

Values Amongst Volunteers in Food Forests

Research Report Group 4D Sustainable Food



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Regional Integration Project

June 2021

Word Count: 5719

Index

1. Introduction	2
2. Literature Review	3
2.1 Values of volunteers.....	3
2.2 Theoretical framework	3
3. Methods	5
3.1 Data collection.....	5
3.2 Organisation and analysis of the data.....	5
3.3 Operationalization of the variables	6
4. Results	7
4.1 Engagement of volunteers in food forests.....	7
4.2 Most common values among volunteers	7
4.3 Work values amongst volunteers	8
4.4 Ways in which values are realised	10
4.5 Challenges while volunteering	10
4.6 Involving more volunteers	11
5. Discussion.....	12
5.1 Interpretation of findings and research in context.....	12
5.2 Strengths and limitations	13
6. Conclusion	15
7. Relevance and integration possibilities	16
8. Reference List.....	17
9. Appendix	19
Appendix A: Interview guide and questions	19
Appendix B: Data analysis.....	20

1. Introduction

In a world where climate change is a pressing issue, people want to find tangible solutions to mitigate the threats to global food security. One of them is the access to local food. As the global population increases exponentially and the resources become scarce, the need for a sustainable agricultural system is now more urgent than ever (FAO, 2019). Additionally, an increasing number of people find it important to reacquaint themselves with nature (The Pollinators, 2019). As a result, alternative farming systems such as food forests have gained more recognition over the last few years (Park et al., 2018; Riolo, 2019).

Food forests are a form of agroforestry that attempts to imitate natural ecosystems (De Groot and Veen, 2017). The goal of a food forest is “to empower people to feed themselves through agroforestry, edible landscape design, and education” (Project Food Forest, n.d.). It approaches agriculture in a holistic manner; providing ecosystem services and increasing biodiversity simultaneously. The increasing popularity of food forests reflects a value shift in urban cultures. There is a desire for a public space in which citizens can actively engage in the production of food and herbal medicine to enhance nutrition, promote food literacy and provide a useful and safe place to gather, recreate and work together (Bukowski, C., & Munsell, J. 2018).

In the Netherlands, the concept of food forests is relatively new and the majority is still in the starting-phase. Currently, there are approximately 54 food forests in the Netherlands (Field to Forest, as cited in De Groot and Veen, 2017). It is remarkable that the majority of the food forests are run by volunteers, as they are performing work that is highly valuable in the context of food security and a sustainable future.

The aim of this research is to identify the values of volunteers working in food forests and to explore its opportunities for a sustainable food system in the Utrechtse Heuvelrug and around. This research explores the following questions: How and why are volunteers engaged in food forests? Which values are most common among volunteers working in food forests? How are the common values amongst volunteers realised? What are the challenges volunteers in food forests encounter and how can these be overcome? How can more people be involved in food forests? Addressing these questions will help answer the central research question: “What do volunteers in food forests value and how can these values be used to incentivise the involvement of new volunteers?”

Firstly, existing literature on this topic has been analysed to gain more insights into current knowledge, define relevant concepts, identify research gaps and establish appropriate theoretical frameworks for this research. Secondly, the methods section will explain the procedures involved to gather the research results. Thirdly, the results which are relevant to the research question will be provided. These will then be interpreted and utilized to answer the sub questions and research questions. Finally, the broader implications of the findings of this research will be discussed.

2. Literature Review

2.1 Values of volunteers

Not much research has been done on the values of volunteers in food forests yet. Hence, the literature review includes volunteers in other forms of sustainable agriculture. It is important to first define the concepts of food forests, values and volunteers, as conceptualization of these vary widely in terms of definition (Lincoln and Ardoin, 2016). First, ‘food forests’ are considered to be “a diverse planting of edible plants that attempts to mimic the ecosystems and patterns found in nature” which prioritizes the health of the ecosystem (Project Food Forest, n.d.). Second, ‘values’ is defined as “basic and fundamental beliefs that guide or motivate attitudes or actions” (Mintz, 2018). This is also the definition that will be used throughout this research. However, defining ‘volunteers’ can be challenging as there are varying understandings (Ramalingam et al. 2019). In this research, the concept ‘volunteers’ refers to people who willingly chose to work in a food forest themselves without being paid.

There are numerous studies that have attempted to comprehend who became volunteers, why they chose to become volunteers and what makes them remain volunteers (Kim et al. 2010; as cited in Ramalingam et al. 2019). Recruiting, motivating and keeping volunteers is one of the biggest challenges that non-profit organizations encounter (Boezeman and Ellemans, 2009). Understanding volunteers’ motivation, therefore, is key to engaging more people. Ramalingam et al. (2019) suggests that motivation is the end product of eight different components, such as values, career, social and external factors. Therefore, values can indirectly (via motivation) keep people engaged in being a volunteer or attract new volunteers. This research will focus on the value-dimension of volunteers in the context of food forests, as there is limited knowledge on this topic.

2.2 Theoretical framework

The capability set for work was applied to analyse volunteers’ values. This framework is based on Amartya Sen’s capability approach and includes seven aspects that Dutch workers generally value highly in work. The seven aspects are: “The opportunity to use your knowledge and skills, to develop your knowledge and skills, to earn a good income, to be involved in important decisions, to have and build meaningful relationships, to set your own goals and to be part of the creation of something valuable.” (Abma et al., 2016, as cited in van Casteren, 2021, p. 3). These aspects serve to measure a worker’s capability set (i.e. when the aspect is considered valuable, enabled in work, and realised). This framework was chosen for this research because it can help identify the most important work-values of volunteers in food forests. Since the objectives of this research are based on volunteer work, the value ‘to earn a good income’ was omitted.

Furthermore, the IPBES Conceptual Framework was applied in the thematic analysis (section 3.2) to interpret other volunteer values besides the work-values. IPBES (Intergovernmental Platform on Biodiversity and Ecosystem Services) describes essential social and ecological factors and their relationships in a shared and simplified language. The framework has six primary interlinked elements that constitute the natural and social systems: nature; nature’s benefits to people; anthropogenic assets; institutions and governance systems and other indirect drivers of change; direct drivers of change; and good quality of life (Diaz et al., 2015). However, only elements one, three, and six are relevant for this research. For this reason, only these three elements will be described in detail and justified.

The first element, ‘*Nature*’, concerns the natural world. It emphasizes the interactions of living organisms with themselves and their surrounding environment (Diaz et al., 2015). This concept considers the intrinsic values of nature, independent from ‘any human

considerations of its worth or importance' (Diaz et al., 2015). The third element, '*Nature's benefit to people*', concerns all benefits nature provides to humans, including ecosystem goods and services. The value of nature's benefits to people can be expressed through different methods of valuation approaches (Diaz et al., 2015). For example, food forests can provide various services such as food production or climate regulation, but food forests also provide an opportunity for people to be more engaged with nature. The sixth element, '*Good Quality of Life*', is about the goal to have a fulfilling human life. What this entails can vary a lot in different cultures and societies, as it is highly dependent on values and context. Diaz et al. (2015) mentions several perspectives of a good quality of life such as Human well-being and Living in harmony with nature.

3. Methods

3.1 Data collection

In order to gather data, semi-structured interviews have been conducted with 11 volunteers and 2 founders of 4 different food forests in the Netherlands: Haarzuilens, Leusden, Zeewolde and Waalgaard Weurt. Conducting in-depth interviews allows the obtaining of specific information from the volunteers. This is an appropriate method for this research, since the research questions are exploratory in nature and therefore need context and detailed answers. It is most suitable to obtain this data via interviews as opposed to surveys, because interviews are “a well-established method for gathering data about experiences and beliefs and its exploratory nature permits the collection of rich data” (Nathan et al. 2019, Ritchie et al. 2014 as cited in van Casteren et al. 2021, p. 3).

The majority of the interviews with the volunteers have been conducted on-site. This is because while interviewing the volunteers on-site, body language can be better interpreted and the working environment can be experienced in-person, which gives the interviewers a better context. Throughout the visits to the food forests, the RIVM guidelines concerning the COVID-19 pandemic have been adhered to, and the volunteers have been asked to act similarly during the interviews. The volunteers that did not want to participate in an on-site interview were invited for an interview via the platform Zoom.

The interviews were conducted by two people: one person asked questions and the other person kept track of the answers. Before the start of the interview, volunteers have been asked for permission to record the interview. Eleven interviews have been conducted in total, including one group interview with all three volunteers of Lekker Landgoed Haarzuilens. The group interview was conducted because the interviewees indicated that each had limited time available. Therefore, they could not afford to wait for the other interviewees to be finished. Given that this was not known beforehand, it was not possible to prepare well for this type of interview. Still, considering that the aim was to interview everyone, the decision was made to do a group interview.

3.2 Organisation and analysis of the data

All volunteers have given informed consent to audio-record the interview. After having conducted the interviews, all the recordings were collected in one folder. All interviewers have transcribed the audio-recording of the interview they conducted themselves and saved these in the same folder. Coding was used in order to appropriately organize and analyse the data. The answers from the interviewees have each been coded by identifying specific concepts, words and terms across the data set. The software program that has been used for coding is Excel. Excel enables the analysis and presentation of the data using tables and graphs.

After having coded the data, a thematic analysis was conducted to analyse and to provide a theoretical understanding of the data set. A thematic analysis was chosen, because it “offers an accessible and theoretically flexible approach to analysing qualitative data” (Braun and Clarke, 2006, p. 77). The analysis was done by searching for repetitive topics and patterns across the different codes. After this, the different answers were divided into several themes. In order to identify these different themes, descriptive analysis was applied to analyse and present the different characteristics in the answers of the participants by calculating the frequency. Furthermore, the software program Excel has been used to keep track of how many times similar answers were given. A response to the main research question can be formulated by analysing the answers.

3.3 Operationalization of the variables

The concept ‘values’ is central to the research question. Therefore, the majority of the interview questions (see Appendix A) were related to the volunteers’ values to gather data on this concept. The different types of values associated with volunteering in food forests have been used as an indicator to identify individual motivations and values of the interviewed volunteers. Six work-related values of the capability approach (section 2.2) provide the coding framework for this concept. To translate volunteers’ values into measurable units, volunteers have been asked to rank these work-related values from most important to least important. These rankings have been coded and provide an overview of the most common work-related values amongst the interviewed volunteers. In addition to these working values, volunteers have been asked to identify other values associated with working in food forests and why they chose to volunteer in a food forest. These values have also been coded by placing them in corresponding categories. The three IPBES concepts identified in section 2.2 have been used to assist in creating relevant categories used in the thematic analysis of the transcribed interviews.

Four main themes were identified across the interviews: Relations, Well-being, Sustainability and Raising Awareness. These themes were used to categorize the values identified during the interviews. The three IPBES concepts correspond to several of these themes: Human well-being is one perspective of Good quality of life; the Sustainability theme can be found across Nature and Nature’s benefit to people. The remaining two themes (Relations and Raising Awareness) have been created based on repetitive topics in the interview answers, but several IPBES concepts can also be found in these themes. Subsequently, the four main themes were divided into several sub-themes which are shown in figure 2.

After dividing the responses of the interviewees into the different (sub-)themes, they were quantified. Per interviewee, a (sub-) category could only be counted once, for a more detailed explanation on this see Appendix B.

Main theme	Sub-theme 1	Sub-theme 2	Sub-theme 3	Sub-theme 4	Sub-theme 5
Relationships	Personal relationships	Community feeling	Other		
Well-being	Personal well-being	Connection with nature	Educational interest	Need to consume ‘healthy’ food	
Sustainability	Sustainability and tackling climate change in general	Increase in biodiversity	Carbon capture	Change in agricultural sector	Other
Raising awareness	Raising awareness in general	Educating people about other forms of agriculture	Other		

Figure 2. Values of volunteers working in a food forest divided into four main themes, with sub-categories added to each main theme.

4. Results

4.1 Engagement of volunteers in food forests

All interviewees are engaged in physical work in the food forests. Only the initiators of the food forests are performing administrative work. The physical work includes planting vegetation, giving water, cutting trees, mowing, etc. However, the type of physical work differs depending on different factors, such as the season.

Interviewee A: *“In the beginning it was planting the grapes. It depends on the season also, in summer we give water to the plants and we spread the leaves. There is not something like a routine, it differs every time”.*

The interviewees were asked to indicate why they started volunteering at a food forest. This indirectly shows the volunteers' motivation to start volunteering at the food forest. Most of the given answers were related to 'well-being'. Multiple interviewees have answered that they enjoy being outside in nature and like to feel connected with nature. Furthermore, interviewees indicated that they started volunteering because they knew the founders or that they were interested in the concept of food forest, and wanted to learn more about it.

Interviewee B: *“I started reading about the concept of food forest and what it could be, and I thought that was interesting. Starting it up from the ground, from an empty field, it appealed to me. We are still not there yet and the whole process is also quite interesting”.*

4.2 Most common values among volunteers

Interview data is used to provide an overview of the values that are considered most common among volunteers in food forests. With this data the most prominent values have been identified. In Figure 3, the most common values are displayed: 'Well-being' and 'Sustainability'. Within these two main themes, the most common sub-themes that were mentioned were 'Personal well-being', 'Connection with nature' and 'Change in the agricultural sector'.

Main theme	Sub-theme 1	Sub-theme 2	Sub-theme 3	Sub-theme 4	Sub-theme 5
Relationships (8)	Personal relationships (3)	Community feeling (4)	Other (1)		
Well-being (21)	Personal well-being (9)	Connection with nature (7)	Educational interest (3)	Need to consume 'healthy' food (2)	
Sustainability (29)	Sustainability and tackling climate change in general (6)	Increase in biodiversity (6)	Carbon capture (1)	Change in agricultural sector (8)	Other (8)
Raising awareness (5)	Raising awareness in general (2)	Educating people about other forms of agriculture (1)	Other (2)		

Figure 3. Values of volunteers working in food forests divided into four main themes with sub-categories added to each main theme. Within between brackets the number of times this (sub-) theme has been mentioned.

4.3 Work values amongst volunteers

The working values have been analysed by allocating points according to the ranking order. Figure 5 shows a table that presents the number of times a certain value is ranked most important, second most important, etc. This scheme shows how the working values are ranked based on their importance.

Figure 6 presents a bar chart of the work values ranked by the participants. The respondents have ranked several work-values (x-axis) according to their importance while doing volunteer work. The value 'Contribution to the creation of something valuable' is ranked as the most important. The least important value is 'to be involved in important decisions'. Many volunteers have explained that this value is not or barely important to them, since they execute volunteer work and are often not involved in important decisions.

	Number of times ranked nr. 1	Number of times ranked nr. 2	Number of times ranked nr. 3	Number of times ranked nr. 4	Number of times ranked nr. 5	Number of times ranked nr. 6
Contribution to the creation of something valuable	9	1	2	1	0	0
To develop knowledge and skills	1	7	4	0	1	0
Opportunity to use knowledge and skills	1	3	5	3	1	0
To have and build meaningful relationships	1	0	3	8	0	1
To set your own goals	0	2	1	1	4	4
To be involved in important decisions	1	0	1	1	4	5

Figure 5. Scheme that shows the number of times working values are ranked to a certain level of importance.

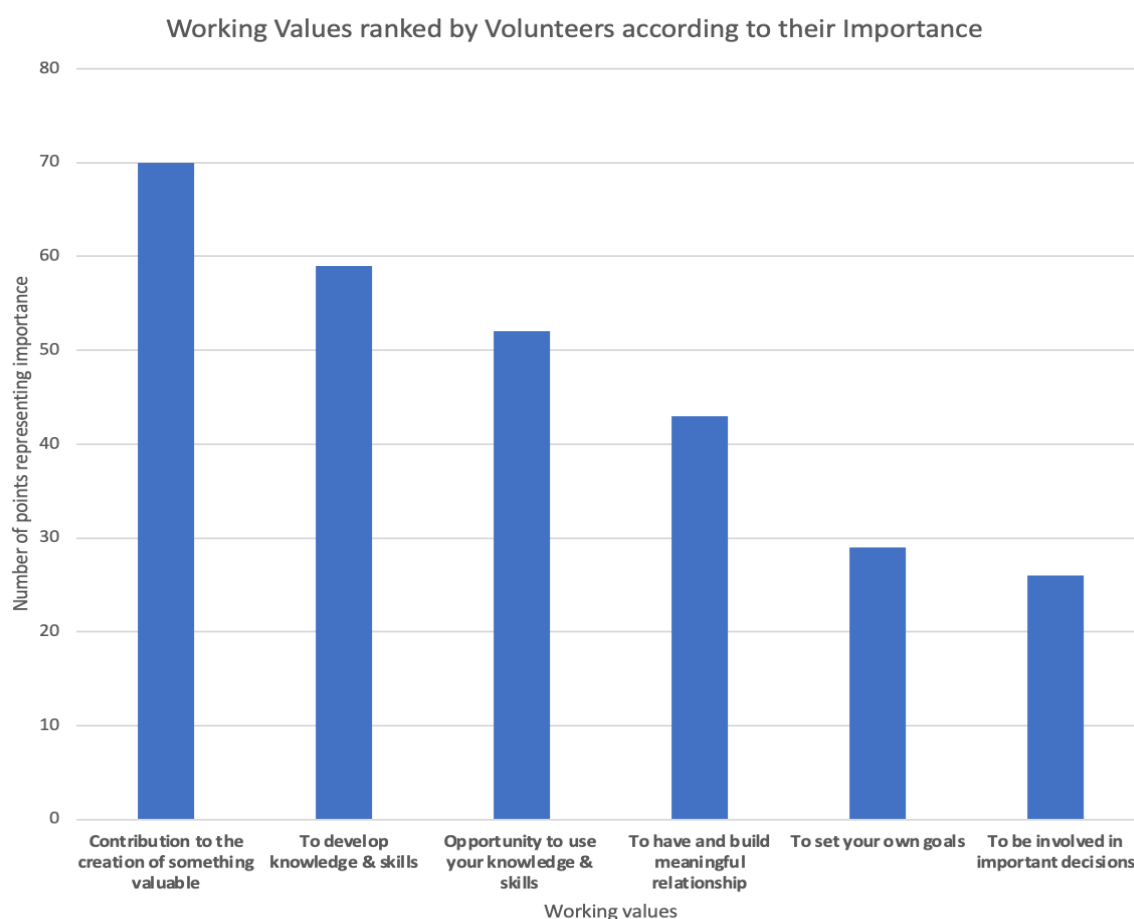


Figure 6. Bar chart representing the importance of working values ranked by participants. The x-axis represents working values. If a respondent assesses a value as most important, the value is awarded 6 points. The second most important value receives 5 points, etc. This process was performed for all interviews. Total number of points for each value is summed to constitute the total of points on the y-axis.

4.4 Ways in which values are realised

The most common (work) values amongst volunteers are realised in various ways. The value ‘Contribution to the creation of something valuable’ is realised through performing tasks such as planting new trees and managing the food forest in general. In this way, volunteers feel they are contributing to a change in the agricultural world. This often results in more motivation to keep volunteering, which is why this value is of great importance.

Interviewee C: *“I feel like I am contributing to a bigger cause. I hope that people will realise that this is a way to buy their stuff locally ... from our vineyards.”*

The second most important work value according to participants is to develop knowledge and skills. Most volunteers are no experts in the agricultural world and can therefore obtain new knowledge through working in food forests. This includes knowledge about plants, trees, insects, or biodiversity. Besides the theoretical insights into these topics, practical skills are also obtained. For example, volunteers learn how to manage certain plants and how to deal with different weather circumstances.

The value ‘Sustainability’ is mainly realised by planting new seeds and taking care of the plants. Biodiversity is an important factor that volunteers value as highly important. Participants have frequently mentioned that an important goal for them is increasing and managing biodiversity in the food forests.

Interviewee D: *“We are bringing our own biodiversity with all the new planting material - which introduces new species of bugs and insects that increase the biodiversity.”*

Furthermore, well-being is another value that is regarded highly important. This value is realised in different ways. For example, some participants regard exercising as an important personal value, since volunteering involves mainly physical work. Additionally, participants have mentioned that being connected to nature is crucial to them, because it improves their personal well-being.

4.5 Challenges while volunteering

The most common challenges volunteers have mentioned in the interviews are environmental, financial and with the community around the food forest. The environmental challenges are often related to the weather, such as extensive periods without precipitation. No concrete solutions have been mentioned to tackle the environmental challenges. Rather, volunteers emphasized letting the ecosystem develop without human interventions such as pesticide-use, as the principles of the food forest are based on the ecological processes.

The majority of the food forests in the Netherlands rely on subsidies to subsist. Some of the food forests aim to become profitable in the future. Receiving insufficient financial support can affect the development and long-term goals of the food forests. The owners of these food forests want to show the conventional agricultural sector that it can be both sustainable and financially viable. To achieve being financially self-sufficient, it is sometimes necessary to make compromises with nature. In essence, finding the right balance between these two is important to both sustain the food forest and respect the natural processes.

The volunteers also face difficulties with the communities around the food forest. Most of the food forests are open areas, which means that everyone can access them. This can create challenges because people can take food or equipment that is not theirs, destroy parts and/or

leave litter. Ways to tackle this issue is by communicating with the public through signs. Another possibility could also be closing off certain areas to the public.

4.6 Involving more volunteers

The majority of the interviewees mentioned that it is not necessary to involve more volunteers now. However, the involvement of more volunteers can assist in the expansion or creation of more food forests. If more volunteers would be needed, raising awareness would be most effective. Education about the processes of food forests and explaining why it is necessary to transition towards this alternative food system may incentivize others to contribute to these projects through volunteering. By showing outsiders the food forest and comparing that to a monoculture forest, people directly see the difference. This could be done by organizing open days, writing articles for the local and national newspapers, promoting the food forest on social media and collaborating with other organizations.

5. Discussion

5.1 Interpretation of findings and research in context

The results reveal that the most important values of volunteers are related to sustainability and well-being, with the most common sub-categories: ‘change in the agricultural sector’ and ‘personal well-being’ respectively. Moreover, the most important work values identified are ‘the contribution to the creation of something valuable’ and ‘to develop knowledge and skills’. These working values contribute to the engagement of volunteers in food forests; they found it valuable to contribute to sustainability and the well-being of both people and nature. These results indicate that volunteer work in food forests provides participants the opportunity to fulfill their personal values, which consequently contributes to their personal well-being and active engagement.

Research on environmental volunteering

Previous studies have conducted research on the benefits of ‘environmental volunteering’. O’Brien et al. (2010, p. 529) defines this as “the engagement of volunteers to achieve environmental gains”. They found that volunteers gained various benefits from their involvement including improved health, personal relationships, community, mental and physical well-being. These benefits arise through experiences such as getting outdoors, being physically active and making a meaningful contribution to society or local communities.

In this research, similar results were found amongst volunteers in food forests. Volunteers found it valuable to contribute to sustainability and to increase their well-being. They also did this through working in nature which contributed to their physical and mental well-being (e.g. feeling a strong connection with nature, stress relief, etc.). Moreover, their involvement in the development of the food forests also contributed to what they found valuable: a sustainable food system.

The results between the two are relatively similar. One of the differences in the approach is that the study by O’Brien focuses on the direct benefits that volunteers receive and this research looks at the values beyond those benefits. Volunteering in food forests could be considered a branch of environmental volunteering, as environmental volunteering also occurs in the context of food forests. Thus, the findings of this study can be seen as a valuable contribution in research on environmental volunteering. In addition to the benefits, this study analyses the most important values related to food forests, which could be applicable to volunteers in other contexts.

Research on capability set for work

Previous studies have applied the capability set for work to other contexts and participant groups. For instance, van Casteren (2021) has conducted a study on the well-being and sustainable employability of gifted workers. Furthermore, van Gorp et al. (2016) has studied the difference in work capabilities between workers with multiple sclerosis and general workers. In both studies, the seven work values were applied to determine which aspects were part of the worker’s capability set through three criteria: if an aspect is considered valuable, enabled in work, and achieved. In this research, the aspects were used to determine which work aspects were considered valuable by volunteers in food forests. In contrast to previous studies, this is the first time that this framework has been applied to volunteers. Moreover, data for this research was collected through semi-structured interviews rather than questionnaires, which allowed the participants to elaborate on their answers (e.g. in what ways the work values are realised).

The different working environment, participants and method of this study have contributed to new results. Firstly, the gifted workers in van Casteren's (2021) research valued the contribution to something valuable highly. However, if not fulfilled, it often leads to frustrations and workers would look for additional activities or change jobs. Contrastingly, while also valuing the same work aspect highly, volunteers in this research all indicated that this work value was realised through working in a food forest. Participants that have taken part in the interviews are mostly volunteers, i.e. they do not benefit financially from working in the food forest. The participant groups in the other two studies consist of paid workers instead of volunteers. Being a volunteer removes the significant value of financial income. Therefore, volunteers are often more likely to perform work that they enjoy doing. Thus, in this research, there is less emphasis on the consequences of not realising the values; as the most important values were already realised through volunteering, and the other unrealised values were deemed not important.

Secondly, both studies explicitly made a distinction between the importance, realisation and achievement of a value. This has implications on the results. For instance, van Gorp (2018, p. 7) found that there were discrepancies found for every work value: "In both groups, for every work value the importance was considered higher than being enabled in the work context and being able to achieve the work value." In this research, volunteers have only been asked about the importance and realisation of the values. It was interesting to see that there were no discrepancies found in the values, as the values that were considered important were also realised according to the volunteers. This could be because the financial aspect is not applicable as volunteering is not the main source of income. Volunteers chose this work mainly based on what they find valuable and what they could realise in practice, whereas other factors such as finances also play a role in choosing employment in the other two studies.

Furthermore, the context and method of the research is an important factor. Previous studies have used the framework in the context of a company, which differs massively compared to the context of this research. Moreover, this study has employed the data collection through semi-structured interviews and has asked participants about additional values besides the seven work values. This substantial difference in context and data collection influences the results, since participants have for example expressed being in nature as an important value to them, which is something that is not relevant in the context of a company - and the participants were not asked about other values as questionnaires contain a set of fixed questions.

5.2 Strengths and limitations

For future research, several aspects of this research can be improved: First, this research has used a relatively small sample size compared to the total number of food forests due to constraints in time. Eleven semi-structured interviews have been conducted with 11 volunteers and 2 founders of 4 different food forests in the Netherlands. A map created by Van Akker naar Bos (n.d., as cited in De Groot and Veen, 2017) shows there are approximately 54 food forests in the Netherlands. As the sample size of this research is 4 food forests, it is not possible to extrapolate and generalize the research results to all food forests. However, generalizability is not the goal of qualitative research (Bryman, 2012, p. 390). The main goal was to explore the different values amongst volunteers in food forests and to gain in-depth insight into this topic; the explorative nature of this study means that it does not need a representative sample size. Moreover, the research has been conducted in four out of the five provided food forests. Therefore, while the sample size may not be representative to all food forests, it is still representative for the goals of this research. Similar answers have been found across the volunteers in different food forests. Thus, increasing the sample size may have even led to theoretical saturation.

Second, the semi-structured interviews were conducted by different interviewers. This may have contributed to interviewer variability. Interviewer variability can result from the different ways in which interviewers ask questions and respond to answers, including differences in phrasing and tone of voice (Bryman, 2012, p. 211). Another factor that could have influenced the results is that one interview was conducted in a group setting. A group interview brings different social dynamics and may have influenced the outcomes. For instance, participants in the group interview would sometimes agree with the other participants; not elaborating on their own experiences. Furthermore, two out of the eleven interviews were conducted with founders, which could have contributed to different data in some cases due to adjusted questions (Appendix A). However, the order of most important values remained similar to those of volunteers and has therefore not contributed to significant deviations in the data. The above limitations can be avoided by employing a survey instead. A survey assures that each respondent is asked the same questions, in the same way and in the same order. However, semi-structured interviews provide more rich and detailed answers as it emphasizes the interviewee's point of view and allows follow-up questions (Bryman, 2012, p. 470). Therefore, the conduction of semi-structured interviews was, for this particular research, the most appropriate data collection method to use.

Thus, in spite of these limitations, this study provides valuable insights into the values of volunteers in food forests and has given interesting findings which could instigate further research. This research has thoroughly described the methods in detail, which allows the findings of this study to be transferable for further research. Future researchers could test what has been found or already build on the findings.

6. Conclusion

The aim of this research is to identify volunteers' values in food forests and to explore its opportunities for a sustainable food system in the Utrechtse Heuvelrug and around. After having analysed the data, it has become clear that volunteers are an essential part in the functioning of food forests. Therefore, engaging more volunteers can contribute to the expansion of food forests, increasing the opportunities for a sustainable food system. The interviewed volunteers in food forests highly value sustainability, well-being and the contribution to the creation of something valuable. Additionally, the motives of all participants have been analysed to find out why volunteers are engaged in food forests. The most important motives are related to well-being, which includes personal well-being, a deeper connection to nature, or an interest in developing new knowledge about topics such as plant growth. These results imply that these values can be emphasized to involve new volunteers in a committed way. This can be done through awareness raising campaigns and activities. However, the discussed challenges may hinder the development of more sustainable food systems such as food forests in the Utrechtse Heuvelrug and around. Implementing new policies that financially support initiators of food forests and subsidize educational activities in food forests may be a possible solution to support the creation and development of food forests.

This research is, among others, one of the pioneers to have analysed the values of volunteers in food forests and has provided insights into the most important values and how these contribute to volunteers' engagement. Further research is needed to confirm the findings on a larger scale using quantitative methods and to examine more closely the impacts of a fully matured food forest on the long term. It would be interesting to apply the capability set for work on a larger scale through the conduction of questionnaires. This would provide more quantitative data about a larger number of volunteers, which could be used to generalize the findings. Moreover, further research could use the other identified values besides the work values to formulate a similar questionnaire. This questionnaire could then be used to measure volunteers' or people's values in general in the context of sustainable food. Thus, the insights from this study can be combined with future research to involve more volunteers in a committed way, with the ultimate goal to incentivize the transition towards a more sustainable food system.

7. Relevance and integration possibilities

For this study exploratory research is conducted. This is due to the fact that food forests are a new phenomena in the agricultural world, and therefore few studies have been conducted on the topic. This study is considered to be of great importance in relation to the topic of Sustainable Food. The findings of this research are highly relevant to the topic at hand, as it is seen that the existing agricultural system proves to be insufficient several years from now. Expectations exist that food forests will play a significant role in the future of the innovative and durable agricultural system (Mosquera-Losada, 2012). This requires a considerable expansion in the number and size of food forests. Therefore, the ability to recruit a substantial number of volunteers is of utmost importance. These volunteers will turn into paid employees in the future. Once food forests truly become the future of the agricultural system and this form of agriculture is adopted by all farmers, a corresponding market will emerge. However, it will probably be impossible for volunteers to provide this service. When food forests will turn into something large-scale, volunteers cannot provide this service. Hence paid employees might be necessary. For this, too, it is necessary to know what their values are and how we can use them to engage as many employees as possible. This is why this research and further research on this topic is crucial for transitioning to a more sustainable world.

This study with its findings is believed to not be complicated by the results from other studies relating to different subtopics. However, it can complement many of them and vice versa. Examples could be 'Perceptions on nature' (sustainable recreation management - 2C) and nearly all subtopics from the topic 'Sustainable food'. This study could be relevant for the research topic 2C, due that values, which could lead to perceptions, are examined by volunteers working in food forests. Even though volunteers are a minute part of the sample, it could still be important for that study. Especially subtopic 4F 'Residents and willingness to contribute to sustainable agriculture' and 4C 'Recreationist in food forests' could have similar findings on how to involve more volunteers and people from the community in sustainable agriculture, which could be a food forest. This is of great importance to make a food forest subsist, as all stakeholders are required to allow for it to work. Without all stakeholders, a transition into sustainable agriculture is difficult or even impossible.

8. Reference List

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9. Appendix

Appendix A: Interview guide and questions

Introduction

Hello (name of the interviewee),

Thank you for taking the time to participate in my interview. I am a student of the University of Utrecht and now for one of my courses I am conducting a study on the values of volunteers working in a food forest. Your answers as a volunteer will give me valuable insight on this topic.

This interview will take 15-30 minutes and of course you, and your answers will be kept strictly confidential and anonymous. The answers will only be used for our research project and will be safely stored in our shared map. Within two weeks after finishing our course, we will delete all the data from all platforms, including the back-ups. Are you still willing to participate? (*wait for consent*)

Would you consent to this interview being audio-recorded? (*wait for consent*)

Lastly, do you have any other questions for us before we start?

(*If they consent:*) Great thank you! Will will begin with some introductory questions:

General questions (for founders)

- How long has this food forest existed?
- How many volunteers are working in this food forest?
- Was the number of volunteers working in the food forest already this high in the beginning or did this number increase/decrease?
- Why do you think this number increased/decreased?

Introductory questions

1. What is your name?
2. What is your age?
3. What gender do you identify yourself with?
4. When did you start volunteering in this food forest?
5. What does your day as a volunteer look like?
 - 5a. How long are your days?
 - 5b. What kind of work are you doing?

Individual questions on volunteering and values

6. Why did you choose to volunteer in a food forest?
7. What do you find valuable about volunteering in a food forest?
 - 7a. How are these values realised through volunteering in a food forest?

A study has identified seven work related values that Dutch workers value highly in work. We have picked 6 values from this list (*explain each value below shortly to the interviewee*).

8. Could you rank the following values from the most important to the least important to you when volunteering in food forests?

- Opportunity to use your knowledge & skills
- To develop knowledge & skills
- To have and build meaningful relationship
- Contribution to the creation of something valuable

- To be involved in important decisions
 - To set your own goals
- 8a.** Which of these values do you recognise in your work? (*multiple values possible*)
- 8b.** On a scale from 1 to 10, could you tell me to what extent these values are realised when volunteering in a food forest? (1 indicating a low level and 10 indicating a high level)
- 8c.** How are these values realised through your work?
- 9.** Are there any other values that are realised through volunteering in the food forest?
- 9a.** On a scale from 1 to 10, could you tell me to what extent these values are realised when volunteering in a food forest? (1 indicating a low level and 10 indicating a high level)
- 9b.** How are these values realised through your work?
- 10.** Are there any challenges that you encounter while working in the food forests?
- 10a.** If so, why do these challenges occur? How can these be overcome?

Ending questions

- 11.** Do you believe it is necessary to involve more volunteers?
- 11a.** In what ways do you think more volunteers can be involved in food forests?
- 12.** What do you think is the future of food forests in the Netherlands?
- 12a.** What do you hope is the future of food forests in the Netherlands?

This is the end of the interview. Thank you very much for your time. If you wish, we can send you our final report when it is finished.

Appendix B: Data analysis

Based on the interviews, a total of four main themes were observed: Relationships, Wellbeing, Sustainability, and Awareness. To categorize the values identified during the interviews, this set of themes was used. For an accurate analysis of the data, the different (sub-) themes have been given a code. Using these different codes, the quantification of the interview data was made possible. It should be noted that several sub-themes within the main themes may correspond to different IPBES concepts (e.g. ‘Connection with nature’ corresponds to both Good quality of life and Nature). A sub-theme must be assigned only once per interview. This implies that if several values/motivations are mentioned multiple times per interview that fall within the same sub-theme, this sub-theme is only included once in the data analysis of this interview. This was done because otherwise answers of some interviewees could count more than others. An example to clarify is an interviewee only giving the value of sustainability and another, sustainability, beauty of nature, green environment, etc.