nature and the farm-management plan is both a reason for participation and non-participation.

This hypothesis is confirmed, since a majority of participants and non-participants agrees. In addition to that the fit with the farm-management plan is mentioned by respondents as an important condition to fulfil before participating in agricultural conservation of nature.

- H2: The perception of available time and knowledge is positively related to participation.

Partly confirmed, since participants significantly were more positive about their level of knowledge and time to execute agricultural conservation of nature than non-participants.

- H3: Participants in agricultural conservation of nature have a better status of succession than non-participants.

Rejected, since both participants and non-participants have a similar status of succession. Both have similar percentages when it comes to the amount of participants and non-participants with a successor.

- H4: The environmental cooperatives (collectives) have a positive effect on participation.

Participants significantly agree more than non-participants that the activity of the collectives stimulates to participate. Nevertheless, it still is a minority of participants which feels stimulated by field workers to participate. For these reasons this hypothesis is rejected.

- H5: Predation can keep from participation in agricultural conservation of nature.

Partly confirmed, because a small majority did not participate because of predation.

6. Conclusion

The main research question is: “Why do farmers participate or not in agricultural conservation of nature in the province of Overijssel?”. Based on the previous results this chapter will draw a number of conclusions whereas the conclusions will be interpreted in the discussion of chapter 7.

Results of the interviews showed that the loss of production is perceived as a disadvantage by stakeholders of agricultural conservation of nature. Nevertheless the compensation of this loss in the form of subsidies is mentioned as an advantage of executing agricultural conservation of nature. Results of the survey showed that both participants and non-participants in agricultural conservation of nature perceived financial reasons as a reason to participate or not. Results of the open questions showed that money was mentioned by a large proportion of the respondents as a prerequisite for participation in agricultural conservation of nature. Even though money seems to be important, most of the participants agreed with the statement that agricultural conservation of nature is necessary to maintain the current biodiversity.

Related to the economic incentive the fit between the farm-management plan and agricultural conservation of nature was perceived as important by respondents. Participants saw the fit with their farm-management plan as a reason to participate, whereas non-participants saw no fit and therefore did not participate. Although not specifically included in the survey, the availability of land was mentioned in the open question of the survey and in the interviews as an important condition for participation in agricultural conservation of nature.

Part of the farm-management plan is about the availability of time and knowledge to execute agricultural conservation of nature. Participants tended to be more positive than non-participants about the availability of time. Both participants and non-participants argued that they had enough knowledge to execute agricultural conservation of nature, nevertheless a larger amount of participants felt they have enough knowledge about agricultural conservation of nature than non-participants. Participants appeared to be older than non-participants, therefore the participants indicated to have more experience with managing a farm than non-participants. Besides these differences participants and non-participants were found to be similar with regard to the status of succession and amount of hectares in use.

The majority of participants indicated that improving their image towards society was a reason to participate. In addition to that the participants indicated that they wanted to show civilians that they behave sustainable in the sense that they participated in agricultural conservation of nature. However, both participants and non-participants do not perceive to be under pressure from farmers and society to participate in agricultural conservation of nature. In addition to that most participants indicated that the influence of farmers was no reason to participate in agricultural conservation of nature.

Predation, that is the eating of eggs and chickens of meadow birds by predators, appeared to be a reason for the majority of the non-participants to refrain from participation. In addition to that participants wanted more policy action on the combating of predators. On another policy subject participants and non-participants both agreed with the statement that the amount of rules make it harder to participate in agricultural conservation of nature, although a similar amount of respondents remained neutral on this topic. Most of the participants of agricultural conservation of nature indicated to be satisfied with the work of the collectives in agricultural conservation of nature.

7. Discussion

This chapter interprets the results previously discussed. The results are interpreted by comparing with previous research. In addition to that the limitations of this research are discussed.

7.1 Comparison with other research

The aim of this paper was to gain insight in the motivations and demotivation's of farmers in the province of Overijssel to participate in agricultural conservation of nature. The previous chapter drew a number of conclusions. This is done on the basis of the four theoretical dimensions: willingness to participate, ability to participate, social influences and policy influences (Siebert et al., 2006).

Willingness

On the subject of willingness to participate economic incentives are frequently mentioned as reasons for participation. According to Wilson and Hart (2000) financial reasons are the most important reason to participate. Nevertheless the highest percentage of agreement by participants was not reached at financial reasons as reason to participate. Even though participants were not asked to rank their motives for participation it can be concluded that the economic incentives were not perceived by participants as the most important reason for participation. This is line with research of other scholars, arguing that economic incentives are important, but accompanied by other reasons as well (Siebert et al., 2006; Lokhorst et al., 2011; Greiner et al., 2015). The highest percentage of agreement by participants of agricultural conservation of nature is reached at the following statement regarding reasons for participation: 'I think the viability of the countryside is important'. The difficulty with this item is interpretation, because farmers can interpret this viability in terms of people or in terms of nature. Nonetheless this agreement shows that farmers value the viability of the countryside. In sum, reasons for non-participation are found in economic motives, whereas reasons for participation are found in financial reasons, viability of the countryside and improvement of the image of farmers.

Ability

The ability of farmers to participate in agricultural conservation of nature is for a large part determined by the fit of agricultural conservation of nature in the farm-management plan. Wilson and Hart (2000) found that the fit with the farm-management plan was an important reason to participate or not. Results of the survey confirmed the first hypothesis that both participants and non-participants view the fit with the farm-management plan as a reason to participate or not. The intensity of the farm is calculated via the Livestock Unit (LSU) per hectares in order to find out differences in the intensity of the farm-management between participants and non-participants. There appeared to be no significant difference between these two groups, meaning that they have a similar intensity of farming. Nevertheless, the LSU per hectares of the total population of farmers in the province of Overijssel appeared to be higher than the average LSU per hectares in the sample. In other words, this partly confirms the findings of De Haan et al. (1996), who argued that the more intensive a farm is, the harder it gets to participate in agricultural conservation of nature.

The characteristics of the farmer play a role in determining the ability to participate in agricultural conservation of nature. Participants appeared to be significantly older than non-participants. Scholars found contrasting results with regard to the age of the farmer compared to participation in agricultural conservation of nature. Murphy et al. (2014) argued that non-participants are usually older, because older farmers tend to be more conservative and less flexible. However, Defrancesco et al. (2008) found that non-participants in AES (subsidy scheme) tend to be younger. Because of these contrasting results Pavlis (2015) concluded that the age factor does not seem reliable in terms of explaining participation in

agricultural conservation of nature. Another characteristic which was estimated to differ between participants and non-participants is the status of succession. De Snoo et al. (2016) found that on farms of participants in agricultural conservation of nature the interest to take over was higher than by non-participants. Based on these findings, the third hypothesis was that participants have a better status of succession than non-participants. Nevertheless, no significant difference was found between participants and non-participants regarding the status of succession.

As previously mentioned both participants and non-participants think that they possess enough knowledge to execute agricultural conservation of nature. Additionally, most non-participants disagreed with the statement that they do not participate because of a lack of knowledge about agricultural conservation of nature. This is not in line with research of Van der Meulen et al. (1996) and Pavlis et al. (2015). The latter group of scholars found that a lack of knowledge was an important reason not to participate, nevertheless they argued that this could be due to the presence of hobby farmers in the sample. Although the sample of this research contains hobby farmers there is no difference between hobby farmers and full-time farmers regarding their perception of having enough knowledge.

Social influences

Results from the survey indicate that farmers react differently to social influences. Considering low level of agreement by participants on the statement that they feel stimulated by farmers or field worker it can be concluded that these factors do not play a significant role in deciding to participate in agricultural conservation of nature. These findings are not in line with the work of Drake et al. (1999) and Deffuant et al. (2001) who argued that neighbouring farmers play a significant role in deciding to participate. On the other hand it confirms the work of Schroder et al. (2015), they found that the opinion of other farmers or the farm advisor did not influence the farmers much. Although respondents argued that they did not feel pressured by society and farmers to participate, most of the participants in agricultural conservation of nature agree that improving their image towards civilians is a reason to participate.

Another more direct influence on farmers to participate stems from the dairy organisations. Westerink et al. (2013) mention their influence on the motivation of farmers to participate. They argue that the dairy organisations act out of social pressure or corporate social responsibility to demand that their suppliers meet certain sustainability requirements. Meeting these requirements is rewarded with a higher milk price per litre. Results of the survey indicate that more than one third of the participatory dairy farms participated because of the rewards of the dairy organization. The fact that most of the dairy farms do not participate because of the rewards might have to do with the fact that the sustainability program for dairy farms just started in recent years (2018/2019).

Policy influences

In general participants of agricultural conservation of nature are satisfied with the current system of agricultural conservation of nature. Results of the survey indicated that participants are satisfied with the height of the financial compensation for executing agricultural conservation of nature. In addition to that the majority is satisfied with the work of the collectives. Apparently a group of participants and non-participants think that the amount of rules make it hard to participate in agricultural conservation of nature. Additionally, some respondents mentioned a decrease in the amount of rules as a prerequisite for participation in agricultural conservation of nature.

One aspect of the policy that was mentioned both in the interviews and the survey is predation. According to Runhaar et al. (2017) predation is an external factor influencing the effectivity of agricultural conservation of nature. The presence of predators influences the reproduction of meadow

birds and therefore the effectivity of agricultural conservation of nature. This is in line with the interviews, where predation was mentioned by multiple stakeholders as a factor that can have a discouraging effect on participation. In the survey a small majority of non-participants mentioned predation as a reason not to participate, therefore the fifth hypothesis that predation can keep from participation in agricultural conservation of nature is partly confirmed.

7.2 Limitations

In order to find out what motivates or demotivates farmers to participate in agricultural conservation of nature literature has been reviewed and a survey and a number of interviews have been conducted. Nevertheless, this research has a number of limitations.

Possibly the interest of respondents in agricultural conservation of nature led to a limitation of this research. The limitation of the interviews is that all interviewed persons stand positively towards agricultural conservation of nature, therefore it is possible that the interviews gave a more positive picture about reasons for participation than the total population of farmers would give. With regard to the survey, it is also possible that the survey attracted those people which were interested in agricultural conservation of nature. Since this was expected the survey was distributed via LTO Noord as well. That way non-participants in agricultural conservation of nature are attracted, nevertheless this group is smaller than the number of respondents participating in agricultural conservation of nature.

The surveys were distributed via four channels. All four channels resulted in a different response. The collective of Noordoost Twente almost delivered half of the total amount of respondents. Therefore being a member of the collective Noordoost Twente influenced the results. Whereas the collective Noordoost Twente seems to be overrepresented, the collective Noordwest Overijssel seems to be underrepresented with a small number of respondents. In addition to that the group non-participants in agricultural conservation of nature seems to be relatively small, which makes it harder to draw conclusions about this group. Another limitation of the survey is that respondents may have filled in social desirable answers, even though the survey was anonymous.

As previously mentioned the response of the survey is relatively low. No research has been done to find out what caused this low response. It is possible that farmers had other things on their mind, for example the political situation at the moment of distributing the survey. At the end of the year 2019 a number of protest were organized by farmers. These farmers were protesting, because they were not satisfied with governmental actions on the subject of nitrogen. The government declared that farmers only are allowed to expand their farm, if they could guarantee that their nitrogen emissions did not increase. In short, farmers were dissatisfied with these rules and therefore started protesting. It is possible that these protests have affected the opinions of farmers about agricultural conservation of nature. Nevertheless, the nitrogen discussion is not related to agricultural conservation of nature and most farmers who filled in the survey appeared to be positive towards agricultural conservation of nature.

7.3 Recommendations

Based on the conclusion and discussion a number of recommendations can be made. The recommendations are divided in recommendations for future research and recommendations for the province of Overijssel.

Recommendations for future research.

This research concluded that most farmers think that they have enough knowledge to execute agricultural conservation of nature. However, stakeholders of agricultural conservation of nature argued that not all farmers are aware of the possibilities and restrictions of agricultural conservation of nature. Based on that future research should find out what the extent of knowledge about agricultural conservation of nature is among participants and non-participants. In addition to that future research could focus on differences in motivations to participate or not between provinces or collectives, since this research only included one province consisting of three collectives. By comparing provinces or collectives differences between areas can then be compared or ruled out.

Future research should include more factors in order to make comparisons between participants and non-participants more reliable. Examples of factors to include are the need of cooperation with farmers, the government or volunteers. This research measured the attitude of farmers by asking farmers if they perceived agricultural conservation of nature as necessary for the biodiversity. Future research should elaborate on that by asking more questions about their attitude towards agricultural conservation of nature. Results from the survey indicated that farmers do participate because they want to improve their image, nevertheless they do not feel pressured by society or other farmers to participate. Future research should find out how farmers perceive their image and why they want to improve it.

Recommendations for the province of Overijssel/collectives

1. Continue to improve the awareness of non-participants about agricultural conservation of nature.

According to field workers of the collectives non-participants in agricultural conservation of nature are not aware of the possibilities and restrictions of executing conservation. The current way of informing non-participants is via flyers, informative meetings and face to face talks of (non-)participants and field workers of the collectives. The results provide a basis to continue the information of non-participants of agricultural conservation of nature.

2. Continue to inform non-participants about agricultural conservation of nature via participants. In the interviews it was already mentioned that farmers tend to listen more to other farmers than to representatives of the collectives. Information should include practical examples and refrain from using abstract terms such as biodiversity and sustainability, because practical examples tend to speak more to farmers than abstract terms as sustainability (Noordijk et al, 2008). Information about agricultural conservation of nature is important, because it can take away uncertainties farmers might have about agricultural conservation of nature.

3. Make an inventory of the side effects of measures of agricultural conservation of nature. On the basis of this inventory actions can be made in order to solve existing problems. On the subject of the effect of agricultural conservation of nature some respondents indicated that they experienced negative side effects of agricultural conservation of nature. The side effects varied from having a negative effect on production to unexpected restrictions on their work. In order to prevent dissatisfaction it is recommended to make an inventory of these side effects in order to solve existing problems.

4. Introduce incentives to participate in the form of differentiation in compensation.

Both participants and non-participants seem to think that money is an important condition for participation in agricultural conservation of nature. Some respondents even proposed rewards additional to the current financial compensation. Policies could take that into account by introducing incentives in the form of differentiation in compensation, for example rewarding longer participation in agricultural conservation of nature.

5. Use this research in evaluating the subsidy scheme of agricultural conservation of nature.

Results indicate that the complexity of the system should be decreased, nevertheless this research did not go into detail on policy efficiency and effectivity. Therefore it cannot make clear conclusions about the complexity of systems. That is why it is recommended to use this research in evaluating the subsidy scheme of agricultural conservation of nature. Currently evaluation of the policies regarding agricultural conservation of nature take place. Comparing this evaluation with this research could provide insights in the perceptions of farmers about these policies.

6. Evaluate the policies regarding the repression of predators.

Results of the survey indicated that predation can have a demotivating effect on participation in agricultural conservation of nature. That is why it is recommended to give attention to the repression of predation. In addition to that informing participants and non-participants about predation is important, since they are not always aware about the possibilities and restrictions of repressing predators.

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⁴ The names of the people interviewed are not mentioned because of privacy reasons.

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Appendixes:

This chapter contains the appendixes to which have been referred previously in the text.

Appendix 1: Operationalization and hypotheses

The table below elaborates on the theory behind the questions asked in the survey.

Operationalisation (items connected to the variables)	Theory	Hypothesized effect on participation	Question
Survey question about the interest of farmers in agricultural conservation of nature.	Siebert et. al. (2006) mention that a positive attitude towards agricultural conservation of nature plays a role	High interest > positive Low interest > negative	14: statement 6
Survey question about the extent to which the respondent sees results of agricultural conservation of nature in his environment.	Siebert et. al. (2006) mention that the awareness of agricultural conservation of nature plays a role	Hypothesis: Agree > positive Disagree > negative	16: statement 2
Survey question about the extent to which the farmer thinks that predation keeps him from predation	From the interviews	Hypothesis: Agree > positive Disagree > negative	16: statement 3
Survey question about the extent to which the respondent feels that agricultural conservation of nature is necessary to maintain the biodiversity	Out of interest	Hypothesis: Agree > positive Disagree > negative	16: statement 1
Survey question if the respondents experience results in their environment of agricultural conservation of nature.	From the interviews.	Hypothesis: Agree > negative	12: statement 2
Survey question about the extent to which the bonus on the milk price are a reason to participate.	From the interviews	Hypothesis: Agree > positive	15: statement 9
Survey question if the livability of the countryside is a reason to participate	Wilson and Hart (2000)	Hypothesis: Agree > positive Disagree > negative	15: statement 5
Survey question about the extent to which participation fits with the future plans of the farm.	Wilson and Hart (2000) mention this as an important reason to participate.	Hypothesis: Agree > positive Disagree > negative	15: statement 4
Survey question about the type of farm (for example dairy farm or arable farm)	According to Sanders et. al. (2002) the possibilities of	Hypothesis: Dairy farms are more likely to	1

	participation differ per type of farm	participate than other type of farms	
Survey question about the amount of hectares that the farmer uses	Defrancesco (2018) mentions that larger farms are more likely to participate	Hypothesis: More than 75 ha > positive Less than 75 ha > negative	19a
Survey question about the intensity of farms with animals: question about the LSU (Livestock Unit) per hectares the respondent has	From the interviews, a higher LSU means a more intensive farm management and therefore less possibilities for participation	Hypothesis: Participants have a lower LSU per hectares than non-participants	19b
Survey question about the age of the farmer	Brotherton (1989,1991) mentions this as an important factor.	Hypothesis: Non-participants are older	20a
Survey question about the fit of agricultural conservation of nature with the farm-management plan	Sanders et. al. (2002)	Hypothesis: Low fit > negative High fit > positive	14: statement 5
Survey question about the amount of years that a farmer manages a farm.	Out of interest.	Hypothesis: Participants have more experience	20c
Survey question about the amount of years that the farmer participates in agricultural conservation of nature.	Out of interest.	Hypothesis: participants have do participate longer than non-participants	20d
Survey question about the extent to which the farmer that he has enough knowledge about agricultural conservation of nature.	Sanders et. al. (2003) mention that the presence of knowledge influences participation	Hypothesis: Participants have a higher perception of their knowledge	16: statement 6
Survey question about the extent to which local farmers stimulate each other to participate in agricultural conservation of nature	Oksanen (2003) and Luz (1994) mention the importance of the relationship between the local community and the farmers. Low support has a negative effect on participation,	Hypothesis: Agree > positive Disagree > negative	15: statement 1

	according to Fielding et. al. (2008)		
Survey question about the extent to which the farmer feels pressure from neighbouring farmers to participate.	Drake et. al. (1999) and Deffuant (2001) mention neighboring farmers as an important determinant on participation	Hypothesis: participants feel more pressure than non-participants	18: statement 2
Survey question about the extent to which farmers feel that the activity of collectives is a reason to participate	Sanders et. al. (2002)	Hypothesis: When agreed > positive effect on participation	18: statement 4
Survey question about the satisfaction of farmers about the work of the agricultural collectives.	A few scholars mention that the policy advisors are important persons in the process of participation (Drake et. al., 1999; Mahrlein, 1993; etc.).	Hypothesis: Satisfied > participants Unsatisfied > no participation	22: statement 5
Survey question about the extent to which the respondent is satisfied with the received information about agricultural conservation of nature.	Baumgartner and Hartmann (2001) mention the importance of information		18: statement 4
Survey question about the extent to which farmers feel that their participation leads to an increase of their image		Hypothesis: Agree > positive Disagree > negative	15: statement 6
Survey question about the extent to which farmers feel pressure from society to participate	Oksanen (2003) mentions that farmers can oppose measures, when they feel that the pressure is high.	Hypothesis: Agree > negative Disagree > positive	18: statement 1
Survey question about the extent to which farmers are satisfied about the financial compensation (subsidy)	Wilson and Hart (2000): a low perception of compensation can lead to less participation	Hypothesis: Satisfied > positive Unsatisfied > negative	22: statement 1
Survey question about the extent to which the respondents has the feeling that the amount of rules make it difficult to participate in agricultural conservation of nature.	From the interviews	Hypothesis: Agree > negative Disagree > positive	22: statement 2
Open question about the conditions which have to be fulfilled in order for the respondent to participate	From the interviews		23

Table A.1: Factors motivating or demotivating farmers to participate conceptualized and operationalized

Appendix 2: Compensations per year for the different conservation packages.

Yearly compensations for the year 2019, connected to the subsidy scheme *Agrarisch natuur- en landschapsbeheer (ANLB)* Overijssel.

Stelsel Natuur en landschap			
Tarieven agrarisch natuurbeheer			
Indexcode	Pakketomschrijving	Eenheid	Tarief 2018
A01.01.01	Weidevogelgrasland met een rustperiode	Hectare per jaar	
A01.01.01a	Rustperiode van 1 april tot 1 juni		€ 274,95
A01.01.01b	Rustperiode van 1 april tot 8 juni		€ 400,09
A01.01.01c	Rustperiode van 1 april tot 15 juni		€ 531,75
A01.01.01d	Rustperiode van 1 april tot 22 juni		€ 598,98
A01.01.01e	Rustperiode van 1 april tot 1 juli		€ 1.028,35
A01.01.01f	Rustperiode van 1 april tot 15 juli		€ 1.190,39
A01.01.01g	Rustperiode van 1 april tot 1 augustus		€ 1.375,57
A01.01.02	Weidevogelgrasland met voorweiden	Hectare per jaar	
A01.01.02a	Voorweiden 1 mei tot 15 juni		€ 229,73
A01.01.02b	Voorweiden 8 mei tot 22 juni		€ 229,73
A01.01.03	Plas-dras	Hectare per jaar	
	<i>Plas-dras</i>		
A01.01.03a	Inundatieperiode 15 februari tot 15 april		€ 758,50
A01.01.03b	Inundatieperiode 15 februari tot 15 mei		€ 1.211,05
A01.01.03c	Inundatieperiode 15 februari tot 15 juni		€ 1.981,43
A01.01.03d	Inundatieperiode 15 februari tot 1 augustus		€ 1.981,43
	<i>Greppel plas-dras</i>		
A01.01.03e	Inundatieperiode 15 februari tot 15 april		€ 758,50
A01.01.03f	Inundatieperiode 15 februari tot 15 mei		€ 1.211,05
A01.01.03g	Inundatieperiode 15 februari tot 15 juni		€ 1.981,43
A01.01.03h	Inundatieperiode 15 februari tot 1 augustus		€ 1.981,43
A01.01.04	Landbouwgrond met legselbeheer	Hectare per jaar	
A01.01.04a1	Legselbeheer op grasland 35 broedparen		€ 69,17
A01.01.04a1	Legselbeheer op grasland 50 broedparen		€ 87,82
A01.01.04a1	Legselbeheer op grasland 75 broedparen		€ 108,41
A01.01.04a1	Legselbeheer op grasland 100 broedparen		€ 129,84
A01.01.04b	Legselbeheer op bouwland en/of grasland		€ 51,66
A01.01.04c1.ut	Legselbeheer op grasland 150 broedparen plus maaitrappen		€ 316,31
A01.01.04c2.ut	Legselbeheer op grasland 200 broedparen plus maaitrappen		€ 359,11
A01.01.04c3.ut	Legselbeheer op grasland 300 broedparen plus maaitrappen		€ 380,90
A01.01.05	Kruidenrijk weidevogelgrasland	Hectare per jaar	
A01.01.05a	Kruidenrijk weidevogelgrasland		€ 1.028,35
A01.01.05b	Kruidenrijk weidevogelgraslandrand		€ 926,62
A01.01.06	Extensief beweid weidevogelgrasland	Hectare per jaar	

A01.01.06	Extensief beweide weidevogelgrasland		€ 495,04
A01.01.07	Ruige mest	Hectare per jaar	
A01.01.07	Ruige mest		€ 138
A01.02.01	Bouwland met broedende akkervogels	Hectare per jaar	
A01.02.01a1 (2010)	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 maart en 15 april worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel op kleigrond		€ 2.138,73
A01.02.01a2 (2010)	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 maart en 15 april worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel op zandgrond		€ 1.652,31
A01.02.01b1 (2010)	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 maart en 15 april te worden geploegd op kleigrond		€ 2.138,73
A01.02.01b2 (2010)	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 maart en 15 april te worden geploegd op zandgrond		€ 1.652,31
A01.02.01c1 (2010)	Bouwland met broedende akkervogels: In het derde of vierde jaar dient de gehele beheereenheid opnieuw tussen 1 maart en 15 april te worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel op kleigrond		€ 2.138,73
A01.02.01c2 (2010)	Bouwland met broedende akkervogels: In het derde of vierde jaar dient de gehele beheereenheid opnieuw tussen 1 maart en 15 april te worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel op zandgrond		€ 1.652,31
A01.02.01a1	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 maart en 15 april worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel op kleigrond		€ 2.138,73
A01.02.01a2	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 maart en 15 april worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel op zandgrond		€ 1.652,31
A01.02.01b1	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 sept en 15 april te worden geploegd op kleigrond		€ 2.138,73
A01.02.01b2	Bouwland met broedende akkervogels: Jaarlijks dient 20-50% van de beheereenheid opnieuw tussen 1 sept en 15 april te worden geploegd op zandgrond		€ 1.652,31

A01.02.01c1	Bouwland met broedende akkervogels: In 3e en 4e jaar dient de gehele beheereenheid opnieuw tussen 1 sept en 15 april te worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel... Roulatie mogelijk op klei		€ 2.138,73
A01.02.01c2	Bouwland met broedende akkervogels: In 3e en 4e jaar dient de gehele beheereenheid opnieuw tussen 1 sept en 15 april te worden geploegd en opnieuw ingezaaid met een in het natuurbeheerplan voorgeschreven zaaimengsel... Roulatie mogelijk op zand		€ 1.652,31
A01.02.01d1	De beheereenheid is minimaal 12 meter breed. Tussen 15 april en 31 aug mag max. 10% van de oppervlakte bedekt zijn met rijsporen Roulatie mogelijk op klei		€ 1.739,63
A01.02.01d2	De beheereenheid is minimaal 12 meter breed. Tussen 15 april en 31 aug mag max. 10% van de oppervlakte bedekt zijn met rijsporen Roulatie mogelijk op zand		€ 1.302,33
A01.02.02	Bouwland met doortrekkende en overwinterende akkervogels	Hectare per jaar	
A01.02.02a	Bouwland met doortrekkende en overwinterende akkervogels klei		€ 2.028,24
A01.02.02b	Bouwland met doortrekkende en overwinterende akkervogels zand		€ 1.744,97
A01.02.03	Bouwland voor hamsters	Hectare per jaar	
A01.02.03a	Bouwland voor hamsters, vollevelds		€ 2.240,05
A01.02.03b	Opvangstrook voor hamsters		€ 2.028,24
A01.03.01	Overwinterende ganzen	Hectare per jaar	
A01.03.01a	Ganzen op grasland	ten minste	€ 118,00
		ten hoogste	€ 725,81
A01.03.01b	Ganzen op bouwland	ten minste	€ 73,00
		ten hoogste	€ 756,80
A01.03.01c	Ganzen op vroege groenbemester		€ 252,00
A01.03.01d	Ganzen op late groenbemester		€ 252,00
A01.03.02	Overzomerende ganzen	Hectare per jaar	
A01.03.02.Lb	Opvang overzomerende grauwe ganzen Maasplassen		€ 940,00
A01.04	Insectenrijke graslanden	Hectare per jaar	
A01.04.01a.Lb	Insectenrijk graslandperceelsbeheer Roerdal: basis		€ 1.386,98
A01.04.01b.Lb	Insectenrijk graslandperceelsbeheer Roerdal: plus		€ 1.991,11
A01.04.02.Lb	Insectenrijke graslandranden Roerdal		€ 1.991,11
A01.05.01	Foerageerrand Bever	Hectare per jaar	
A01.05.01.Lb	Foerageerrand Bever		€ 0,00
A02.01	Botanisch waardevol grasland	Hectare per jaar	
A02.01.01	Botanisch weiland		€ 1.020,09

A02.01.02	Botanisch hooiland		€ 1.164,83
A02.01.03	Botanische weide-of hooilandrand		
A02.01.03a	Botanische weiderand		€ 1.020,09
A02.01.03b	Botanische hooilandrand		€ 1.350,02
A02.01.04	Botanisch bronbeheer		€ 1.803,98
A02.02	Akker met waardevolle flora	Hectare per jaar	
A02.02.01a	Akker met waardevolle flora: Drie van de zes jaar graan		€ 149,63
A02.02.01b	Akker met waardevolle flora: Vier van de zes jaar graan		€ 441,76
A02.02.01c	Akker met waardevolle flora: Vijf van de zes jaar graan		€ 521,60
A02.02.02	Chemie en kunstmestvrij land	Hectare per jaar	
A02.02.02a	Chemie en kunstmestvrij land: Drie van de zes jaar graan		€ 663,24
A02.02.02b	Chemie en kunstmestvrij land: Vier van de zes jaar graan		€ 725,42
A02.02.02c	Chemie en kunstmestvrij land: Vijf van de zes jaar graan		€ 766,50
A02.02.03	Akkerflora randen	Hectare per jaar	
A02,02.03	Akkerflora randen		€ 1.652,31

Table A.2: Compensations per type of conservation measure (Overijssel, 2019)

Appendix 3: Hectares agricultural conservation of nature in 2019 in the province of Overijssel (ANLb)

The table below shows the amount of hectares on which agricultural conservation of nature was executed in the year 2019 in the province of Overijssel.

		Agrarisch Natuurcollectief – ANLb			
CODE	TOTAALNAAM	Coöperatie gebiedscollectief Noordoost Twente U.A.	Coöperatieve Agrarisch Natuur Collectief Midden Overijssel U.A.	Coöperatieve Agrarische Natuurvereniging Noordwest Overijssel U.A.	Eindtotaal
1a	Grasland met rustperiode - rust van 1 april tot 1 juni	3,7ha	14,4ha	234,6ha	252,7ha
1b	Grasland met rustperiode - rust van 1 april tot 8 juni	3,1ha	4,1ha	68,5ha	75,7ha
1c	Grasland met rustperiode - rust van 1 april tot 15 juni	18,7ha	45,8ha	259,2ha	323,7ha
1l	Grasland met rustperiode - rust van 1 mei tot 15 juni, voorweiden		12,0ha		12,0ha
1q	Grasland met rustperiode - rust van 1 mei tot 1 juni, voorweiden			32,1ha	32,1ha
		25,6ha	76,3ha	594,4ha	696,2ha
2b	Kuikenvelden - rust 1 april - 1 augustus, 3 weken			2,2ha	2,2ha
2c	Kuikenvelden - rust 1 april - 1 augustus, 4 weken			0,3ha	0,3ha
				2,5ha	2,5ha
3a	Plas-dras - 15 februari - 15 april			1,0ha	1,0ha
3b	Plas-dras - 15 februari - 15 mei			2,4ha	2,4ha
3c	Plas-dras - 15 februari - 15 juni	2,7ha	3,8ha	33,2ha	39,8ha
3e	Plas-dras - 15 februari - 15 april, greppels			1,1ha	1,1ha
3f	Plas-dras - 15 februari - 15 mei, greppels		0,1ha	0,5ha	0,6ha
3g	Plas-dras - 15 februari - 15 juni, greppels	0,0ha	0,2ha	3,4ha	3,6ha
		2,8ha	4,1ha	41,5ha	48,4ha
4a	Legselbeheer - Legselbeheer op grasland	24,3ha	417,4ha	1.969,2ha	2.410,9ha
4b	Legselbeheer - Rustperiode op bouwland	5,7ha	1,3ha		7,1ha
4d	Legselbeheer - nestbescherming + 2 weken rustperiode			5,6ha	5,6ha

4f	Legselbeheer - nestbescherming + 4 weken rustperiode			2,2ha	2,2ha
		30,0ha	418,7ha	1.977,0ha	2.425,7ha
5a	Kruidenrijk grasland - 1 april - 15 juni	8,4ha	151,6ha	543,1ha	703,1ha
5b	Kruidenrijk grasland - 1 april - 22 juni	2,7ha		4,0ha	6,7ha
5c	Kruidenrijk grasland - 1 april - 1 juli		5,9ha	2,1ha	8,0ha
5h	Kruidenrijk grasland - rand, klasse A	0,6ha	0,9ha	0,2ha	1,7ha
		11,7ha	158,4ha	549,3ha	719,5ha
6a	Extensief beweid grasland - 1 - 1,5 GVE / ha, 1 april - 15 juni		4,6ha	16,0ha	20,7ha
6c	Extensief beweid grasland - 1 - 3 GVE / ha, 1 april - 15 juni		7,3ha	14,1ha	21,3ha
			11,9ha	30,1ha	42,0ha
7a	Ruige mest - ruige mest	22,1ha	166,4ha	1.015,8ha	1.204,3ha
		22,1ha	166,4ha	1.015,8ha	1.204,3ha
9a	Poel en klein historisch water - kleine poel, 75 - 100 % schonen		0,1ha		0,1ha
9c	Poel en klein historisch water - kleine poel, maximaal 75 % schonen		0,0ha		0,0ha
9d	Poel en klein historisch water - grote poel, maximaal 75 % schonen		0,6ha		0,6ha
9e	Poel en klein historisch water - jaarlijks beheer < 175 m2	0,1ha	0,3ha		0,4ha
9f	Poel en klein historisch water - jaarlijks beheer + opschonen < 175 m2		0,0ha	0,2ha	0,2ha
9g	Poel en klein historisch water - jaarlijks beheer > 175 m2	0,2ha	0,1ha		0,3ha
9h	Poel en klein historisch water - jl. beheer + opschonen 5 jr > 175 m2	0,1ha	0,2ha	0,2ha	0,5ha
9i	Poel en klein historisch water - jl. beheer + opschonen 10 jr > 175 m2		0,4ha	0,1ha	0,5ha
		0,4ha	1,8ha	0,5ha	2,6ha
10a	Natuurvriendelijke oever - natuurvriendelijke oever		0,2ha		0,2ha
			0,2ha		0,2ha
11b	Rietzoom en klein rietperceel - brede rietzoom en rietperceel		0,0ha		0,0ha
			0,0ha		0,0ha

13a	Botanisch grasland - botanisch weiland	0,6ha	0,2ha		0,8ha
13b	Botanisch grasland - botanisch hooiland	127,6ha	309,0ha	187,9ha	624,5ha
13c	Botanisch grasland - botanische weiderand	3,5ha	2,3ha		5,7ha
13d	Botanisch grasland - botanische hooilandrand	16,0ha	88,1ha	2,2ha	106,3ha
		147,6ha	399,6ha	190,1ha	737,3ha
15a	Wintervoedselakker - wintervoedselakker 15 mei - 1 maart	24,3ha	1,7ha		26,0ha
15b	Wintervoedselakker - wintervoedselakker 1 okt - 15 maart	4,3ha			4,3ha
		28,6ha	1,7ha		30,3ha
18a	Kruidenrijke akker - 3 van de 6 jaar graan		37,5ha		37,5ha
18b	Kruidenrijke akker - 4 van de 6 jaar graan	10,8ha	17,3ha		28,2ha
18c	Kruidenrijke akker - 5 van de 6 jaar graan	74,8ha	18,2ha		93,0ha
		85,6ha	73,0ha		158,6ha
19a	Kruidenrijke akkerrand - 3 m breed	0,1ha	6,4ha		6,6ha
19b	Kruidenrijke akkerrand - 6 m breed	56,7ha	46,7ha		103,3ha
		56,8ha	53,1ha		109,9ha
20a	Hakhoutbeheer - jaarlijks beheer	1,0ha	3,5ha	2,8ha	7,3ha
20b	Hakhoutbeheer - jaarlijks beheer plus tussenkap		0,3ha		0,3ha
20c	Hakhoutbeheer - jaarlijks beheer plus eindkap			2,3ha	2,3ha
20d	Hakhoutbeheer - tussenkap	4,2ha			4,2ha
		5,2ha	3,8ha	5,1ha	14,1ha
21a	Beheer van bomenrijen - beheer van bomenrijen	0,0ha	0,3ha		0,3ha
		0,0ha	0,3ha		0,3ha
22a	Knip- en scheerheg - jaarlijks knippen / scheren	0,2ha	0,1ha		0,3ha
22b	Knip- en scheerheg - eenmaal per 2 / 3 jaar knippen / scheren		0,0ha	0,0ha	0,0ha
		0,2ha	0,1ha	0,0ha	0,3ha
23a	Struweelhaag - cyclus 5 - 7 jaar	0,0ha	0,1ha		0,1ha
		0,0ha	0,1ha		0,1ha
24a	Struweelrand - struweelrand		2,9ha		2,9ha
			2,9ha		2,9ha

25a	Boom op landbouwgrond - boom op landbouwgrond		0,0ha		0,0ha
			0,0ha		0,0ha
26a	Half- en hoogstamboomgaard - hoogstamboomgaard	0,4ha	2,9ha		3,3ha
		0,4ha	2,9ha		3,3ha
27a	Hakhoutbosje - droog hakhout	0,3ha	0,7ha	0,4ha	1,5ha
27b	Hakhoutbosje - vochtig hakhout	0,9ha	0,7ha		1,6ha
		1,2ha	1,4ha	0,4ha	3,1ha
29a	Bosje - bosje	1,2ha			1,2ha
		1,2ha			1,2ha
39a	Bodemverbetering (op gras-en bouwland) - op grasland	119,6ha	33,5ha		153,1ha
		119,6ha	33,5ha		153,1ha
		539,0ha	1.410,3ha	4.406,8ha	6.356,1ha

Table A.3: Amount of hectares under contract per type of conservation measure in the province of Overijssel.