Bachelor's thesis

FOOD FORESTS IN THE NETHERLANDS

A STUDY ON LANDSCAPE POLICY AND ITS EFFECTS ON THE FOOD FOREST MOVEMENT IN THE NETHERLANDS

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ABSTRACT

Global food supplies are under increasing pressure as currently dominant food systems appear unsustainable for the long term. The Dutch food system is known as a very complex and efficient one, making the country the second larger exporter of agricultural goods worldwide. In the past decades, copious amounts of economic and environmental problems have occurred, leading to increasing social and political resistance against modernised farming methods. Alternative ways of farming emerge, with the food forest movement being one of the most popular ones. These alternative farming methods are usually not yet represented in existing policy and subsidy regulations.

The goal of this thesis is adding to the debate of the reform of the Dutch food system and examining the possible role of alternative farming methods in this process. For this, the following research question is formulated: How does Dutch landscape policy comply with enabling or restricting the development of food forests?

To answer the research question, qualitative research is conducted. One government representative and four food forest keepers are interviewed. In addition, four field observations and five document analyses are used. From the research results, it appears that even though food forest keepers maintain good communication with local governments, policies are still experienced as restrictive. On paper, governments recognise the potential of food forests to fulfil social, economic and environmental goals. In practice, policies and subsidy regulations are still aimed at bigger, conventional farming businesses.

The research results can be explained by looking further into the ideological background of both parties. Governments think of solving problems within the boundaries of the contemporary food system, whereas food forest keepers are prepared to reform or even abandon current structures. Possible follow-up research could cover a similar research question with a bigger and more diverse set of respondents. Study on food forests with promising business models, like gradually reforming a monocultural orchard, would also give useful insights to the potential role of food forests in the future food system.

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1.1 ALTERNATIVES TO A FLAWED SYSTEM

The way the global food system is established has proven to be unsustainable in the long run. It's seen as the factor with the biggest impact on the global climate (Galli et al., 2020). Overall soil quality and local- and global ecosystems are degrading. Goals of feeding all people living on the planet in a healthy and sustainable manner are far out of sight (IPES, 2021). During the final two decades of the last century, the main focus of food system design was on having as much supply as possible (Lang, 2009). However, the debate about the challenges of the food system has changed from the 2000s onwards, with questions arising on all features of global food supply. This debate does not only cover the output aspect of farming. Other sides of agriculture being discussed are sustainability, human welfare, land management, economic justice and policy making (WRR, 2014).

The Netherlands is no exception to these global trends. The country is known as one of the world's agriculture export leaders but has been experiencing the consequences of this position in the past couple of years (Ministerie van Buitenlandse Zaken, 2021). Nitrogen emissions, mainly caused by the farming sector, forced governments to take far-fetched measures that led to disrupting protests by farmers (Stokstad, 2019). With a decreasing biodiversity and an increasingly overheating housing market, pressure on the agricultural sector, taking up roughly half of the county's surface area, is rising (CBS, 2022; Jonkman et al., 2022). When compared to Canada, another big agricultural exporter, the complexity of the Dutch export-based model becomes clearer. Due to its small size, the Dutch agricultural system evolved into a collaborative and innovative sector, pushing the country's natural and spatial limits (Ministerie van buitenlandse zaken, 2021).

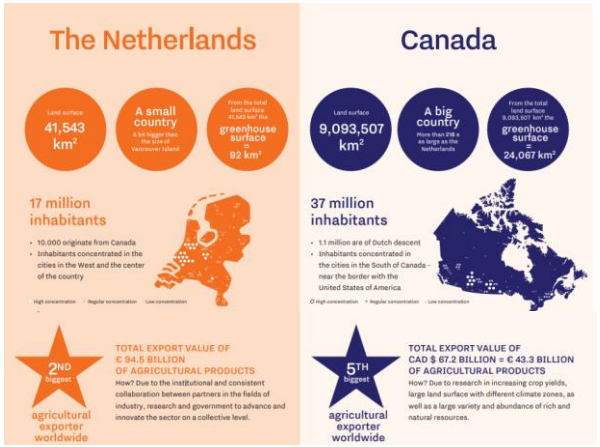

Figure 1: The Dutch farming system compared to the Canadian farming system (Ministerie van buitenlandse zaken, 2021)

In reaction to these problems, calls for alternative ways of farming emerge. Across the country, examples of sustainable, small-scale and local initiatives gain in popularity (CSA Netwerk Nederland, 2020) The number of cooperatives of local farmers that promote sustainable agriculture and rural development has grown to over a 100 since the foundation of the first one in 1992 (Renting & Van der Ploeg, 2001). However, policy making parties like local and regional governments do not always consider these initiatives as being relevant enough to have an assigned position in policy and subsidy regulations. Dutch landscape policy can be defined as a zoning-based model, with the surface area of the country being divided in assigned landscape types like nature or agriculture (PBL, 2019). Every type of land designation has its own set of rules, laws and regulations. Alternative ways of agriculture that combine nature and agriculture often find themselves between two stools in the current policy regulations.

The food forest concept is an alternative that is currently gaining attention and support. It aims to combine agriculture and nature, two landscape types that are currently segregated in Dutch landscape design policies. By combining up to seven layers of vegetation, food forest keepers try to create a self-sustaining piece of nature. The most important goal food forests serve is trying to restore the relationship that humans had with nature before the introduction of large-scale agriculture (Green deal Voedselbossen, 2017). Small and middle-scaled experiments show food forests having a higher average yield than regular (monocultural) farming businesses, seemingly without the need of using

fertilisers and pesticides (NOS, 2018; Eliades 2016). In addition, food forests engage with the need for climate mitigation by adding more layers of vegetation to the landscape.

This research paper examines the potential of food forests to play a part in future food systems. The food forest concept serves as an example to look into the dynamics between Dutch landscape policy and the development of alternative agriculture methods. Because of its zoning model, landscape policy is often seen as a mismatch with alternative forms of agriculture. The ideological differences between governments and food forest keepers explain the maintaining of this policy direction. Whether food forests will remain one-on-one suppliers for local restaurants or become crucial nodes in the national food network, the embedding of the concept in Dutch policy design needs to be further examined. This paper aims to explore the possibilities in this section by reflecting the results of qualitative research on a review of concepts found in the literature.

1.2 RESEARCH PROBLEM & GOAL

The global food supply system is flawed and the Dutch example is no exception. New ways of looking at farming are needed in order to work towards a more sustainable food supply system and a more resilient landscape design. Even though more research is necessary to decide if food forests could be used on a larger scale, early results show the potential of the concept playing a part in solving the ecological, social and financial problems of the current food system (Albrecht & Wiek, 2021). Existing policies restrict the development of food forests as many ways of alternative farming have no assigned position in landscape policies. (Green deal voedselbossen, 2017).

This research aims to add to the debate of the reform of the Dutch agricultural system by looking into the dynamics between Dutch landscape policy and alternative forms of farming, like food forests. To gain more understanding about the way in which these forms of farming are acknowledged in current policies, the framework of Ideas, Interests and Institutions (3-I framework) is examined (Hall, 1997). The framework is used as a guideline in collecting data and giving meaning to the research findings. This thesis mainly focuses on the *ideas* aspect of the framework to explain the disconnect between the Dutch landscape policy and the food forest movement. The difference in ideological backgrounds of involved actors is used to explain the past and current direction of landscape policy. To explain how ideas have shaped the process of policy design that is relevant to the development of alternative ways of farming, the following research question is central in this thesis:

- **How does Dutch landscape policy comply with enabling or restricting the development of food forests?**

To be able to answer the main research question in detail, multiple sub-questions follow:

- How do various actors that are professionally involved with food forests describe the concept and its most important aspects?
- What are the most important features and problems of the current food system in the Netherlands?
- How do different actors deal with the most important characteristics of Dutch landscape policy?

The research questions are answered by conducting qualitative research. The data set consists of transcripts of interviews with food forest keepers and an agricultural representative of a provincial government. Secondly, observation reports of field visits to four food forests are analysed. In addition, analyses of policy documents that are relevant in the development of food forests are used to determine the current direction the government takes. The different data sources allow comparing the ideas of the government with those of food forest keepers. Ideas that formed and will form Dutch landscape policy are analysed to compare the Ideas of food forest keepers to that of the government.

1.3 RESEARCH RELEVANCE

SOCIETY & THE AGRICULTURAL SECTOR

On a worldwide scale, the Dutch farming sector is the second biggest exporter of agricultural products. Floriculture, meat, dairy products, greens and vegetables make up the list of most exported goods. In 2020, the Dutch agriculture sector exported around 75 billion euros worth of products all around the world, being of a significant importance on the economic performance of the Netherlands (Ministerie van Buitenlandse Zaken, 2021). More and more questions on how these goods are produced are raised and demand for fair, organic and sustainable consumption options is growing (CBS, 2022).

In particular, the Dutch agriculture sector has become a point of attention in the debate about sustainability. Approximately 92% of the space that is assigned for reaching nature goals (which is 43% of the country's total surface area) is in use for agriculture (PBL, 2019). Farmers are responsible for almost half of the nitrogen emissions in the country, leading to measures that aim at diminishing the sector's size (Stokstad, 2019). This has led farmers, who feel unjustly disadvantaged by the new rules, to begin massive protests with very disrupting effects on the country (Geurts & Verkerk, 2022). Not only the agricultural sector is affected by the nitrogen crisis. Drastic measures like setting a national speed limit and restricting the construction of new houses are forced to be taken in order to reach environmental goals, making this an increasingly painful case for the Dutch government (NOS, 2021).

The problems named above are symptoms of the development of modernised farming that has been going on in the past decades. With scales getting increasingly larger and efficiency-driven technological developments becoming dominant, the regional aspects - social as well as ecological - of agriculture have disappeared (Van der Ploeg & Long, 2018). This has caused a farming sector that has become disconnected from ecology and society. Food prices got increasingly lower, influenced by few distributing actors with a lot of power. This has led farmers to become trapped in a cycle of financial and ecological downturn (Renting & van der Ploeg, 2001). In reaction to this, alternative forms of farming that try to solve these problems by re-embedding agriculture in society, emerge. To become more widely implemented, these new forms require out-of-the box thinking, by for instance releasing the strict lines between nature, agriculture and urban development (Rijkswaterstaat, n.d.). The food forest concept is an example of using a different viewpoint on agriculture. When executed properly, food forests regenerate the soil, improve biodiversity and fulfil social-cultural requirements (Albrecht & Wiek, 2021).

Although trying to solve problems surrounding modernised agriculture, alternative initiatives have struggled gaining institutional support (Renting & van der Ploeg, 2001). Research on examples of alternative agriculture give new insights about why this lack of support exists. Knowing more about the gap between alternative farmers and governmental bodies contributes to the debate about sustainable agriculture and landscape design. By focussing on one particular way of alternative farming, food forests, this thesis aims to put a finger on where problems on this interface exist.

ALTERNATIVE AGRICULTURE IN A DEBATE ABOUT FOOD SYSTEMS

What the future of farming looks like is a topic that's being discussed in several disciplines. As mentioned, the problems that emerged in the past decades reach further than the environmental consequences and thus, for some scholars, demand a total rebuild of the food system (IPES, 2021). A framework behind contemporary studies of food systems is effectively provided by Douglas Constance's 'four questions' about food production and consumption. These four sections overlap but are sequential to a fair degree. Constance (2008) recognizes the Agrarian Question, being dominant in the 1980s and mainly dealing with the quality of life of farmers. This question can be seen in the framework of globalisation and emerging global capitalist (food) markets. After this, the Environmental Question follows, focussing on the environmental impact of industrial agriculture. More relevant to this thesis are Constance's last two questions. The Food Question deals with the quality of produced food, health and food safety. Where the two previous Questions tend to focus on the problems occurring in the food system, the Food Question is, to a larger degree, solution-driven. It considers more local and alternative food outcomes instead of merely focussing on the conventional ones. Lastly, the Emancipatory Question, heads even more towards a food system that is fair, equal and sustainable. Noticeable in this section is the *Agriculture in the Middle* concept (p. 9). Instead of the global supply chains that currently dominate, this concept could arrange regional value chains by linking middle-sized farms and customers.

Constance's last two questions are used as a starting point in this thesis as they effectively grasp the currently relevant scientific paradigm of the research topic. The Food Question and Emancipatory Question both use a scope that corresponds with the one dealt with by the food forest concept: food systems should aim on producing high-quality food in a fair and sustainable manner without disregarding social conditions (Constance, 2008). This is the debate and context in which this thesis aims to be grounded.

The problems occurring in current food systems have not gone unnoticed by new generations. An increasing number of young people with a non-rural background decide to enter the agrobusiness. This group is especially open to creating an alternative food system (Laforge et al., 2018). The importance of attracting a new farmer movement is further addressed by Calo (2020). The reasons for the necessity of a new generation of farmers lie in the policies of the past decades as well. A productivist, market driven design discours that disfavoured small-scale, local landholders has long been dominant (Calo, 2020).

To meet these groups in their aspirations for a holistic approach to farming (p. 146), Laforge et al. recommend integrating multiple levels of government as well as non-governmental organisations (NGOs) in the designing of national food policy (2018). Galli et al. provide a striking example of the possibilities that lie in the design of food policy (2020). A case study on the Portuguese food system, a country known for its unsustainable diet, was conducted. While a big share of the country's footprint is due to the high meat and fish consumption, the lack of strategic local policies is also seen as one of the reasons for its failing food system. Galli et al. recommend a transition to urban food policies that aim on introducing national and local food systems (2020).

Zooming in on the Netherlands, more examples of integrated food policies can be found. In 2006, the Oosterwold territory near Almere was designated as an urban agriculture area, aiming to make the municipality greener and more sustainable (Jansma & Wertheim-Heck, 2021). This kind of destination required a different approach than the top-down paradigm that had been usual in the Netherlands. The planning team relied on diversity, innovation and self-organisation, successfully restoring balance between rural and urban elements by transforming "the large-scale polder landscape into a small-scale landscape with room for living, urban agriculture and recreation' (Jansma & Wertheim-Heck, 2021, p. 9). This combination of urban planning and agriculture is also found in more places. A Parma case study examines the Picasso Food forest. Although being a small and relatively young example, early research results show that the forest is doing its job battling environmental problems. Additionally, the site has a positive social impact on the community by providing a location for social and educational events like "guided tours of the area, planting and maintenance work sessions, courses on plant identification, pruning, composting, laboratories for kids, seed exchange, and potluck parties" (Riolo, 2019, p. 6). The Picasso case study most importantly provides a new model on thinking about urban planning and the role of cities in meeting food demand in the future (Riolo, 2019, p. 11).

Although the social and ecological advantages within landscape design are abundant, for food forests to become widely adapted, food system scholars argue that policies should be created to provide an environment where entrepreneurs feel appealed to take off in the food forest business (Wies & Albrecht, 2022). Initiatives like Oosterwold have been able to emerge in a cooperative setting between city planners and food forest entrepreneurs (Jansma & Wertheim-Heck, 2021; Wies & Albrecht, 2022). Creating such cooperative models to provide an *institutionally favourable environment* (p. 97) has proven to be challenging in the past, where governments tended to be conservative in localising policy structures (Renting & van der Ploeg, 2001). This thesis elaborates on the current state of the Dutch government's attitude towards alternative forms of farming. The food forest concept is used as a lens to look at how policy design processes are functioning in the context of the discussed Food Questions (Constance, 2008).

1.4 READING GUIDE

Chapter 2 gives insight into the historical development and current state of the Dutch Food system. In this chapter, a brief overview of the food forest concept is also given. The most important features of Dutch landscape policy are examined to provide background for the analysis of the policy problems that emerge with alternative forms of agriculture like food forests. Thereafter, the 3-I framework is discussed. This theoretical scope is used to ground the research results.

Chapter 3 explicates the methodology that is used in this thesis. A description of the most important characteristics of qualitative research is provided, as well as an assessment of risks and possible difficulties that can occur during the research process. Possible ways to approach these risks are also discussed.

In chapter 4, the research questions are answered by analysing the research results. First, the food forest concept and the way it operates in practice are further examined. Next, ideas about the relationship between conventional- and alternative agriculture are discovered. The effects of policy- and subsidy regulations are assessed.

Chapter 5 concludes this thesis. First, the most important findings are discussed. An interpretation and reflection follows in the discussion. This is used as a starting point for recommending new research directions.

CHAPTER 2: LITERATURE REVIEW

In this chapter, the most important features and problems of the Dutch agricultural system are described in the context of food systems. Knowing how to look at the way food systems are designed helps to understand more about the potential role that alternative forms of agriculture play within them. Thereafter, the food forest concept is briefly described. An elaboration of the Dutch landscape policy follows, discovering the most important points and characteristics regarding agricultural development and their influence on sustainability. After working out these concepts, a theoretical framework of the process behind the design and altering of policies is drawn. This framework is used as a background in designing the interview guide for data collection. The connection between this chapters' theoretical background and the analysis of the interview data is made in the results chapter.

2.1 THE DUTCH FOOD SYSTEM

Before discovering food forests as an example of alternative agriculture, further analysis of the Dutch agricultural system follows. This section briefly summarises the historical evolution of the Dutch agricultural sector. The way in which it developed explains more about the current characteristics and why those appear to make the system prone to ecological and social problems (Renting & van der Ploeg, 2001, van Grinsven et al., 2019). To begin with, food systems are described on a conceptual level to provide a frame in which the Dutch agricultural sector and alternative forms of agriculture can be placed.

Simply put, a food system can be seen as the process of turning natural resources into nutritional value (Pinstrup-Andersen, 2011). Although the agricultural sector is one of the central actors in almost any food system, it does involve all producers, consumers, market actors, resource owners, policymakers and the interactions they have with each other, with nature and with the climate. Because of this, food systems are a concept that can be very broadly defined. In the globalised world economy, it is very challenging to isolate national food systems (Gladek et al., 2021). This thesis focuses on a simplified version of the food system by looking at production, distribution and consumption of food in the Netherlands. In the past decades, scholars have started looking at this as an integrative process instead of a sequential chain of events (Pinstrup-Andersen, 2011). A sustainable food system accounts for the local landscape, social relations and commodities (Webb et al., 2020). According to the Global panel on Agriculture and Food Systems for Nutrition, a sustainable food system can be maintained in the long term without degrading the local environment. When these requirements are considered, the food system of the future should not only aim to feed as many people as cheaply as possible. Rather, it should be looked at more as a dynamic structure that considers nutritional, environmental and social conditions. To work towards a food system that is less vulnerable to the problems that have become apparent in the past decades, a fundamental shift in the way food systems are regarded is necessary (Glopan, 2020).

Now that different views on how to interpret the concept of a food system are provided, this knowledge can be applied to the Netherlands. First, it is important to understand more about how the Dutch system developed itself in the past decades. The shaping of the agricultural sector to how it is known today was accelerated by the process known as the Industrial Revolution. From 1850 onwards, a general trend of growing populations and rising incomes can be seen across Europe (Bieleman, 2010). Dutch farmers, who have been more efficient than farmers from neighbouring countries, capitalised on growing demand and rising prices to a point where almost half of the national production was exported (Bieleman, 2010, p. 151; IFAMA [Foodlog], 2020). This led the country to grow into an agricultural hub where the industrialization of agriculture was extensively researched, accelerated by the introduction of the 1886 agricultural committee (IFAMA [Foodlog], 2020). The growth of the sector only came to a stop a decade after the ending of the first world war, where global overproduction led to dropping prices. This made the national government decide to implement regulating agricultural policy for the first time in 1931. At this time the farmers' lobby had grown to be a significant actor in the political decision making field (Bieleman, 2010). After a decade of recovering from the second world war, the Dutch agriculture sector began to flourish (IFAMA [Foodlog], 2020). With the introduction of innovations like fertiliser, the combine harvester, the milking machine and the tractor, a process of "mechanisation, intensification, specialisation, rationalisation and up-scaling" commenced (Bieleman, 2010, p. 241; figure 2). With new subsidies and policies that supported large-scale farms and the upscaling of processing facilities, the national government played a big role in facilitating the right circumstances for this process to occur (Bieleman, 2010). In line with the contemporary Agrarian question that Constance (2008) recognized, the national agricultural policy was driven by three main goals: Sufficient food supply for an

affordable price, increasing the export of food and providing farmers with acceptable living standards (Wiskerke, 1997).

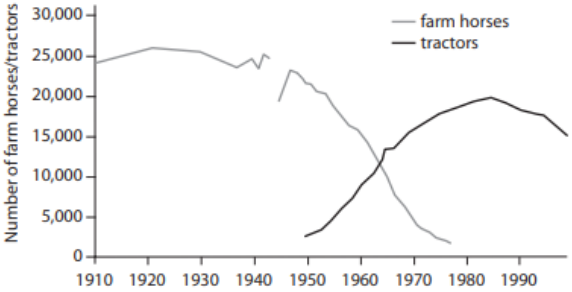

Figure 2: The mechanisation of the Dutch agricultural sector (Bieleman, 2010)

After a period of explosive growth that seemingly went without any social and political resistance, the seventies marked the beginning of a changing societal paradigm on agriculture. The rapid development of the sector had caused an abundance of social and ecological problems: almost all small-sized farms had disappeared (figure 3a), the profession had become a capital-focussed profession (figure 3c) and a large amount of harmful chemicals was systematically involved in farming (figure 3b). Ever more questions were raised on these problems and consumer demand for organic and animal-friendly goods started growing (Bieleman, 2010). At the same time, the government had to introduce a set of regulations that forced farmers to make large investments, which led many farmers to leave the sector. Farmers that stayed, had become very insecure about their financial future (Bieleman, 2010).

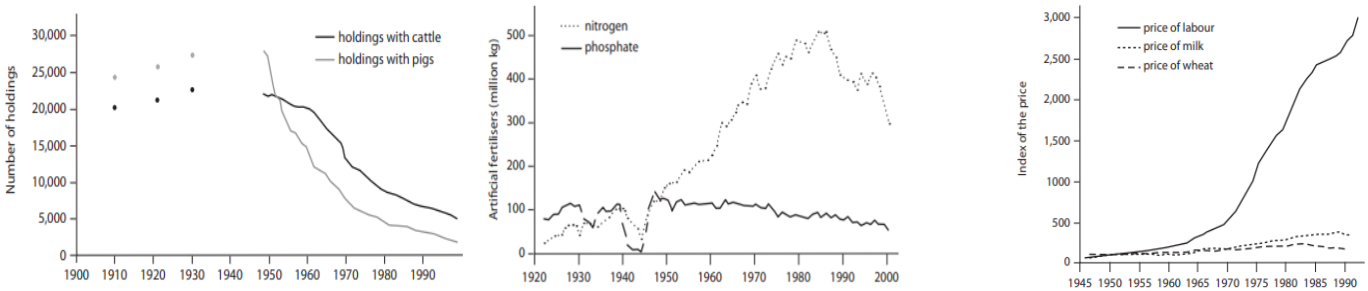

Figure 3(abc): Emerging problems of the Dutch agricultural sector (Bieleman, 2010)

Five centuries of scaling up the agricultural sector have led to a highly efficient and productive system. Compared to the European Union countries, Dutch farmers produce the most per unit of land (van Grinsven et al., 2019). Historically, the sector has proven to be of substantial interest for the Netherlands' economic development (Bieleman, 2010; IFAMA [Foodlog], 2020). Even nowadays a substantial share of the GDP is represented by the country's agricultural sector (Ministerie van buitenlandse zaken, 2021). It is clear that farmers and the Netherlands are a very successful combination.

The system that has grown, does come with its share of social and ecological problems. "Emissions of ammonia, surpluses of nitrogen and phosphorus, and use of pesticides per hectare of agricultural land are among the highest in the EU." (van Grinsven et al., 2019, p.1). Because of the scaling up of the Dutch food system, only five very powerful parties are responsible for the distribution of consumer products (Figure 4), meaning that farmers have to accept almost any price that the distribution offices offer (PBL, 2012). The current system is based on utilitarian values like an instrumental policy approach and a technocratic decision making style. Power is mostly with the economical and political elites and decisions are productivity-driven. Within the Ecological Modernisation framework that Glynn et al. draw, this is described as a weakly modernised state (2017, p. 30). The unequal relationship between offer and demand has trapped farmers in a cycle of further intensification and striving for cost-efficiency. Within this cycle, there is no financial space to invest in solving the problems named above by, for example, changing to more sustainable ways of farming (PBL, 2012). In contrast, alternative ways of farming try building towards a system that Glynn et al. describe as strongly modernised. Dominant values in this situation are a communicative policy

approach and democratic policy making style. The next chapter discusses the extent in which these values can be found back in the food forest ideology.

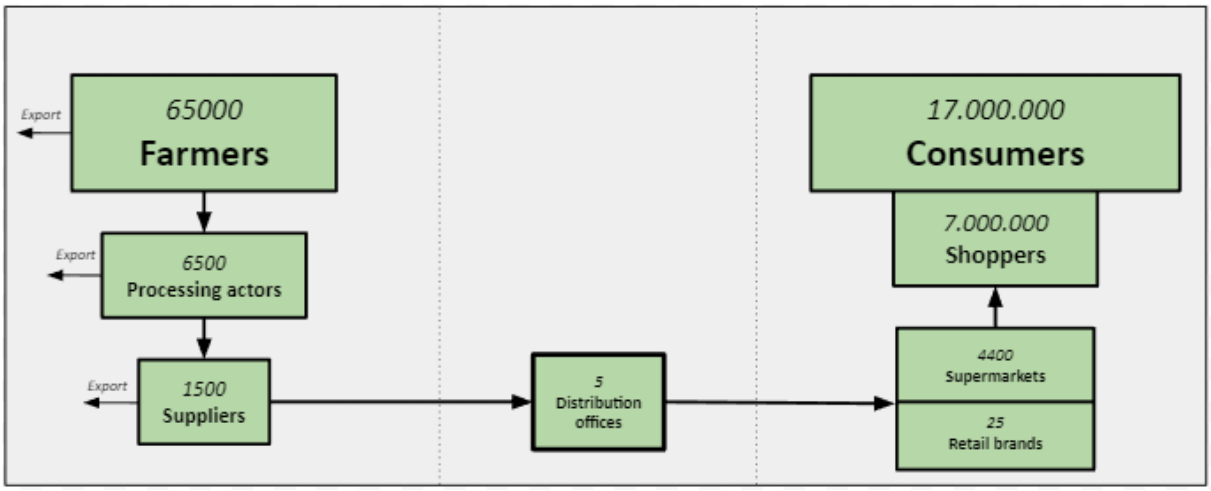

Figure 4: Schematic view of the conventional Dutch food system (Backus et al., 2011, p. 21)

2.2 FOOD FORESTS

Critique on modern, monocultural farming techniques has become more apparent in the past decades. Wouter van Eck, one of the pioneers of the Dutch food forest movement, discovered some remarkable phenomena when conducting research on modernising agriculture in Kenya (Permaculture Design, 2017). In an online interview, van Eck states that development workers, despite their good intentions, only deteriorated farmers' positions by trying to help them modernise their ways of farming. Not only did farmers have to invest in pesticides, seeds and materials, their farmland also became especially vulnerable to drought and rainfall. On the other side of the valley, a forest with multiple layers of vegetation yielded plenty of edible crops without the need of any external input except from a minimal amount of keeping up (Permaculture Design, 2017).

The anecdote above became van Eck's inspiration to initiate the food forest movement in the Netherlands. Food forests are a form of agroforestry, a concept that involves forms of agriculture where trees are combined with crops or livestock. In reaction to monocultural farming methods, food forests are specifically designed to create a self-sustaining ecosystem. A successfully designed food forest is a system where naturally occurring patterns are used instead of worked against. Every insect, crop and animal is seen as a valuable part in sustaining the system. (de Groot & van Veen, 2017). In this way, food forest keepers try to replicate the system of a naturally occurring forest, only designing it to serve an agricultural function. To concretize the aspects of a self-sustaining system, food forest design is based on seven layers.

- The top layer consists of high trees. Mostly, these are nut- or fruit trees.
- Below, a layer of smaller trees can be found.
- Between these smaller trees grows a layer of shrubs, producing e.g. fruit and berries.
- The fourth layer is a layer with herbs and other perennial vegetation.
- The fifth layer can be found just above the surface. It serves to protect weeds from growing excessively.
- The sixth layer is a vertical one, with climbing vegetation like beanstalks or grapes.
- The surface and area below is seen as the bottom layer. It's where the fungi that are seen as the backbone of the forest system, grow.

To function optimally, these layers should be used in a forest design that considers local factors like climate and the direction of sunlight and winds. The most important feature of a food forest is that, once the system is running - usually after five to seven years-, it is self-sustaining. A running food forest does not need any ploughing, fertilising, re-seeding or spraying. The farmer's work consists of observing, some adjusting and mostly harvesting crops (Nieuwsuur, 2018; Klokhuis, 2020).

In the Netherlands, around thirty food forests that are recognized by the Dutch Food Forest Foundation currently exist (Stichting Voedselbosbouw, 2022). As food forests are very dependent on local factors like wind direction, soil and water levels, there is not one blueprint model of the Dutch food forest. To give a better image of how food forests work in practice, what food they produce, what place they take in the current food system and what values they represent, a brief overview of some example food forests is made in Figure 5. A few things can be concluded. Firstly, the food forest movement is relatively young. A food forest takes five to seven years to start producing a significant harvest. It is thus still too early to make claims about the financial and ecological readability of the concept, which is frequently put up critique (van Doren, 2018). Another thing that can be remarked is the fact that almost all of the discussed examples emerge from bottom-up initiatives or have some other kind of local component, like selling to a local restaurant. The connection with the local environment and community is an important value for the food forest movement. Another thing that reinforces the local ties of food forests, is the variety of foods produced. Because of the polycultural design, food forests inherently produce a diversity of crops. This makes the model less suited for large-scale production and distribution, making CSA and self-picking strategies a more popular choice. Currently, food forests take place in the food system by providing organic, high quality produce in the short chain. Initiatives like the Schijndel food forest discover the possibilities of production for large scale distribution. When placed within the Ecological modernisation framework, the values of the food forest concept fit more within the strongly modernised movement (Glynn et al., 2017). A strongly modernised culture characterises itself with an ecological instead of economical view on the environment. The policy approach is communicative instead of instrumental and the decision making style can be defined as democratic (Glynn et al., 2017). In the debate of conventional and alternative agriculture, the values of a weak modernisation overlap with those of the past and current agricultural policy regulations. The values that alternative agricultural movements are based on, show more resemblance with a strongly modernised culture.

Name	First planting	Location	Size	Model
Ketelbroek	2009	Groesbeek (GLD)	2,4 acres	*Romantic* food forest. Only the owner knows the location of the 400 crops that are growing on the estate. These crops are mostly unique, native species and are sold to a Michelin-winning local restaurant (Klingen, 2022).
Schijndel Food forest	2018	Schijndel (NB)	20 acres	Production food forest. This food forest is initiated by a green development fund and a university of applied sciences. It mainly deals with the question if and how food forests are financially scalable (Voedselbos Schijndel, 2019).
Waalgaard Food forest	2020	Nijmegen (GLD)	2 acres	The Waalgaard food forest was a pear-orchard beforehand. Pear trees are gradually being replaced to create a polyculture. Produce is locally sold via a CSA self-picking model. (Waalgaard, 2021)
Eemvallei zuid	2019	Almere (FLV)	30 acres	Eemvallei Zuid is a green landscape zone. The initiative is meant as a public garden where residents can work, play and harvest the crops from the food forest. (Green Deal Voedselbossen, 2017)
Den Food Bosch	2017	Sint-Michielsgestel (NB)	0,8 acres	This initiative is mainly used as an experimental forest. About 100 different species can be found on the estate. The ecological as well as economical potential of food forests are the main points of research (Den Food Bosch, 2022)

Figure 5: A brief overview of different types of food forests in the Netherlands

Because of their recent growth, the institutional position of food forests is currently still under development. Three types of land designation[1] are relevant for food forests: agriculture, nature and urban. Every land type comes with its own set of rules and restrictions. Agricultural areas are, for instance, often protected open- or archaeological landscape. Nature areas are frequently protected by nature laws and replanting obligations. These policies are seen as very restrictive to the development of food forests (Green Deal Voedselbossen, 2021). Municipalities are however gradually starting to take up the concept in their land designation policies. Usually, this is achieved by modifying the agricultural land destination in the current policy frameworks (Dutch Government, 2007). Another way in which food forests are recognized institutionally, is by excluding them from nature protection regulations like the replanting obligation law (Appendix 3.1). How these policy dynamics work in practice, is further discussed in chapter 4.

[1] More about the regulations of Dutch landscape policy is discussed in section 2.3

2.3 DUTCH LANDSCAPE POLICY

This section provides more understanding about the institutional context in which land owners have to operate. The layout of Dutch landscape is divided into 8 terrain types: traffic, built, semi-built, recreational, forest & natural, agricultural, open water (sea) and backwater (PBL, 2019). Every terrain has its own set of rules and restrictions, with the policies on urban, recreational, forest & natural and agricultural land types being most relevant to this research topic. Administratively, the Netherlands is divided in twelve provinces, which are at their turn divided in a total of 345 municipalities. Simplified, this creates three layers of governing bodies: state, province and municipality. The national government is responsible for protecting the country from floodings, the improvement of soil, water and air quality and protecting cultural and ecological heritage (Ministerie van Infrastructuur en Waterstaat, 2022). From 2018, the ability to decide the direction of landscape policy has been assigned to the provincial boards. Overlap between these two levels of government in the carrying out of nature legislation can occur in some cases.

The Dutch government recognizes two forms of landscape protection. Hard protection, that in practice means: “No, unless” and soft protection, that in practice means: “Yes, if” (PBL, 2019, p.26). Around 45% of the total surface area of the country falls under one of these forms of protection (Figure 6). Apart from the nationally protected areas, every province has its own regional challenges, goals and administration. The biggest part of the national land designations have been adopted regionally, but provinces tend to give their own completion to the states' plans. This leads to an extensive patchwork of different landscape indications with a total of 56 names that appoint some kind of protected status to an area existing. The number of protected area categories ranges from two in Zuid-Holland, one of the larger provinces, to twelve in Groningen (PBL, 2019).

Hard protected areas	**Surface area (acres)**	**Surface area (%)**
Natura2000	361358	10,3
NNN (Nature Network Netherlands)	642772	18,3
Forest	340309	9,7
Soft protected areas	**Surface area (acres)**	**Surface area (%)**
Heritage	54450	1,6
Unesco	55424	1,6
Outside areas	18063	0,5
Protected views (village or city)	46265	1,3
Archeological monuments	67269	1,9

Figure 6: Protected areas in the Netherlands

National, provincial and municipal bodies all have their own instruments to execute landscape policy. For a big part, these instruments make up the field that actors, such as farmers, have to operate in. The basis of all levels of landscape design is the Law for Spatial Planning, *Wet Ruimtelijke Ordening*[2]. By this law, boards of all three governing levels are obliged to present a Structure Vision for their territories (Dutch Government, 2007). This document contains the most important points of the policy that is to be carried out. Structure Visions are only binding for the government itself (Dutch Government, 2007). To affirm the policy direction in the Structure Vision legally, governments are obliged to make use of destination- (municipalities) and integration plans (provinces and national government). These documents contain the exact type of land use for every square metre of the

[2] An important sidenote is the introduction of the new Environmental Law 2023 (*Omgevingswet 2023*) that presumably will be replacing the current Law for Spatial planning in January, 2023 (Ministerie van Infrastructuur en Waterstaat, 2022). In the past years, the implementation of the Environmental Law 2023 has been postponed several times. This thesis thus uses the current Law for Spatial planning as the leading framework in which research is conducted.

indicated area and are of a hierarchical order: the plans of higher governments weigh heavier. Destination plans for instance decide whether a certain area may be built, used for retail or used for agricultural purposes (Ministerie van Infrastructuur en Rijkswaterstaat, n.d.). The designation of an area therefore influences land value, subsidies and permits that landowners can invoke. Within the context of this research, land that has been assigned as *nature* is less suited for starting food forests as there are a lot of rules and laws that owners have to deal with. Agricultural land, on the other hand, is most likely cleared of tree cover and corresponding nature laws but also much more expensive (IVN, n.d.).

With 87,2% of its area being assigned "green" functions like nature, agriculture or water, the Netherlands is the third most built country of the European Union (PBL, 2019). Space is scarce, especially in the Randstad area and around other middle- and large-sized cities. The space that is reserved for the large national developments like the climate transition, urban development and nature development, is mostly situated on agricultural lands (PBL, 2019, p. 63). As discussed in section 2.2, food forest business models usually rely on local food chains. Therefore it is questionable whether these rural areas provide enough demand for food forests to operate on them financially. Urban lands are, on the other hand, much more expensive than agricultural lands (Groot et al., 2010). Nonetheless, examples of food forest models that are successfully applied in urban areas are apparent (Jansma & Wertheim-Heck, 2021). Within the current zoning policy framework, food forests struggle to emerge without government intervention in the form of subsidy or excluding them from policies.

2.4 THEORETICAL BACKGROUND ON POLICY DESIGN

Food policy is described as 'the collective efforts of governments to influence the decision making environment of food producers, food consumers, and food marketing agents in order to further social objectives' (Timmer et al., 1983, p. 6). Food policy therefore is not limited to the production side of food systems. Policies also can be designed to nudge consumers, fulfil social goals or steer the direction of types of food produced. The way in which food systems emerge and grow are mainly determined by existing policies. For a fair chance of having a healthy diet for everyone, nutritious food needs to be more available, accessible, desirable and affordable. All these challenges are accomplished by implementing new policy actions to transform food systems (Webb et al., 2020). To understand more about how policies emerge and change, the 3-I framework is used. This framework examines three aspects, interests, institutions and ideas to elaborate on why and in which direction policies change. This thesis mainly focuses on the ideas aspect, analysing the different ideologies of food forest keepers and the government.

3-I FRAMEWORK

Landscape design is, as discussed, a policy field that is very important in the agricultural debate. To give meaning to the driving forces behind the earlier and future development of policies, a solid theoretical scope is necessary. The way in which phenomena and literature are explained by this theory, is used to fit them in the context of this research. The framework used in this thesis is based on three core approaches dominantly used in the field of political economy (Hall, 1997; Pomey et al., 2010). First, there are the real and material **interests** of actors. Classically, this is a capital-based approach where policy direction is mostly influenced by the agendas of different groups in society.
The second aspect of this framework are the **institutions** behind policies. This approach explains the performance of policies with the organisational structures of an actor, mostly a nation-state. More specifically, these are the norms, formal and informal rules that structure political behaviour. Finally, the **ideas** of actors are looked at. This approach sees cultural features and beliefs as the main influence on policy performance. It considers the view on societal developments and values that actors own as decisive factors in the development of policies.

To understand about the development of policies and trajectories they take, these three approaches can be concluded in the 3-I Framework. The main goal of this framework is to understand how policies are designed and, most importantly, how they evolve and change. This background is used to indicate the interview results and compare the viewpoint of food forest keepers to the strategy of the government. Looking at the interface between the three approaches, this framework provides insights in past policy choices and has the ability to speculate about the future direction of policies (Institut national de santé publique du Québec, 2014). The **Ideas** that formed and will form Dutch landscape policy are the main thread and point of focus. Because of research limitations, it is not feasible to analyse the effects of Institutions and Interests. The collected data is analysed to compare the Ideas of food forest keepers to that of the governmental bodies. The differences and similarities between the ideas of these actors are used to explain the direction that policy is headed towards.

Looking at studies that elaborate on the concept, ideas can be divided into two main sections. On one hand, there is the information an actor has and on the other hand the values that this actor lends from this information (Lavis et al., 2002). In a policy design context, information about *how things are* mostly comes in the form of scientific research. Values can be seen as the actor's view on *how things should be* (Pomey et al., 2010). These two components both determine the direction of policy in their own ways.

Information is used as evidence to legitimise choices in decision making processes. It is important to note that "evidence is inherently uncertain, dynamic, complex, contestable, and rarely complete." (Cuyler, 2005, p. 9). There is never one true source of evidence. Direction of policy is often steered by actors trying to dispute the strength of each other's evidence. Beside owning certain information, all actors operating in the field hold, often without being conscious of it, certain cultural and ideological values. In political disciplines, culture is seen as one of the most important factors to determine the way in which policy design takes place (Hall, 1997). Countries that historically have had certain administrative features, tend to deal with the implementation of policies in a different way. For instance, drastic policy interventions are more widely accepted in countries with a traditionally strong state (Bemelmans-Videc, 2017). Except for culture -a factor that is more responsible for the decision making process as a whole- every actor (or group of actors) has its own ideological background. This background also plays a big role in deciding the direction of policy (Hall, 1997). An instance of Ideology being of influence in the development of new policies can be found

when looking at the reallocation of medical subsidies in British Columbia in 2003. Except for institutional and interest-related factors, policy makers' viewpoints on the concept of equity were decisive in the implementation of more subsidies for low-SES residents (Pomey et al., 2010).

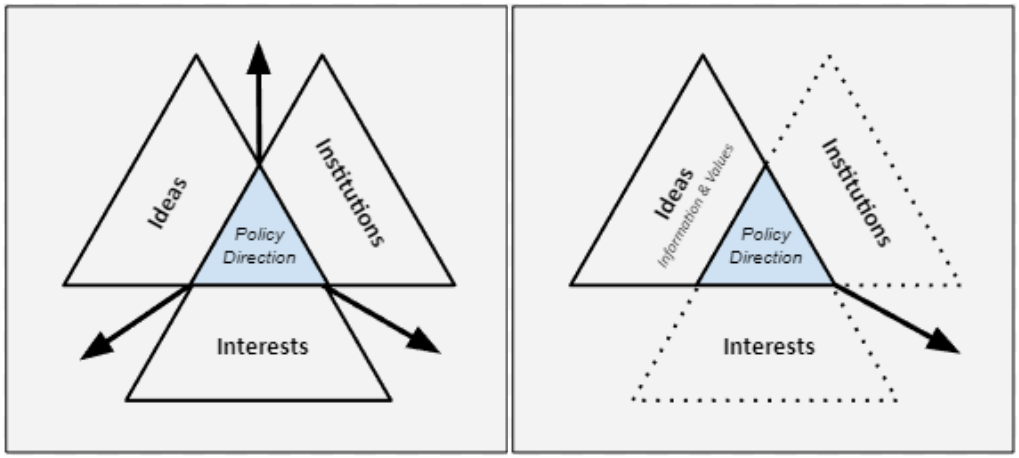

Figure 7: A schematic view of the 3-I framework and the way it's used in this research

Figures 7 and 8 portray the way in which the Ideas concept of the 3-I framework is used in this research. All discussed aspects of the concept -information, culture and ideology- are operationalized in the context of policies that influence the development of food forests.

Concept	Dimension	Indicator & question
Ideas	**Sustainability**	Does the government recognize the same **problems** (and **solutions**) as you do?
	Political	Does the government have the same **social convictions** as you? Do you feel the current policy is in line with **societal opinion**? Do you feel the actors with **power** block or support the change of current policies?
	Cultural	Do you feel the dominant administrative **culture** promotes change of current policies?

Figure 8: The operationalisation of ideas in the food forest concept

Concluding the framework, Hall (1997) distinguishes three groups of scholars that try to find relationships between the evolution of policies and an *I-factor* (Interests, Institutions, Ideas). Scoping down on one factor comes with some remarks as all three of them are seeking causality based on different models (Hall, 1997).

Still, using the Idea-oriented approach gives useful insight in the development of policies. Simply put, the ideas that prominent actors have, and how these are carried out in the field, are used to explain the way in which policies, and therefore food forests, develop. An important side note to this Ideas approach is that it can be challenging to disentangle them from other causal factors. Within the approach, there is a group of scholars that implements Ideas but still prioritises Interests and Institutions. At the other end, there is a group that sees Ideas completely independent from the other two variables (Hall, 1997). The first group risks failing to capture the true background of the Ideas that it researches, while the second group could face trouble proving causality (Hall. 1997).

Applied to the context of food forests, ideas of involved actors like food forest keepers, traditional farmers and the government are dominant in dictating policy direction. In the past decades, a policy direction that was favourable towards large scale, mechanical farming has become dominant (Bieleman, 2010). This has caused a food system prone to ecological problems to develop. From the end of the twentieth century, different ideas about this food system started to emerge. Increasing questions were raised on the sustainability and social equity of the agricultural sector (Bieleman, 2010). The food forest concept is an example of a movement with different ideological backgrounds than the consensus that persisted. The 3-I framework is used to discover with what ideas this movement defines the reform of the food system.

CHAPTER 3: METHODS

This thesis is based on a qualitative, interpretative research approach. The main goal is examining if the Dutch landscape policies work restricting or enabling for the development of the food forest movement. This is done by taking a dive into the story behind landscape policy and food forests. This chapter explains the methodological route that is taken. The foundation of the paper, the basic principles of qualitative research, are first explained. This foundation is used to determine the general outline of the route this research is following. Thereafter, the most important risks within the research process are critically addressed.

3.1 RESEARCH PLAN

QUALITATIVE RESEARCH

This research paper focuses on the policy options of the food forest concept in the Netherlands, using a social-geographical research angle. The main research goal is adding to the debate on the Dutch food system by investigating the possible role of food forests within landscape design policy. The narratives, opinions and experiences of involved actors are crucial to be able to work towards the research goal. This perspective lends itself to a qualitative research design.

The main argument to choose qualitative research as a methodological framework is wanting to tell a story instead of merely showing analysed statistics. Sometimes, a study of people, concepts and actions within their own social context is fitting to a research topic. The main study objects are, instead of raw data, meanings that people give to certain phenomena (Vennix, 2019). Data is always considered within the context in which it was retrieved. To be able to fully understand the perspectives of those involved, researchers elaborate on every new step in data collection and reflect these insights on the existing research. This leads to results that are cast firmly in the empirical reality (Vennix, 2019). Except for empirical credibility, the validity and reliability of the data are considered. Three specific measures are taken to ensure theoretical value of the research. Firstly, the quality of the data is checked by replicating the observation or using a variety of data collection methods. Secondly, the research approach is extensively described to prove that the conclusions drawn are valid. Finally, the quality of interpretation is tested by letting research subjects review the interpretations of the observer. These control measures are called member checks (Vennix, 2019).

In this research, validity of the results is warranted. First, using multiple data sources provides better security of data quality. Relevant literature is used to ground the interview topics in the scientific debate. In addition, the research approach is frequently reviewed by peers and the thesis supervisor. In the data collection period, respondents are given the chance to rephrase or omit input if this is seen as necessary. Beforehand, it is made clear to respondents that data is treated discretely and they can stop the interview at any moment. This allows respondents to answer openly, guaranteeing the reliability of interview data.

DATA COLLECTION

Prior to the fieldwork, literature on relevant concepts is examined to explore the research field and recognize where current problems exist. To pave the way for a study that significantly adds to the scientific debate, the two main concepts of this paper and their relationship, food systems and landscape policy design, are defined. Relevant problems that are found, are used to decide the direction of the fieldwork. On the basis of relevant findings in the literature study, the organisations, respondents and interview topics are set up. The literature study is used to lay the foundation of answering the research questions. Although fieldwork results are the main data source, the analysis of relevant policy pieces and literature is also a significant part of the research process. As portrayed in figure 9, it could be stated that the fieldwork continues where the literature analysis fails to answer the research questions.

In the data collection period, three types of qualitative research material are used to answer the research question. Four interviews are conducted, transcribed and analysed. Three of these interviews are with food forest keepers, one with a provincial government representative. In addition, five document analyses and four field observation reports provide background to the interview data. The policy documents were supplied by respondents to provide background to their interview data. The interview guide and reports are found in the appendix (figure 10).

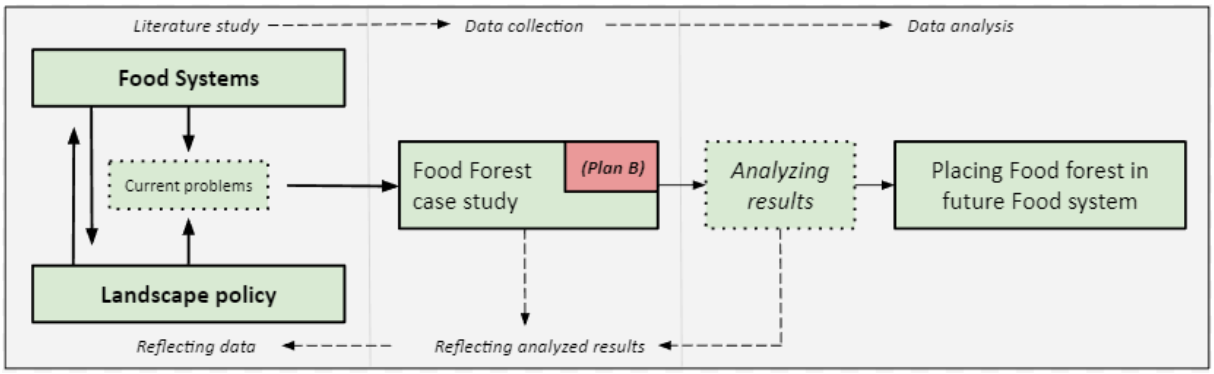

Figure 9: A schematic view of the research plan

Data collection method	Respondent/organisation	Type	App.
Interview	Frank de Gram (A)	Food forest keeper	1.1
Interview	Henk Hendriks (B)	Food forest keeper	1.2
Interview	José van Gerven (C)	Government representative	1.3
Interview	Anonymous respondent (D)	Food forest keeper	1.4
Field observation	Waalgaard	Food forest	2.1
Field observation	Eerbeek food forest	Food forest	2.2
Field observation	Near Utrecht	Food forest	2.3
Field observation	De Nootsaeck	Agroforestry	2.4
Document analysis	Replanting obligation law	Policy document	3.1
Document analysis	Province	Policy document: future of farming	3.2
Document analysis	National government	Policy document: food forests	3.3
Document analysis	De Nootsaeck	Agroforestry document	3.4
Document analysis	Waalgaard	Web page	3.5

Figure 10: Overview of the used data set

3.2 POTENTIAL BOTTLENECKS

With every research process come risks and limitations that could negate the validity and representativeness of the results. This section discusses the most important bottlenecks that appear during the period of writing this thesis.

Firstly there is the issue of researcher positionality. In qualitative research particularly, where the main focus is elaborating on a narrative or experience, there is the risk of filling in or omitting certain things to create a story that sounds fitting to the researcher. This leads to research that is based on false or misinterpreted information. Another risk on positionality in this research is the view on the concepts themselves. The research is about the future of a topic, and by choosing this subject a certain fascination for it is shown. Therefore, bias to some extent is unavoidable. This is a thin line within qualitative research: discovering things in a passionate and fascinated way is necessary to carry out solid scientific research but this fascination should not restrict the researcher to be highly critical towards their subjects and concepts. This thin line is continuously examined during the research by assessing results and findings with the research supervisor and ever more so with other group members. They conduct similar research and presumably face similar problems.

Even though this research subject is not particularly prone to ethical problems, it still looks into a policy field where things are at times sensitive, as seen in the relevance section. It is thus the responsibility of the researcher that the anonymity of the respondents can be guaranteed if they wish that their names remain unknown. All theses written on the Radboud University are posted on the Repository and thus publicly available. Data collection and processing during this research is always done with consent and participation of respondents. This also guarantees an open setting to account for results that are unblemished. Another ethical dilemma could be the research outcome. As discussed in the last section, there is enthusiasm for the research subject. Results can come at the disadvantage of the subject. This does not prevent the research from being carried out.

Another risk in research is the availability of data. In the first place it can be difficult to find respondents that match the requirements. Getting in touch with them is the next step where problems can occur: most respondents are very busy and act in a different timespan than this research does. This problem is solved in twofold. Firstly, interviews are planned as soon as possible. Planning is simply easier with more time in hand, especially with the season this research has reserved for fieldwork. Secondly, a solid plan B is needed if planning interviews for some reason is not possible. In this research, the research frame remains unchanged. In plan B, the case study subject is altered and different ways of alternative farming are researched. A higher pool of possible respondents make it possible to collect data without having to rework all of the research plan.

To be able to capture the narrative this thesis focuses on, using only interviews is generally seen as too thin of a data set. Therefore, more measures are taken to guarantee a viable conclusion to the research. Within the 3-I framework, two sides of the narrative are crucial in answering the research question. First of all, there are the Ideas of the food forest keepers. Semi-structured interviews are complemented by document analyses to determine what the most important Ideas of food forest keepers are. It is, however, also valuable to look at how these ideas are expressed in practice. For the latter, it is especially useful to base this research on another data collection method in the form of semi-structured observations. Field notes as well as an observation scheme are used to further establish the interview and document analysis data.

Even more important to answering the research question is being able to compare the Ideas of food forest keepers to those of the government. The exact interface and dynamics between these two is the area where this thesis aims to add value to the scientific and social debates about sustainable agriculture. This is also achieved by using interview data. In addition, official policy documents are analysed to further grasp the way in which Ideas are really put to practice. These documents contain the policies that food forest keepers have to deal with and are thus the most reliable source of the message that the government has decided to convey. Relevant documents are selected with help of the input of the respondents that were interviewed during the research process. The analysis of these documents provides a summary that can be compared to the story of food forest keepers. The outcome of this comparison tells us more about the positive or negative effects current policies have on the development of food forests.

When conducting research, four months is a period to only do a relatively small research. The research scope is kept simple to be able to look at things extensively. A lot of ways of alternative farming exist and to research even more than one is a task suited for a bigger team of more experienced researchers. Therefore, a small, feasible research question is chosen: out of the 3-I framework, only one aspect is treated and out of all the actors, only the government and food forest keepers are examined.

CHAPTER 4: RESEARCH RESULTS

The results report begins with further working out the main characteristics of the food forest concept by looking at what a food forest is according to the data. In addition, the extent in which these ideas can be recognized in practice are reflected on. Secondly, an overview of the Dutch agricultural sector is made up in order to reflect if the problems that were discussed in the literature review are still significantly recognized. Concludingly, the way Dutch landscape policy is dealt with by different actors is examined. The different Ideas of alternative farmers and governments and the dynamics between these actors are discussed.

4.1 THE FOOD FOREST CONCEPT

Food forest keeping is a way of farming that relies on creating a polyculture. A food forest is a self-sustaining piece of (farm)land and does, on paper, not need any ploughing, fertilisers or chemical pesticides. Food forests thus enhance biodiversity, regenerate the soil and produce high quality crops (Albrecht & Wiek, 2021). Unlike industrialised farming methods, food forests also have the capability to serve social goals like education, recreation and community building (Albrecht & Wiek, 2021).
In the data collection, the research focuses on whether food forest keepers recognize or disregard these ideas[3]. The way food forests work, ecologically, financially and on a social level are researched by inquiring the people that work in them on a daily basis.

ECOLOGICAL FEATURES

Research has been conducted on the ecological features of food forests. In the Netherlands, a piece of land has to cover the following characteristics to be recognized as a food forest (Wiebes et al., 2016):

- It should be a productive ecosystem that is designed by humans while following the example of a naturally occurring forest, with a high diversity of annual and perennial species that can be (partly) used for human consumption;
- There should be a top layer of high trees;
- There should be at least three of the following vegetation layers present: low trees, shrubs, herbs, ground cover, underground species and climbers;
- There should be high forest ground life activity;
- It should be at least 0,5 acre in size. In a significantly bare area, it should be at least 20 acres in size.

The creation of a polyculture is something that most actors acknowledge as being one of the main goals of their work. This becomes apparent from a field observation that was made at of the food forests visited during the research process:

“I recognize multiple crops. The majority of the estate is still a pear orchard, but as pear trees are slowly being removed, more and more other species appear. I recognize small trees and shrubs with berries.”

Respondent 1, that is turning a pear-orchard into a food forest, states:

“Yes, those are the pear trees. That is the monoculture we want to breach.”
“And that is why the variety of a food forest is so beneficial, because there are always different kinds of fruit you have to offer.”

While attempting to reach the self-sustaining polyculture as soon as possible, the respondent does remark the risks of abandoning the old system without taking caution:

“Yes, that is why I just told you: “You can’t just abandon it.". It is a monoculture and it is man-made that way. It just won’t function naturally, without a grasshopper plague showing up when you stop spraying pesticides.”

[3] Interviews were conducted in Dutch. Quotes used in the report are translated by the researcher. Within the process of translating, it is always tried to keep the meaning and content of data as close to the original as possible.

“If there are all kinds of caterpillars and butterflies over here all of a sudden, those will migrate to other fruit orchards. And then they will fight them with conventional pesticides.”

Respondent 4 shares the same laborious experience of transitioning a monoculture to a functioning ecosystem:

“Those mice, you try to attract predator birds. It is not always paradise on earth, it is constantly moving. You have to find balance. It is nothing but harmony. But it is way more fun than working with fertiliser and pesticides and that kind of stuff. You should just account for 20-30% of your harvest being lost, "lost", to all the others that also enjoy it.”

The field observation that was made, shows how this transition is carried out in practice:

“The keeper stopped mowing the grass (except for the trails), so it’s knee high and thriving with a lot of wild grasses, insects and birds. With a little imagination, one could see all kinds of trees with smaller vegetation between them growing in the future.”

Respondent 2 inherited a different type of obstacle from the monocultural farmland that he is trying to start a food forest on:

“Yes, corn is very demanding (...) fertiliser. So there is no hummus at all.”

The respondent explains how he is trying to work towards a functioning ecosystem by regenerating the soil:

“Nut trees get leaves late, asparagus and rhubarb are green early in the year. Harvest them early in the year. At the end of the year, you mow the asparagus and rhubarb and use them as mulch. Then, the walnuts fall down... Then you have a system that goes together pretty well. They’re both perennial plants, so you don’t have to disturb the bottom. And then there are some hazel trees standing next to them.”

This method seems to be working, as soil life is slowly starting to return:

“I just had the first two school classes. They went looking for small insects on the bottom. It was very cold so they only found worms. But they found a lot of worms.”

At one of the other research locations, research that was conducted by students shows that the ecosystem has progressed a bit further. A variety of wildlife was found in all layers of the system. Some rare bird species, as well as a lot of pest-opposing predators were observed (figure 11). With an age of about twenty years old, this agroforestry site is older than the other food forests that were visited. Even though food forests are very dependent on their environment and thus need a customised approach, this observation shows that it is possible to create a running ecosystem that needs little to no human intervention.

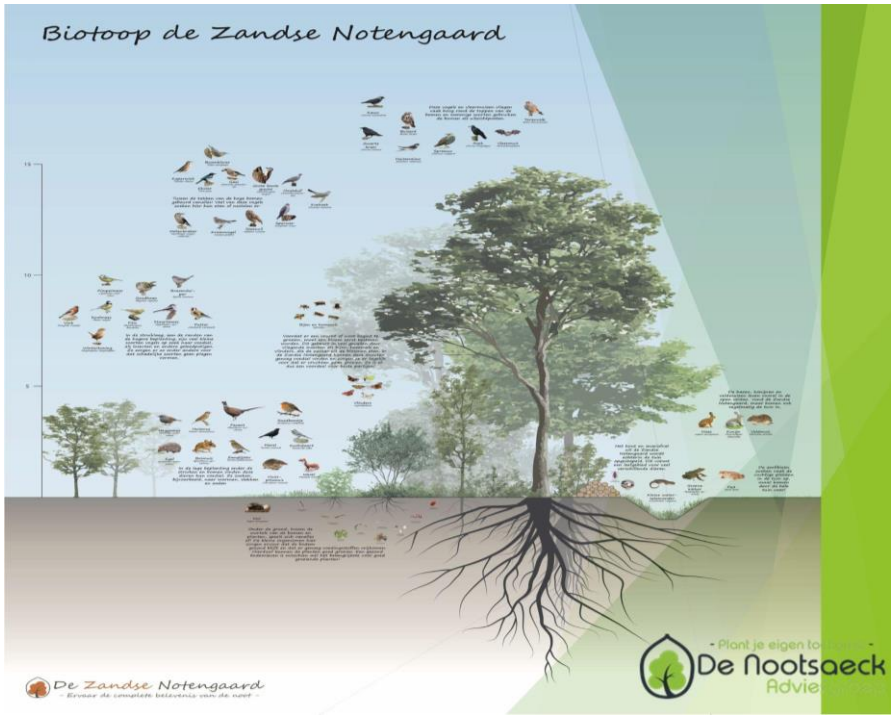

Figure 11: A infographic of *de Zandse Notengaard* (provided by a respondent)

From the quotes above, it appears that creating a system that runs without fertiliser and pesticides comes with its problems. Previously monocultural systems that needed intensive human intervention are challenging to transform into self-sustaining ecosystems. For most food forest keepers, it is worth the hard work. Respondent 1 explains more about the idea behind self-sustainability:

"And when things are right, a food forest is self-sustaining after that. Then, you have to do little to nothing about it, except for harvesting."

One of the main ideas of food forest keepers is to design a productive ecosystem with multiple layers of vegetation. In practice, however, building this system seems to be easier said than done. One respondent strikingly summarises this process:

"A food forest is an enormous investment, in time, in crops, in money and also in patience and knowledge. It's not like having a field of potatoes, I plant them and will be spraying at a quarter past four. And it's all data-managed nowadays. It's much more… you have to get in the field and see: "What does that one, what does that one?" A lot more in contact with nature."

A few conclusions about the ecological ideas of the food forest concept can be drawn out of the data. Firstly, food forest keepers are trying to look at a farmsite as a running system rather than a piece of land. The planting of perennial species that support the environment rather than draining it, shows a will to breach the planting-spraying-harvesting-fertilising cycle that is usual in conventional farming. In addition, food forest keepers value self-sustainability. A food forest should maintain itself with minimal human intervention. To get to this point, a lot of knowledge and hard work needs to be put in. It appears from the research data that this is an offer food forest keepers are willing to take. Except for the ecological benefits, self-sustainability also is important for food forests to be financially viable. This aspect will be discussed in the next section.

FINANCIAL FEATURES

In the last section it became apparent that food forests, although they need a lot of effort, can contribute to fulfilling ecological goals. For the concept to become adapted in the food system, they need to be appealing on a financial level as well. This section discovers the ideas that food forest keepers carry out in order to run a successful business model. Most importantly, the self-sustaining ability, local ties and labour models are discussed. As previously examined, self-sustainability is an important goal for most food forest keepers. This also has financial grounds:

"What I said before, is that it is the intention that after seven years, the food forest income is enough to make a living out of. And then, it is the idea to pass it on to someone that can farm and live on it."

To add to this statement, respondent 1 explains why a monocultural farm design is actually not ideal for a small businesses:

"Yes, it is way less spread through the year because it are all the same trees. So, in winter you need a lot of people to prune. And in harvesting time a lot of people to harvest. So, if you would spread that year around, it would be about the same as two people being busy almost full time."

The respondent further elaborates on his idea of how to arrange the labour in a food forest:

"And the rest of the year, one person does it [on a monocultural farm, ed.], on a tractor. They drive just to spray and fertilise. So that is way more mechanised than it will be over here [the food forest, ed.]. So that is already most of the work. But that also means higher income, because you don't have to deal with 100.000 kilos of pears, like last year he [previous owner, ed.] did it himself, for 30 cents per kilo. But you will be selling multiple types of fruit in different seasons for a competitive price, in Nijmegen."

Respondent 1 works on a middle-sized food forest that had a yield of 50.000 kilograms of pears last year (from the remainder of the pear orchard). Their main angle is selling their produce on a local market. Different examples of business plans exist. A respondent with a much younger and smaller food forest explains about his strategy:

"I sold the first subscriptions for the self-picking garden. That is where the income will eventually… Right now, I have twenty subscriptions. But that allows me to serve twenty households for a share of their fruits. Next year, I would like to grow to fifty subscriptions, then the price will rise. Because I can offer a lot more types of fruit then."

Because of its small size, the respondent does not feel like his food forest could take place in a larger-scale food system by, for example, selling to a supermarket:

"If you have a food forest that's four acres in size, or twenty acres, then you should be looking at those kinds of systems and supermarkets to sell to. I think my system is especially suited for a group of people that want to harvest themselves and live close to the food forest. So they can easily come here every week."

Not all food forest keepers act out of commercial convictions. Respondent 4, who works for a foundation explains about their employer:

"They want to protect and rewild nature, wherever possible. Way less boxes between agriculture and nature. And offering way more inspiration to people. For farmers, for children in the neighbourhood."

"No, it's without commercial motives. Indeed, ideological. No, it's not the goal to make profit."

"I'm just going to do something, something positive. So I can at least sleep at night and can't blame myself for doing nothing at all."

A significant amount of actors seems -to some extent- to be acting out ideological motives. With their food forest, they want to make a positive change even if the business model is not yet profitable. As

discussed, getting an ecosystem running is very knowledge- and labour-intensive. The importance of volunteers, sharing the same will to make a positive impact, in this process is pointed out by the majority of respondents:

“This morning, a group of five volunteers was here to help. Over there is a neighbour that joined today. Such a group of five volunteers, that’s just the core of your food forest. There’s a facebook group around it with 250 interested people. And it's growing. That is also a base under your food forest. From there, you’ve got to reach those families that want to buy on a regular basis.” (Respondent 2)

This respondent sees volunteers not only as a way of filling in labour. With their contribution, they also help to ground the concept of food forests in communities. The social features of food forests will be discussed in the next section. Besides volunteers, people with poor job indications are also a commonly used labour-force by food forest keepers. At the first field visit, the following was observed:

“About twenty volunteers that are working in the food forest and garden. Frank explains these are people with poor job indications, so subsidies are received by the co-operation by giving them the opportunity to work.”

In the interview, respondent 1 explains more about how this works:

“If you were to look at a graph, the income of care taking is high and the income of the food forest is low. They will eventually meet each other and, what I told you before, it is the goal that after seven years, the income of the food forest is enough to make a living out of.”

The financial resilience of food forests is often criticised (Albrecht & Wiek, 2021). This section has discussed the different aspects of financial strategies that food forests use. From this, ideas that are important in the movement are derived. As appeared from the analysis in the last section, self-sustainability is a central notion in the food forest concept. Primarily, the sales of produce are seen as the main source of income. Different strategies exist, but they are all based on selling high quality produce locally. Secondly, the prospect of a self-maintaining farm is the reason why owners are willing to put in labour and financial resources. When a food forest is eventually running, it can be efficiently kept by a relatively low amount of people. The financially heavy years are bridged by working with volunteers as well as people with poor job implications. The latter often provide some cash flow thanks to subsidy regulations. Although these solutions provide the initiatives that were researched with some financial stability, it is still early to speak of a blueprint that could be replicated by other food forests. More time and experience is needed to make claims about the financial aspects of food forests.

SOCIAL FEATURES

As briefly addressed in the last section, food forests also play a role in serving social goals. This section discovers possible ways in which food forest keepers try to contribute to the social aspect. One example is giving people with social problems a chance to approach the labour market. As discussed in the last section, this is a twofold relationship. Hiring these people also provides food forest keepers with income in the form of subsidies:

“Because our concept is also interesting from the notion of working with people with poor job indications and we use those budgets as a starting capital, that’s the way you should look at it. And the people that work here appreciate that. Because they have the idea that they do useful work as well as feeling that the money is well spent because we can set up this with it.” (Respondent 1)

This observation is replicated in another interview:

“And also offer people with poor job conditions an opportunity to get to know the nature, the terrain.” (Respondent 4)

Another strategy used to amplify the social features of food forests is the creation of Community Supported Agriculture models (CSA). The community-building strength a self-picking subscription system has, has become apparent to respondent 2:

“I think my system is especially suited for a group of people that want to harvest themselves and live close to the food forest. So they can easily come here every week. And that you create a kind of community that way.”

Except for produce, customers that are subscribed to this respondent also receive social value for their products. More examples of food forest that make use of a CSA model exist:

“Over the years, this subscription will include more and more fruits, vegetables and nuts. You not only support a wonderfully biodiverse and new way of farming, but you also receive beautiful products. Every year we ask you to renew your membership, so you are not tied to it. With your contribution we can buy 10 fruit trees or plant 50 metres of edible hedges.”.

These kinds of initiatives aim at re-creating the relationship between the farmers and consumers. One of the main problems of the Dutch food system is the lack of connection between the two (figure 4, p.10). By restoring this connection, CSA based initiatives could create awareness on *food pricing*. This concept came up in an interview with a government representative (Respondent 3):

“In the end is a fair price that the negative effects of agriculture like we know it today (...) they end up somewhere else, that’s where the bill is paid. And that is something that’s already changed, that’s where we need quite some time for. The government plays a role there, as well as retail organisations and we as consumers.”

This section analysed the social value that agroforestry could add to the food system. More than conventional farms, food forests are better fit to provide labour to people that would usually be struggling to reach the labour market. In addition, self-picking models provide customers with more knowledge about the backgrounds of food production in general. Short chain solutions like those could contribute to a more integrated food system, something that fits within the government's food sustainability policies. A further discussion of the ideas that exist about food forests contributing to the concept of food pricing follows in the next section.

4.2 AGRICULTURE AND ALTERNATIVE FORMS

In chapter two of this thesis, the Dutch agriculture- and food system was analysed. A course of events caused a flawed system to emerge. This section discovers the ideas about what place alternative forms of agriculture could take in the existing food system. Firstly, the way respondents view the problems with the current food system is looked at. Thereafter, potential ways of integrating food forests are discovered. Food forest keepers try to play their part in resolving these problems. To make claims about the potential of these solutions, it is however important to first look at what these actors are exactly trying to solve. The research data is analysed to look at which problems actors recognize with the conventional farming system.

CONVENTIONAL FARMING

As discussed in chapter 2, the current food system comes with its problems. As seen in the last section, food forest keepers often act out of ideological motives. Friction between this ideology and the dominant, traditional ideology has led to a competitive and polarised climate. Following quote evidently shows the contrast of the situation in the current food system:

“People have to eat, go to school, pay their mortgage, raise kids. But, that 's all happening. Destroying your environment. Your water, polluting your groundwater. Destroying your forests, your insects. That’s just all being destroyed. Apparently, that’s all being tolerated, or not remarked. I just try to create something good in this food forest. A dissenting voice and especially to inspire. There is another way, there really is.” (Respondent 4)

While being fiercely against the environmental impact of conventional farming, this respondent does recognise the impossible position of farmers. In accordance with chapter 2, the problem is that there is no enforcement or regulation that helps farmers get out of the system they are currently trapped in (Bieleman, 2010). The respondent further explains about this trap in more detail:

“Because I know farmers are stuck in a system. Lands, debts at the bank. And they are forced to, you receive subsidy per acre. So the more acres, the more subsidies. But then, you’ll have to. And all those pesticides… They are being trapped from multiple sides. They are trapped in a system. And then there is the LTO that really wants things to stay as they are.”

“Yes it’s a shame. A real shame. And then there are a few farmers that want to make an effort. Well, there’s also the caring farmers now, the farmers for the future, There are dissenting voices. But they are rarely heard. And it’s just a lobby with a lot of money and so much support.”

From this respondent’s experience, the agriculture lobby seems to be an actor that is against alternative forms of agriculture like food forests. This also happens to be a very powerful actor in the playing field. Respondent 1 struggles with the same conflicting interests:

“Yes, there is participation from out of the province but there obviously are all kinds of conflicting interests. The other agriculture sectors all want to keep their share and the CDA [Christian-democratic party in the Netherlands] is very big in Gelderland. So they are a bit more aimed at traditional agriculture. A bit stuck on the idea of feeding the world and protecting that.”

It appears that food forest keepers and traditional farmers see each other as competitors rather than colleagues. The current situation could be described as very competitive, leading to hindrance in the integration process of food forests. Food forest keepers have the idea that they need to compete with the establishment of traditional farms. To discover possible opportunities in breaking this situation, the next section focuses on connections between alternative and traditional forms of agriculture.

FINDING CONNECTION

Not all approaches of actors have been successful in further integrating food forests in the current food system. This section analyses what different types of actors consider necessary to bring this way of farming closer to the currently dominant forms of agriculture. Most actors have ideas on mixed forms of agriculture that could partially solve the problems of the current food system. These forms are based on a food forest approach but are still recognisable and therefore more manageable for traditional farmers:

“Important is, as I told you, to find that connection. And not to just say: “Okay, I want a food forest and we stop with everything else.” To find the connection with traditional agriculture. Because if you are sitting in a corner as an idealist, like Wouter van Eck, like: “I’m planting a forest and everything is mixed together with only me knowing where things are.”. That works perfectly fine, but I’m not sure if you will find any connection with a traditional farmer.” (Respondent 1)

The respondent explains how their food forest is designed to try and build this connection:

“That’s why we use those different methods with plastic and wood chips on the ground. And up above some pear branches, or down below, or all there. To show what kinds of different strategies exist.”

Other respondents seem prepared to promote forms that are further away from the definition of a food forest that is used in this research:

“A lot of mixed-forms exist. I think those have a better chance, are more convincing. And also a better chance to be a success with conventional farmers. Because those fruit growers already work with trees and perennial crops. If you could convince them, even a little: “Keep more distance between trees. Place some different species and let weeds grow, then you won’t have to spray pesticides again.” Or all those horrible cow fields. If you could convince those people to place some trees on them. Because you see the cows, they all move to the side where the trees are so they are protected from the heat. Those kinds of things have a way better chance, I think. To spread around. To become mainstream.” (Respondent 4)

“He [another farmer, ed.] has a lot of different types of crops. He is biodiverse. He has a lot of variety and he harvests all at once. That is also a food forest. That is something you should encourage as well. There should be space for it.” (Respondent 2)

“Agroforestry: the purposely integration of trees and shrubs with the growing of crops and animal production systems, because of the intended advantages that arise because of the ecological and economical interactions. Forest farming, Silvopasture (trees and animals), Windbreaks, Alley cropping, Riparian buffers.” (De Nootsaeck Agroforestry document, app. 3.4)

“And Schevikhoven, do you already have that one? That one will actually do a bit of the same as what we do. With these rows. But they have an even bigger investor. So they are going to plant everything at once. Also with… like in fruit growing, what you get at Christmas tree orchards... With those stainless steel posts with wires in between, and those sorts of things. They will start with that in one go, and then also a food forest.” (Respondent 1)

This comes closer to the position respondent 3, the government representative, takes:

“But then I have to add, Agroforestry is a wider concept than food forests, food forests are the most... Then you have seven layers. But for many farmers, that is often a step too far, to get started with Agroforestry. But in Gelderland we have a lot of dairy farming and also poultry farms. And of course the fruit sector. And so there are also study groups for combining the trees with animal farms. So we encourage those forms of Agroforestry.”

The provincial government seems to be aiming at Agroforestry in a wider form rather than at the food forest concept itself. The representative explains more about the ideas behind this position:

“I think you should see this as a niche. That's not... I can't imagine that we... We also produce a lot for export. I can't imagine that in the very short term everything will be produced in food forests...

What I am saying is, for us, it is part of our agricultural policy. And from Agroforestry we don't speak about food forests, but about Agroforestry, because there are different forms. And food forests a bit often in terms of imagery and association: "Oh, that's something for hippies.". I exaggerate. So, we don't frame it that way."

Most actors recognize that integrating the food forest in its most extreme form would be a near-impossible challenge. They do see potential in other forms of Agroforestry to solve ecological and social problems. Alley cropping with three or four -as opposed to seven- layers of vegetation would be a very feasible compromise. The next section will go further into detail about how the government exactly stimulates food forests and other forms of Agroforestry.

BIG CHANGES

Food forests have little problem in creating enough harvest. Often criticised is the sales and distribution of produce. Food forests have a longer harvesting season (usually all summer season) and a greater variety of crops than monoculture farms. All crops are perennial, so some products that are very dominant in Western diets are ruled out. The integration of food forests will require a huge shift on multiple levels of the food system. The production, consumption and overall design are all critically assessed by food forest keepers. Firstly, the way that is thought about farming would need to change:

"So, yeah, and I don't know, that's really a mindset shift. I also don't know whether every farmer out there, farmer or farmer's wife, is ready for that again. With their hands and feet in the sand or in the clay. It's much more impressive on the machine... So that shift must also be made then."

"Because what grows under the trees is not edible, but in a food forest it is. So maybe there will be fewer pears on the trees, because there is no fertiliser and no spraying, but there are also strawberries and rhubarb. There are bushes with berries underneath. So that... The number of kilos it yields in food per square metre is then almost the same." (Respondent 4)

There seems to be consensus among the respondents about the need for change in consumer behaviour. For a shift towards short chain, seasonal production, consumers need to be willing to change what they eat, when they eat it and how much they pay. Respondent 1 explains more about how they try to use their produce in a way that fits within the current food system, without having to significantly change it. Their philosophy is adjusting the food forest's produce in addition to only the consumer demand:

"So we have apples for four months that can be picked fresh from the tree. All kinds of different kinds. Well, then you don't have [inaudible] in your fruit bowl every time, but always something different."

"We are also working on that, with various parties in Nijmegen. Like Nevel, the brewery, which uses many special plants from Wouter van Eck's food forest, also with Basic Theory... They make fermented vegetables. So that's what we're looking at as well, like: "How can we use things from the food forest to... that resemble something that already exists?". So, for example, shoots of a plant, which are a bit like a pickle in shape. Can we put it on acid and... use it as a pickle? Just like vegetarian meat. There it says: "To be used as...". Or soya yoghurt... In this way we also kind of nudge that people want to use those things from the food forest, because it at least matches the experience of: "What can you do with it?". Instead of everyone wanting to try all kinds of very complicated recipes with food forest products."

"There is also another student who is here more often on Friday as a volunteer, who is working on that, to look at: "How can you..." he studies behavioural science, psychology "How can you change people's behaviour? From now on, I'm eating bread from chestnuts instead of grain." But that's quite a journey."

When asked about the potential of food forests as the main source of food supply, respondents are sceptical. Respondent 2 agrees with the approach of other food forests, stating that the problem lies within the consumption patterns rather than the production capacity of a food forest:

“No, I think that food forests can provide a large part of the fruit, the food we want to eat in the Netherlands. I also think that if you look, an acre of land can provide a complete diet of 8-10 people. But I think that's an ideal image. Simply because you have to change so many eating habits.”

The respondent admits that he likes to eat produce that cannot be provided by food forests sometimes.

“I like to eat a perennial now and then but also like to eat a sandwich. And I also like to eat grains. I don't see that happening anytime soon, but in fruit and the like. Sure, and some of the vegetables.”

The ideology of the government is in line with that of the food forest keepers. The shift that has to be made is framed on a more financial scale:

“Ultimately, a fair price is that the negative effects of agriculture as we know it are not there yet... they come elsewhere, the bill is paid there [by the farmers, ed.]. And that has already changed, we need quite some time for that. And the government also has a role in this, but also retail organisations, also us as consumers.”

For food forests to become a significant node in the food supply system, they either need to aim at filling the niche of fruit and nut production, or a complete adjustment of the dominant diet is necessary. Most actors are imbued with this idea, as both sides of the story are being worked on. The current consensus of the food forest movement is that the *romantic food forest*, although being a great initiative for neighbourhood communities, is too laborious to succeed on a large scale:

“Most are still neighbourhood projects or, like Wouter van Eck's, a romantic food forest. Where only the owner knows where everything is. You can't really transfer those.” (Respondent 1)

This brings up the third aspect that needs to change according to the interview data: the way that is thought about the food system in general. As discussed in chapter 2, food systems are often seen as linear processes (Pinstrup-Andersen, 2011). The Dutch food system is dominantly based on large distributing parties that look to buy as cheap as possible. This has led to a very efficient, large-scaled food system (Figure 4, p. 10). Actors within the food forest movement have different ideas about what a food system is, more in accordance with the integrative system that was also discussed in chapter 2. Respondent 2 reflects on the fundament of the current food system:

“You see that in the Middle Ages cities did not grow bigger than the food that was grown within a distance. And, yes, that's kind of the maximum city size. We are well past that now. That's a thing. How are you going to do that?”

This respondent states that population groups have outgrown local food supplies. This is in line with the analysis of Dutch agricultural growth in chapter 2. Growing populations required more food, leading to the mechanisation of farming. A solution would be to look at food systems in a more local way, according to the same respondent:

“But in villages, especially here in rural areas, that's fine. And I definitely think there is potential to provide a significant percentage of local food.”

“And yes. In Limburg the idea is already: "Each village has its own food forest.". Well, if you look at a village like Eerbeek. 10,000 inhabitants means 3,000 households. I could supply 50-70 households with fruit, much of their fruit, for much of the year. So just around Eerbeek you could place several food forests that can produce on the same system. Then you must have variation because not everyone wants to pick their own fruit. So you also need to have a somewhat larger food forest that can provide perhaps 200-300 households, and for which they are picked. That it's just in the supermarket... Or at least in a shop in the village itself.”

Respondent 1 elaborates further on the idea of local food supply:

“But around the cities I do think that the food forests... They are actually a kind of mini-supermarkets or greengrocers. Where you can just go to get all your stuff, or where we, that's how I see it, as people... There are actually quite a lot of people who don't have time to come and pick at all. That

you can drive a little Picnic [delivery service, ed.] car, and that is why the harvestability system is useful for that too. Because in July you drive such a car and then you fill all the crates that are in it and then you drive to Kelfkensbos to go to the market. And then you can fill your truck every week."

Local weekly markets are seen as an ideal spot to sell food forest produce. The respondent foresees rings of food forests around cities that provide them with fresh produce. Further out, other forms of agroforestry supply grains and other shelf-stable goods. The respondent is however conservative in seeing this as a way to feed to whole country:

"Yes, just a ring around it. That is as close as possible. Those are the fresh products that everyone eats. Outside of that you could say grain... agroforestry, nuts. The things that have a longer shelf life, that you use in a different way than directly. Well, that's idealistic, of course. I don't know if you can feed 170,000 people with a ring of food forests around Nijmegen."

Also the government is conservative in relying solely on agroforestry as food supply:

"And I think we will also continue to produce on a large scale in the Netherlands, but then with technology that produces fewer emissions. But also more towards the mixed companies as we used to have them, also with shorter chains."

"In future perspectives that have been made, you also see that this is quite a mix. There is not one model, and the food forest as a model for agriculture… No, I think so... Yes, it won't... That's not realistic in my eyes. And of course, if you see the value in it and want to make it bigger, that's fine. But, what I say, it's one of the parts."

The government as well as food forest keepers recognise the potential of food forests and even more so mixed forms like agroforestry. Where some food forest keepers fantasise about a food system that totally consists of small, local chains, the government sees this type of agriculture as a part of a bigger movement towards sustainable agriculture. Although the end goal is the same, this is an ideological discrepancy as the government does not disregard the principle of a large chain, overlapping food system as its starting point.

One thing that returns in data among all actors is the importance of education. Education about Agroforestry and food forests is available in several forms, aimed at different groups. Food forest keepers aim on teaching a young generation about their profession. This appears from an observation report:

"Two elderly men are waiting for an elementary school class to arrive. They volunteer for a nature organisation that teaches children about biodiversity."

A comparable observation is made at another site:

"[*name*] tells me that he just had a group of children from elementary school. He explained to them more about soil life."

Respondent 2 further elaborates on why he decided to show around school classes in his food forest:

"You have to aim at the full width that way. I have now had the first two classes of school over here. They have been looking for soil bugs. It was very cold, so they only found worms. But they did find a lot of worms."

Respondents experienced that not only children had a lot to learn about food forests. Within this agricultural movement, a lot of courses are offered. These courses teach about all the aspects of starting and maintaining a food forest:

"And I am the initiator of this thing, together with [*name*]. We got to know each other during Marieke Carsen's food forest course at De Plant. This is an annual course in which all kinds of things about starting food forests are discussed in three modules. So "What is a food forest?", is the first module. The second is designing a food forest, how do you do that? And the third is creating a business plan. How can you plant a food forest profitably?" (Respondent 1)

This course was followed by respondent 4, allowing them to meet each other:

“No, [*name of respondent 1*] has followed the same year course at Food from the forest. Two years later, or a year later. And Marieke, from Food from the forest, she always invites the final presentations of the new year, she also invites the former students. Just to watch and listen... That's how I got to know him, when he gave his final presentation, when he didn't have his pear orchard yet, but he did have all kinds of plans.”

These food forest courses also serve a networking function. They allow people that just started to share knowledge, experiences and tools:

“And all people who have registered their food forest initiative with them can use that platform. I haven't been there myself, I'm too busy in the field. But you can use that platform to exchange plants, exchange seeds, volunteer campaigns, sponsorship campaigns, crowdfundings.”

Similar educational meetings are provided by the government. The representative explains about the projects that are available for farmers that are interested in making the transition towards regenerative agriculture:

“We have included what is happening in the province of Gelderland, specifically around food forests, in the Nature-inclusive agriculture platform.”

“And then we had another project. This also focuses on food forestry and agroforestry. And that is actually more aimed at providing information about... That lies with Natuur en Milieu Gelderland. They have a counter function, they provide information and advice. But they also offer a food forest design course. And also try to remove bottlenecks in regulations and policy. So through our policy, our nature-inclusive agricultural policy, we pay attention to food forests in that way.”

The networking function that is provided by courses of food forest foundations, also has its counterpart from the government's side:

“We also have a network. Farmers can also receive advice within the framework of that network. Then they can receive a voucher, by means of a voucher they can engage an expert who will help them draw up an Agroforestry plan. This is all stimulated via the network.”

It can be concluded that the government, in this case the province of Gelderland, takes an active position in providing education and other forms of help to farmers that are willing to make a transition. This is in line with actors within the food forest movement where the value of education is widely recognized. A difference is that the government primarily aims itself at farmers that currently use traditional methods. The next section further discovers the policies that governments implement and, most importantly, the way these policies are experienced by people in the field.

To round up this section, the views on the necessary changes are briefly summarised. Firstly, the production side of agriculture is critically assessed by actors. The narrative of what a farmer is, should be reconsidered for the transition to regenerative agriculture to become possible. The consumer patterns are seen as another driving factor between maintaining or changing the agricultural system. For a system that allows food forests to take a place, populations need to get used to a change in what they eat, when they eat and what they pay for it. This is an idea that comes back in both the government and the food forest keepers data. In addition, the altering of the food system itself is brought up as a point. Both food forest keepers and policy makers consider a food system that is more based on a short-chain model. Policy makers however see this within the framework of the current food system. The food forest movement relies on a reworking of this system to a greater extent. All actors acknowledge the importance of education about biodiversity and different forms of agriculture within the transition process towards a more sustainable food system.

4.3 POLICY AND ITS EFFECTS

The government's ideas become tangible in the policies it implements. Chapter 2 analysed the policy framework in which this research takes place. The Dutch landscape design is characrterised by a zoning-based model. Land destination plans are made and decide what may or may not be built and executed in certain areas (Dutch Government, 2007). Every type of land destination comes with its own set of rules and obligations. As seen in the last section, governments are reasonably favourable towards alternative forms of agriculture. This section looks into the experiences of people in practice regarding Dutch landscape policy. Firstly, the position of the government is determined by a combination of policy analysis and interview data. Afterwards, a comparison with the narrative of food forest keepers is made by analysing interview data.

APPROACH OF THE GOVERNMENT

The government does acknowledge the potential of food forests. In particular, forms of Agroforestry get significant space in the policy making processes. Policies are however specifically aimed at convincing conventional farming businesses rather than promoting bottom-up alternative approaches. From an ecological cost-efficiency standpoint, this is a rational approach. Food forests are a relatively new approach that need further development and study. Secondly, the policy pieces still mainly discuss developments from a division between nature and agriculture. With the growth of food forests, the government has however started recognizing the concept in policy documents. In the Green Deal policy document, the motives behind this standpoint are stated as follows:

"1. In order to preserve our prosperity for future generations, it is necessary to strengthen the competitiveness of our economy while reducing the burden on the environment and the dependence on fossil energy and scarce raw materials and as such achieve green growth.
2. Creativity, entrepreneurship and innovation are essential to enable this transition to green growth. Companies, citizens and social organisations are taking plenty of concrete initiatives to make the economy and society greener. With the Green Deal Approach, the government also wants to make optimal use of this dynamic in society towards green growth as an expression of the energetic society.
3. Green Deals offer companies, citizens and organisations a low-threshold opportunity to work on green growth together with the government. Community initiatives form the basis for this. Where they run into obstacles that, according to the initiators, can be tackled at central government level, the government is committed to removing or solving them in order to facilitate and accelerate these initiatives. In a Green Deal, the parties lay down concrete agreements about this in writing.
4. The results of a Green Deal can be used in other, comparable projects, so that imitation can take place and the scope of a Green Deal can be increased without specific support from the national government." (Policy document, app. 3.3)

The government acknowledges the social, ecological and economic benefits that green projects could provide to the country. The role of food forests within this policy is also explained:

"In the past centuries, the fields that are referred to in the Netherlands as 'nature' versus 'agriculture' have been increasingly demarcated from each other; on this basis, the physical areas destined for both are also regarded and treated very differently. In the current system of technical-industrial production, 'ecology' and 'economy' are even regarded as antagonistic to each other, in which profit in one area is directly related to loss in the other, and the management of more 'natural' systems is by definition more extensive. However, the phenomenon of food forests is emerging from the field, with internationally remarkably encouraging documentation and practical experience also becoming available."
It is recognized that the current landscape design policies create a situation where combining agriculture and nature leads to problems. The Green Deal document seems to be a start when trying to remove barriers and make place for food forests in the Dutch landscape. The government representative of the Gelderland province explains how financial and institutional help is provided:

"And so there are also study groups for combining the trees with animal keeping. So we encourage those forms of Agroforestry. And that stimulation also runs with a planting scheme."

"We now also have a subsidy scheme there, which will open on May 2, for the starting of Agroforestry. And that is essentially what we do. And in addition, we are looking at: "What obstacles are there around legislation and regulations?". And we also try to tackle those, in the context of the... You have

the Natural Law, the Nature Conservation Act and the new environmental law, which is called "WAL". And wood stands are protected in the Nature Conservation Act. And that includes a replanting obligation. The fact that you have that duty can mean that it leads to a decrease in value. Then that can be a disadvantage. Well, a number of forms are excluded. And we are now looking at how we can make an exception for Agroforestry from that obligation to replant in the new environmental regulation."

This data proves that the government acknowledges the complications that alternative forms of agriculture can cause. Especially in areas with nature destinations, an abundance of nature protection laws applies. An example of one of these laws that is especially relevant for food forests is, as mentioned by the respondent, the Replanting obligation law. The law states:

"It is prohibited to fell or have a wood stand felled in whole or in part, whereby a wood stand is understood to mean:
timber stand: independent unit of trees, trees, shrubs, coppice or osier, which:
-occupies an area of land of ten acres (1000m2) or more, or
-consists of row planting comprising more than twenty trees, calculated over the total number of rows;"

In principle, food forests are covered by this law:

"Agroforestry systems that are subject to the replanting obligation without an exemption:
-Food Forests
(...)
-Agroforestry systems consisting of more than 20 non-food producing trees
(...)
-Agroforestry systems where supporting trees/shrubs are planted in the beginning at fruit and nut trees for thinning later
(...)" (Policy document, app. 3.1)

This is an example of a policy piece that constrains food forest keepers in their profession. The next section elaborates on how food forest keepers experience this and comparable laws. Firstly, the viewpoint of the government is further worked out. The representative explains about how different land destinations can cause different legal frameworks:

"Look, for farmers, the destination is agriculture. So I think they have less to do with that and it's really not that much of an obstacle. So that was kind of my point, like, "Gosh, to what extent is that really a big problem for farmers?". Does that perhaps play more for food forests, estate owners who are in a nature reserve and want to create a food forest? That they have to do with that. But for farmers themselves I wonder... Whatever else you come across, more planning, we also have in the context of zoning plans that spaces must remain open, and if spaces must remain open, you cannot plant trees. That is not allowed. So that can be a hindrance. So certain laws and regulations sometimes do not work optimally. So, that's a bit of a planning issue. If we, dairy farms, want to build more hedgerows, then that doesn't need to be a problem."

Activities on farmland generally experience way less hindrance by nature protection laws. It can be said that current policies are dominantly aimed at the established farmers:

"So those farmers who really want to get started know where to find us. They have actually already been approached via the network. It is of course not the case that every farmer wants to get started with this. But of course it also has to become clear because of the planting scheme, we have to... That is also new for us, that we have a scheme for it. We are the first in the Netherlands to act as a province, the government has not yet made any arrangements for this. So that's pretty new."

"With new things, we always call those who start with them precursors. And not all farmers will do this. What we can do with that is encourage it. Entrepreneurs make their own choice. It won't be for everyone. But we do try every... we try to reach the target audience."

This section discussed the ideas of the government. The extent in which these ideas are experienced in practice, is discussed in the next section.

FIELD EXPERIENCES

Input from respondents has made clear that policies are not yet acknowledging forms of agroforestry, like food forests, in practice. Communication with lower-level officials is often rated as positive and intensive. The government as an institution is described less positively. This becomes especially clear when subsidy options and landscape restrictions are discussed. Agricultural subsidies are often experienced as unfavourable towards alternative forms of agriculture, the smaller initiatives in particular. From the standpoint of the government, an explanation could be found when looking at the efficiency of supporting larger businesses to make a transition. This is less explanatory for the situation regarding landscape restrictions. Food forest keepers feel like the zoning policy and some rules like those for open landscape, archaeological value and root depth are inappropriate. A call for a revision of the landscape design and protection policies is made. When compared to the results of section 4.2, an important ideological similarity can be found: the government thinks in changing the situation from within the boundaries of the current system whereas food forest keepers think in terms of a reworked policy framework.

The former section shows the policy direction that is currently kept by the government. How these policies are picked up by the people they are (partially) aimed at, is analysed in this section. The experiences of three food forest keepers are used to draw an image on how the ideology behind a policy can differ from that of the people it is designed for. The respondent 2 started his food forest about a year before the interview date. When asked about the experiences with subsidy regulations, the following is stated:

“The sour thing here, for example, is that with 1.2 hectares of smart agriculture, I get 450 euros with subsidies, and the minimum contribution that they pay out is 500 euros. And then you're left empty-handed. There are also many restrictions on allowing new ground in that subsidy policy, which makes it very difficult for me to intervene. And I think a lot can change in that area. Because now the subsidy is really for farmers who have been farmers for a long time. Who have been receiving the same subsidy for a long time and simply grow corn for animal feed. And when you talk to the province and apply for a subsidy, they also say, actually the subsidy is not intended for me. That is literally said. Because you already want to change. They say: "The subsidy is intended to convert that corn field and that the farmer, who is also there now, will stop his corn field and that he will then start a food forest or apply agroforestry. That you do that is very nice and all, but we are not really interested in that.” Well, I really don't think that's possible. And I won't call this discrimination to the province just yet because I still want to work with them. But when push comes to shove, it smells like that. And then you just have a wrong situation, just like with the tax authorities. And something really needs to be done about that.”

This respondent remarks on some important points. Firstly, subsidy rules are at times illogical for the ones applying for them. From a cost-efficiency perspective, it is rational to only pay out subsidies from a minimum amount. As seen in this case, this sometimes can cause uncomfortable situations. The second remark by this respondent is the feeling that policy is in favour of established farmers. To them, this feels very unfair, and they even go as far as calling it discrimination. The respondent explains why they think this is a missed chance in the development process of food forests:

“If you look from an efficiency point of view, the food forest foundation is also a foundation that focuses on changing large farmers, at least 5 hectares. But then there is also so much subsidy, all in all, that the farmer gets his design and the plantings for free. And that it goes into the ground for free. That is great of course if you want to make big hits. But for initiatives like mine, it's undermining. I think that's a bad thing. I think that's a very bad thing. And I get that you're saying, "We don't all want to give subsidies to people who plant a few trees in their backyards." We already have Landscape Management Gelderland for that, then you can put down a set of trees for a tenner and get it, or buy it, and then you can put it in your backyard or in your front yard. Then you have your orchard. And then we do something about the landscape, and then it's just a matter of looking. But this is really substantially different. I think there is too little attention for that. Also because in this way you… Look, those large farmers with five hectares, that goes through the supermarket. That is not a short chain, that is a somewhat longer chain. And this makes it much easier to stimulate that short chain, really short chain. And then I think you can just lose five or six different food forests around a village of 10,000 inhabitants. Over the next fifteen years. You make great strokes with that, and there is too little attention for that.”

The respondent does acknowledge the importance of helping big, traditional farming businesses make the transition but they think the importance of smaller initiatives is underestimated. In their opinion, those initiatives could form the small, local chains that make up the skeleton of a future food system. This is in line with the earlier observation that governments work within the blueprint of the current food system whereas food forest keepers are willing to let go of this image.

The respondent 1 initiated their food forest a few years ago. As it is situated on an old pear orchard, different rules apply when compared to the case that was previously discussed. This respondent has a positive indication about his personal contact with the government:

“So if you look higher up, they're not very busy with it. But the individual officials are. And there is also help and look, from: "Can we possibly fulfil the things you ask?".”

However lower level officials seem to be cooperative, the priorities of the government as an institution are not with food forests. The respondent also explains more about the replanting obligation and rules about open landscape:

“You always have to apply for a permit for trees. To be able to plant that, in the Netherlands. There is always something holding it back. For example, an open polder landscape. Or like here archaeological value, then you should not actually plant trees that root deeper than 30 cm. In this case we may replace the existing trees with new trees. Because there are already trees there. So those are obstacles.”

These are examples of laws that lead to practical problems for food forest keepers. With rules on root depth and landscape views making it complicated to plant trees. The ecological and financial viability of the food forest ideology are significantly compromised. Like the first respondent, this food forest keeper also has mixed experiences with subsidy regulations:

“From an agricultural point of view, it is of course a pity that we do not receive any subsidies. And all companies that work on a large scale, livestock farming, receive a lot of subsidies. From Brussels. And, organic farms out there... Regenerative farms don't. Feels a bit crooked. What we are trying to do is biodiversity, climate change. To counter all those things. Or adjust a sleeve. But we get nothing, well, not nothing. We get here, because we are an agricultural company, 300 euros per acre per year. So that's almost 1000 euros here. Then you think, okay, that's something, but on the other hand. It's a drop in the ocean if you... You can buy fifty trees or something, and you're done.”

The subsidy regulations are experienced as favouring large farming businesses. In addition, the subsidies that the corporation receives are seen as insignificant. On the other hand, more favourable subsidy options should become available in the near future because of a good relationship with the province:

“Yes, there is an agricultural code. That's a crop code. So that is something that is taken into account, that one is national. And in the province that is the 10,000 euro subsidy that is about to come. Yes, the province does contribute ideas, but of course there are all conflicting interests. The other agricultural sectors naturally also want to keep their share and CDA is very large in Gelderland. So they are a bit more on traditional agriculture. Still a bit on the idea of: "We feed the world, so we have to maintain that.". But that crop code is a step. Because otherwise we would have had to write every time: "Okay, here's a plum, here's an apple.". And then send it in. Now we can just send: "Food forest. Mixed.".”

A few things can be derived from this response. The first takeaway is that, in line with the analysed policy pieces, governments recognise food forest as a form of agriculture and transmit this standpoint into policy and subsidy measures. It must however be noted that the conventional farming lobby, represented by the CDA, is still a very powerful actor. Another interesting observation is the fact that this respondent feels like there is a competition between traditional and alternative forms of agriculture.

Looking at the contact and relationship between the government and respondent 4, similar experiences are reported:

“Yes... The province and the municipality. It's all so sluggish.”

This seems like a very negative first response. The relationship marks a bit more nuance:

“Well, very good actually! No, but seriously. Do you know why? I have now, I have been in a group around food forests for two or three years, a volunteer group in Zeist, a neighbouring municipality. And there are some other people in there too. All people who are completely enthusiastic about food forests, or at least interested. And there is also a woman with whom I really click, who works at the province. And who has also recently been appointed as the Agroforestry and Food Forests Project Officer of the province. The province also stopped by with the whole team recently, to come and have a look. So yes, in principle very good actually, that relationship with the province. But the question is whether that's really going to... make something, or whether it's going to make a difference. With the new *Omgevingswet* too. We'll have to see that again.”

Alike with the statements of the second respondent, the individual contact is described as very positive. It is interesting to remark that, even though this bottom level communication is intensively present, the trust in the government as an institution still is not particularly high. The experiences with landscape policy haven’t contributed to restoring this trust:

“It's farmland, anyway. Look, here was also the... The destination is agriculture, but then there are also functions. No, I don't remember. In any case: Semi-open landscape, for example. Well, a semi-open landscape and a food forest, that can still be reconciled. Open landscape. That won't work. And that is a great pity because it is farmland. And if you put a food forest on it, you just have a lot more. You're working on all those other things. All those other spearheads that the government wants to work on. And all those other crises: the climate crisis, carbon storage, soil fertility, nitrogen reduction. I could go on, with a food forest. "But no, it's not possible because it's an open landscape.". Then I think, "Guys, what are we doing?". I find that so short-sighted. That is also because in the Netherlands everything is really, it is small. A lot of people, a lot of functions. Everything in boxes, everything has fifteen different destinations that are incompatible with each other. Except in a food forest.”

The respondent has experienced the landscape policy rules as very limitative. The acting of government is seen as contradictory: on one hand, ecological crises are prioritised in regional and national policies. At the same time, the government refuses to let go of existing policy frameworks that are very restrictive towards initiatives that try to contribute to the solution of these problems. The respondent acknowledges this is easier said than done, but thinks letting go of certain rules would be a fit measure as “*a la guerre comme à la guerre*”.

4.4 CONCLUDING REMARKS

Chapter 4 has discussed the results of the data that was collected and analysed. Brief reviews to the theoretical framework have been made throughout the data analysis. This chapter summarises the research results while making evident connection with the 3-I framework. The ideas behind the concept are applied to the framework. This process grounds the analysed data in the debate on policy development and provides significance, allowing for claims to be made on the basis of the results.

Firstly, the food forest concept was described. In addition to the delineation that was made in chapter 2, more depth on the relevant aspects of a food forest was provided. On an ecological level, the food forest movement distinguishes itself from the traditional farming system by looking at a farm site as a running system rather than a piece of land that is newly planted every season. Financially, food forest keepers believe in selling their produce in the short chain. Sometimes this chain is as short as a self-picking subscription model. Labour is usually filled in by people with poor job indications and volunteers. The ability for food forests to fulfil social and educational purposes is also discussed.

A comparison between conventional farming and food forests was made in chapter 4.2, mainly focussing on the adaptation of the latter. Food forest keepers have the idea that they need to compete with the establishment of traditional farms. This competition primarily applies to the subsidiary regulations. Food forests as discussed in this thesis are seen as good examples, but too labour-intensive to be generally adapted. Mixed-forms like Agroforestry are mentioned as solutions that could work on a larger scale. To conclude, societal aspects that would need a conversion were discussed. A different view on agriculture and the production of food, consumption patterns and changing the food system in general are mentioned. Educating new generations and farmers is seen as very important in reaching these three shifts

Section 4.3 discussed the government's policy direction and the ideas behind it. The narrative of three food forest keepers on their experiences with Dutch administrative culture was told. The communication with lower-level, mostly municipal or provincial, representatives is often experienced as good. Trust in the government truly adapting the communicated ideas is, however, low. Respondents encountered situations in which policies are seen as in favour of established, traditional and bigger farming businesses. This primarily occurred when applying for subsidies or encountering land protection laws.

When comparing the ideas of food forest keepers (figure 12) to the analysed policy direction of the government, a few things become apparent. Ideologically, the government and the food forest movement do show similarities. Solving the ecological and economic problems surrounding the agricultural sector is the main goal for both parties. Because of cost-efficiency and internal political relationships, the government is much more conservative in reaching this goal. When applied to the 3-I framework, these factors are better fit when placed under the *Interests* and *Institutions* sections (figure 13). One significant ideological discrepancy that appears from the data is that food forest keepers look outside existing systems, while the government tends to stay within when trying to solve problems. An example of this is the viewpoint on the food system: the government aims on making the food system more sustainable, food forest keepers want to rework it.

Concept	Dimension	Ideas within food forest movement
Ideas	**Sustainability & social (4.1)**	Self-sustainability Regenerative Running system Minimal human intervention Short-chain selling Labour to vulnerable people Volunteers Self-picking Education & community building
	Political (4.2)	Competition with conventional farming Food forest concept is extreme Agroforestry as a compromise Changing production manners Changing consumption patterns Changing the food system Education
	Cultural (4.3)	Feasible communication with officers Government seen as sturdy Lots of rules and laws Unfair subsidies

Figure 12: Important ideas within the food forest movement

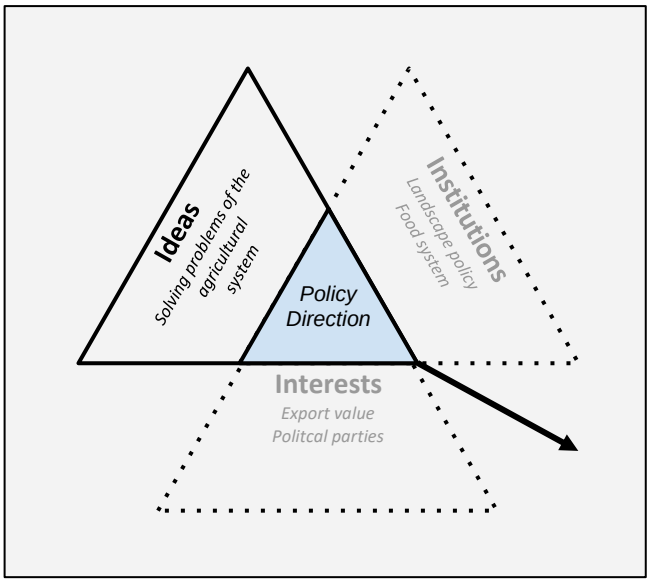

Figure 13: Research results applied within the 3-I model

CHAPTER 5: CONCLUSIONS

In this thesis the following research question has been examined: “How does Dutch landscape policy comply with enabling or restricting the development of food forests?”. To do so, qualitative research in the form of interviews and document analyses has been conducted.

To begin with, the food forest concept is defined. From the literature analysis and research results, the most important features of the concept are drawn. On an ecological scale, the movement aims on recreating ecosystems that naturally occur, with edible species. In contrast to a monoculture, a polycultural food forest is a self-sustaining ecosystem with multiple layers of vegetation that support and protect each other's growth. A successfully running food forest needs minimal human intervention like fertilising, ploughing and spraying pesticides. For the farmer, all there is to do is harvest. The social and financial aspects of food forest are also discussed. Food forests show significant potential in fulfilling social purposes as a form of Community Supported Agriculture (CSA) initiatives. Financially, most food forests have business models. It is however early to make viable claims on the readability and viability of these models. Short-chain, local food networks seem like the markets where food forests could fit most successfully.

To understand more about the currently occurring problems, a history of the Dutch agricultural system is briefly summarised. A process of mechanisation and up-scaling in the twentieth century has led to the emergence of one of the most efficient food systems in the world. This system does however come with its problems. Emissions of harmful chemicals have led to a degeneration of Dutch biodiversity. In addition, the unbalance in the production-demand chain has trapped farmers in a financial headlock. Even though the government undertakes drastic measures against traditional farmers, the food system, as well as landscape and nature protection policies do not facilitate openings for alternative farming initiatives to develop.

Lastly, the policy dynamics between the government and food forest keepers are discussed. Results show that governments persist an open attitude towards alternative forms of agriculture. This is in line with earlier findings that show governments recognising the urgency of solving problems caused by the agricultural sector. Contacts with individual officials are positively described, yet the government is seen as a sluggish institution. All respondents report hindrance from the landscape policies as well as claiming subsidy policies to be favouring established, bigger and conventional farming businesses. When inquired about the adaptation of food forests, mixed forms like Agroforestry are mentioned by food forest keepers as well as the government. In addition, food forest keepers put forward the idea of a food system that focuses on the local instead of national scale. Splitting up the food system in a network of small, local systems would provide a better ground for sustainable forms of agriculture to develop.

It can be concluded that Dutch landscape policy is aimed at solving the problems caused by traditional, large-scale agriculture. A copious amount of nature protection laws and measures against unsustainable forms of agriculture are carried out to restore biodiversity in the Dutch countryside. Although food forest keepers pursue the same objectives, policies do not allow for them to affirm a position in the food system. This does not mean that this form of agriculture is completely disregarded, governments maintain contact with food forest keepers. Policies are, however, more directed towards helping big, conventional farmers make the transition towards regenerative agriculture. Other forms of Agroforestry like row cultivation are regarded as a compromise by both parties.

DISCUSSION

This thesis has examined the dynamics of policy design applied to alternative forms of agriculture. Field experts are interviewed and in addition, policy documents are analysed. From the results, claims about the effectiveness of policy regulations are made. A relatively small group of actors was interviewed. This allows to make claims about the narrative and experiences but does not produce results that are easily replicable. Except for the amount of interviewed food forest actors, a more detailed elaboration of the government's standpoints would have given the research results more depth. This allows for a comparison between the national, provincial and municipal government levels and their relationship with food forest keepers. In this thesis, the government is seen as one - more or less homogenous - institution, while in practice it is a much more complicated actor. Consulting a more extensive and varied population of governmental representatives, in particular by looking at more than one of the Netherlands' twelve provinces, gives more validity to the results.

From this research, it appears that the government and food forest keepers share a lot of their ideology. Fixing the flaws in the food system is the most important motive for their actions. Yet, food forest keepers feel restrained by existing policy regulations and see established farmers as competition. The research results explain this by showing a difference in the framework within which both actors act. Food forest keepers are more open to thinking outside the food- and policy systems, whereas governments look to solve problems within the existing systems. Applied to the theoretical framework, the policy direction is more explained by a difference in institutional relationships and economic interests (figure 13). These results are in line with the research expectations. As discussed in the research motive, the Dutch agricultural sector is seen as a very powerful and conservative actor. The food system is changing but this is an extensive process, possibly taking up many more years to be more open towards alternative forms of agriculture.

The results presented in this thesis can contribute to the current situation in a few ways. First, insights on the social and ecological benefits of food forest add to the debate on agriculture and the long-term sustainability of the global food system. Additionally, a possible opening in the disconnect between the government, conventional and alternative farmers can be found in mixed forms like Agroforestry. The research results prove that both actors recognize the problem-solving potential as well as the feasibility of this strategy. Another compromise can be found in the strategy that was discussed at the Waalgaard food forest observation. Gradually making a transition from a monocultural orchard to a food forest provides more financial stability and security than starting from scratch. These unique dynamics potentially make this model a blueprint food forest that can be replicated in more places.

The reader should bear in mind some remarks when interpreting the results. It is beyond the scope of this study to examine the ecological and financial adaptation of food forests. Being a relatively young concept, not much about the rendability and long-term ecological persistence is known yet. This data would have provided more ground for actors to make claims about the place that the concept can take in policy regulations. Another aspect this thesis has not been able to cover, is the standpoint of traditional farmers. Knowing more about their relationship and their experiences with the system allows for checking the claims that were made about it. In addition, this had allowed the research to elaborate on researching whether conventional farmers are open to adapting towards more mixed forms of farming.

Despite the mentioned limitations, this thesis provides useful insights about the dynamics of policy design and the potential of food forests in the food system. The analysed results allows future research to further examine possible openings in breaching the problematics surrounding the current food system. By examining the experiences and opinions of food forest keepers, a basis to review the food system in general is also provided.

RECOMMENDATIONS

As discussed, a research with a wider scope -in the form of a bigger and more diverse selection of respondents- provides insights about the dynamics between policy regulations and food forest keepers that are representative for a bigger part of the food forest movement. Different regions manage different policy strategies and more is to be learned about the regional differences in the Netherlands.

On a theoretical level, research on the different aspects of the 3-I framework provides a more complete image on the dynamics of policy regulations and alternative farming methods. Looking at how 'institutions' and 'interests' influence the policy direction adds to the influence of 'ideas' that this research builds on. Furthermore, it supplies a more complete image on explaining the past and future development of dutch landscape policy by looking at the interrelationships between the 'three I's', rather than isolating one of the aspects.

More research on the functioning of food forests in practice has to be conducted to keep developing understanding about the concept. Not much is known about the long term financial and ecological numbers. A better image of these statistics gives a chance to further elaborate on features that possibly need improvement, allowing for conventional and new farmers to consider Agroforestry as a farming strategy. A suggestion for such a study is the Waalgaard food forest that is discussed in this thesis. The first results of its strategy are promising and studying the long-term results makes up a model that is very valuable to the food forest movement.

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APPENDIX

OPERATIONALIZATION SCHEME

Concept	Dimensions	Indicators & questions
Interests	Potential profits	Who **profits** from the current policy? Who would **win or lose** from a change in policy? Do you feel you are able to defend your **interests**?
	Power relations	Do you feel there is a **fair division** of power when it comes to defending interests? Do you feel there are actors that (un)intentionally **oppose changes** in policy?
Ideas	Sustainability	Does the government recognize the same **problems** (and **solutions**) as you do?
	Political	Does the government have the same **social convictions** as you? Do you feel the current policy is in line with **societal opinion**? Do you feel the actors with **power** block or support the change of current policies?
	Cultural	Do you feel the dominant administrative **culture** promotes change of current policies?
Institutions	Actors	How can your **relationship** with other actors be described? Do you **feel heard** by other actors?
	Organisation	What is the **organisational structure** like? What are the most **important actors & organisations**? Do you form **coalitions** with other actors?

INTERVIEW GUIDE

Legend: *Topic introduction* **My text**		
Topic	**Questions**	**Approx. time**
Practicalities	*-Very briefly introduce the nature of the research* **Ik doe onderzoek naar de potentiële rol van voedselbossen in het Nederlandse voedselsysteem. Hierbij ga ik vooral in op de rol van landschapsbeleid in de ontwikkeling van alternatieve landbouw.** *-Confirming if the respondent has returned the consent forms I sent prior to the interview* **Als het goed is heeft u een formulier ontvangen met een aantal vragen over privacy, zijn daar vragen over?** **Als er verder geen vragen zijn ga ik de opname starten en kunnen we beginnen met het interview.**	*5 min*
Introduction	*-Who am I:* ***Naam, studie, achtergrond*** *-Explaining our research:* **Tot nu toe heb ik vooral literatuur bestudeerd. Ik wil graag onderzoek doen naar de ervaringen van mensen: in hoeverre herken ik de resultaten uit de literatuur terug?** *-Encourage the respondent to answer the questions openly* **Ik zou willen vragen om open en uitgebreid te antwoorden, alle inzichten komen mij van pas.** *-Check if respondent has any questions or remarks* **Het interview zal tussen de 30 en 40 minuten duren. Komt dat uit? Zijn er verder nog vragen of opmerkingen?**	*5 min*
Topic 1: drawing the image	*-Name, age, daily profession, past experiences of the respondent* **Zou u iets meer kunnen vertellen over uw beroep? Hoe ziet een typische werkdag eruit? Bent u professioneel betrokken bij voedselbossen of vooral op hobby-basis?** **Bent u aangesloten bij een bepaalde organisatie? Hoe is het contact hiermee?**	*5 min*
Topic 2: Interests	*-Who profits from the current policy? Who would win or lose from a change in policy?* **Heeft u veel te maken met restricties vanuit het landbouwbeleid? Hoe zou u dit beleid omschrijven? Wie hebben er baat bij het huidige beleid en wie zouden baat hebben bij verandering?** *-Do you feel you are able to defend your interests? Do you feel there is a fair division of power when it comes to defending interests?* **Heeft u het gevoel dat u uw belangen op een eerlijke manier kunt verdedigen?** *-Do you feel there are actors that (un)intentionally oppose changes in policy?* **Bent u bepaalde partijen tegengekomen die verandering in het beleid tegenwerken? Is dit bewust of onbewust?**	*5-10 min*

Topic 3: Ideas	*-Does the government recognize the same problems (and solutions) as you do? Does the government have the same social convictions as you?* **Heeft u het gevoel dat de overheid dezelfde overtuigingen als u heeft? Zien zij dezelfde problemen? Zoeken ze daarbij naar dezelfde soort oplossingen?** *-Do you feel the current policy is in line with societal opinion?* **Is het huidige landschapsbeleid volgens u in lijn met de maatschappelijke trends?** *-Do you feel the actors with power block or support the change of current policies?* **Merkt u dat de partijen met macht open staan voor veranderingen in het beleid?** *-Do you feel the dominant administrative culture promotes change of current policies?* **Hoe zou u de huidige bestuurscultuur omschrijven? Werkt deze bevorderlijk voor veranderingen in beleid?**	*15-20 min*
Topic 4: Institutions	*-How can your relationship with other actors be described? What are the most important actors & organizations?* **Heeft u contact met andere partijen? Hoe is dit contact? Welke partijen zou u aanwijzen als de belangrijkste?** *-Do you feel heard by other actors?* **Voelt u zich gehoord door andere partijen?** *-What is the organizational structure like?* **Hoe zou u de structuur van de organisatie van het beleid omschrijven? Kunt u een concreet voorbeeld geven: wat moest u zelf doen toen u een voedselbos wilde beginnen?** *-Do you form coalitions with other actors?* **Vormt u een verband met andere partijen?**	
Concluding the interview	*-Asking for final remarks or questions* **Zijn er nog vragen of opmerkingen? Zijn er nog dingen waarop u terug wil komen?** *-Concluding the interview (stress anonymity) and thanking the respondents for their time. Giving a small present.* **Heel erg bedankt voor uw tijd en input! De resultaten zullen discreet worden verwerkt en behandeld. Als u dat wil, zou ik een follow-up van het onderzoek kunnen sturen.**	*5 min* *Total: 45 min*

1. INTERVIEW REPORTS

Interviews are conducted and transcribed in Dutch. The coded transcripts are added as an annex to the thesis document. Below, English reports of the interview can be found.

1.1 FRANK DE GRAM

Date: 19 April 2022
Location: Waalgaard food forest, in Weurt (Near Nijmegen)
Interviewer [I]: Teun Rozer
Respondent 1 [R]: Frank de Gram
Required consent forms were filled in prior to the interview

Frank de Gram is the initiator of the Waalgaard food forest. The farm is in hands of a co-operation that bought the acre as a monocultural pear-orchard. Slowly, the pear trees are being removed and replaced by multiple perennial species, trying to create a seven-layer self-sufficient food forest. The current source of income for the co-operation consists of three main flows: selling the harvested pears, selling the removed pear trees and subsidies raised by people with poor job prospects that work at the farm. In the future, the yield of the food forest should become the main source of income. In addition to these financial goals, Frank also aims to be an example for conventional farmers. By showcasing multiple planting strategies, he hopes to inspire fruit growers to set steps towards a more agroforestry way of working.

The Waalgaard food forest is very close to Nijmegen, about a ten minute drive to the city center. The co-operation also works on some other pieces of land, all within about a half an hour radius of the city. Frank thus sees a future in which food forests provide seasonal fruits and vegetables for the city in a very short chain. Preferably, this should be a direct link between the farmer and the market. Frank acknowledges, however, that a significant switch in consumer question is needed for this to become a large-scale system.

Frank describes his contact with the governmental bodies, mainly the province and municipality, as good. He remarks that the helpful attitude is mostly noticeable in the lower levels of the governments. He does not encounter extensive restrictions from the landscape- and agriculture policy but he remains critical of the rules and laws regarding subsidies.

Finally, the role of other parties was discussed. Frank goes on to name a few businesses, an insurance company and an impact-investing company as partners. He sees the use of these partnerships as important in promoting produce from food forests to make them more widely acknowledged.

1.2 HENK HENDRIKS

Date: 20 April 2022
Location: Eerbeek food forest
Interviewer [I]: Teun Rozer
Respondent 1 [R]: Henk Hendriks
Required consent forms were filled in prior to the interview

Henk is the owner of a very young food forest in the municipality of Brummen. He bought an exhausted cornfield and is regenerating this soil by planting a food forest. Henk aims to become a picking-forest, where local families can subscribe to pick their fruits and vegetables on a weekly basis, providing him with a source of income.

The contact with the municipality is described as very good. Brummen appears to be very progressive. The board even agreed on changing the land-designation of the acre in the future. The province of Gelderland is seen as less progressive. Noord-Brabant is named as an example of a region that's more open and willing to cooperate. Henk is very critical of the subsidy policies. He states that these are very neglective towards smaller initiatives like his and are in favor of big conventional farmers. He acknowledges the importance of helping this group make the transition towards agroforestry but he feels the creation of short chains is neglected by the current subsidy options. Henk himself barely gets any subsidy because he already made the transition towards generative agriculture.

When talking about the future of food forests, Henk sees the small chain as becoming a very important part of the food system. He could see food forests providing a significant part of the crops that are used in communities. Every small to average-sized village would then be surrounded by several food forests. Modern cities are, in his opinion, too big to be provided by food forests.

1.3 JOSÉ VAN GERVEN

Date: 26 April 2022

Location: Online meeting

Interviewer [I]: Teun Rozer

Respondent 1 [R]: José van Gerven (Gelderland Province)

Required consent forms were filled in prior to the interview

José van Gerven is project leader *Agrofood Innovations* for the Gelderland province. She states that the province tried to promote food forests and comparable initiatives by creating a platform for nature-inclusive farming. This platform contains multiple projects. The target audience is reached by stimulating Agroforestry (instead of more specific forms of alternative farming). The stimulation mainly happens in the form of subsidies, workshops, rewarding and altering rule- and lawmaking. José admits that there are some policies (mainly nature protective laws and landscape policy) that are currently constraining alternative forms of farming.

When talking about the future of food forests, José has a standpoint that differs from that of the previously interviewed food forest keepers. She states that food forests could play a part in the future food system, but are not the one and only solution. She calls them a *niche* but does see them as a very fitting and valuable element. The large-scale agriculture that is currently dominant in the Netherlands will evolve and persist, because it has the best revenue model. José has more faith in mixed forms that promote short-chain organic agriculture. In this, the concept of *food pricing* is mentioned. The price of producing in a more sustainable way is currently paid by farmers. The main goal of consumers and retailers is to buy as cheap as possible. For a more sustainable food system to emerge, these costs will have to be spread more evenly across the food chain. This is where the government could play a role.

1.4 ANONYMOUS RESPONDENT

Date: 2 May 2022
Location: Driebergen-Rijsenburg
Interviewer [I]: Teun Rozer
Respondent 1 [R]: Anonymous
Required consent forms were filled in prior to the interview

Respondent started a food forest near Utrecht last year. This food forest is part of a bigger territory owned by a non-profit foundation that aims to decrease the separation between nature and agriculture. The territory also has a garden and an organic cattle breeder on it.

Respondent has some ties, mainly with other private food forest initiatives, but does not call these contacts a real network. They state that most farmers (alternative as well as conventional) don't have time and energy to invest in building a knowledge network. Respondent suspects that this could be a constraining factor for farmers that would be willing to make the transition towards regenerative agriculture. Starting and keeping a food forest is very knowledge-intensive, such a network could be helpful according to the respondent.

The contact with the government is described as good. The governing bodies themselves are seen as very slow and sluggish when it comes to changing laws and policies. Getting the right permits is often made complicated by factors like neighbors and land designation policy (like natura 2000 territory).

Overall, the respondent doesn't see existing policies as totally constraining. They do however state that all the paperwork and contacts needed could be a factor that delays the development of alternative ways of farming. The respondent thinks this is a missed chance as these ways of farming could be key in solving the nature goals set by the national and regional governments.

1.5 DE NOOTSEACK

Date: 8 June 2022
Location: Huissen
Interviewer [I]: Teun Rozer
Respondent 1 [R]: Herman Janssen
This was a spontaneous interview and thus not transcribed

When sitting down, Herman, who is one of the owners of the Nootsaeck, tells me about the company. The company strongly believes in the value that nut trees could have for our food system and they convey this message by helping people and businesses that want to do something with nut trees. They do so by selling trees and necessities, but also by giving advice. The advice group of the company provides information and materials for farmers that want to make a (partly) transition to agroforestry. Herman strongly believes in forms of row cultivation that progressively replace cattle breeding. According to him, this way of promoting agroforestry is way more effective with farmers than the more extreme food forest concept.

2.1 WAALGAARD

Date: 19 April 2022
Location: Waalgaard food forest, in Weurt (Near Nijmegen)
Observer [O]: Teun Rözer
Observation time: approximately one hour
Observation type: Semi-structured

Item	Frequency	Notes
Volunteers	approx. 20	About twenty volunteers that are working in the food forest and garden. Frank explains these are people with poor job indications, so subsidies are received by the co-operation by giving them the opportunity to work.
Size	Large	I was surprised by the size of the estate. From a distance, it looks like a large scale orchard.
Vegetation	approx. 30	I recognize multiple crops. The majority of the estate is still a pear orchard, but as pear trees are slowly being removed, more and more other species appear. I recognize small trees and shrubs with berries.
Biodiversity	Mixed	The biggest part of the orchard still consists of rows of pear trees. On the eye, the estate looks green. Weeds grow between the trees and I spot birds and insects. Frank however tells me this is still a relatively undiversified piece of land with the majority of it still being dominantly covered in pear trees.
Office	1	A small caravan with some picnic tables around it serves as the headquarters of the estate. These are located at a central position.
Information supply	3	A big sign with information about food forests is clearly visible at the entrance of the estate. It explains, simplified, about the ecological blueprint of a food forest. There's also a sign that makes clear that the pear trees that were on the orchard priorly, are for sale. Two elderly men are waiting for an elementary school class to arrive. They volunteer for a nature organization that teaches children about biodiversity.

Farm design	Mixed	The old row-design is kept. Pear trees are replaced by other species. In between the rows, tracks of some kind of machine are visible. Frank tells me this is to show fruit growers and other farmers that this way of farming still lends itself to semi-large scale harvesting. I also see some patches of plastic. Frank tells me these serve the same purpose: the Waalgaard food forest is there to show multiple ways of food forest keeping.
Field notes		On one of the first sunny spring days, I visited the Waalgaard food forest. After a short bike ride from the city center, I arrived at the estate. The first thing notable was the size of the food forest. From a distance, the farm looked just like the neighboring fruit orchards. The reason for this became clear at the entrance of the food forest: the Waalgaard was a pear tree orchard, the keepers are now selling the old pear trees to individuals. I was welcomed by one of the volunteers that worked at the estate. By his tools, I assume he was some kind of carpenter. He brought me to the middle of the food forest, where a small caravan and some tables gave place to a handful of volunteers. This is where I met Frank, the initiator of the Waalgaard food forest. Frank offers to show me around the estate. On this tour, we are joined by two elderly men. They are also volunteers (for a local organization) and were waiting to teach an elementary school class about biodiversity. Unfortunately, the children did not show up because of a planning miscommunication. Frank starts by explaining to us about the backgrounds of his cooperation. The land is co-owned by 60 people. We proceed walking across the orchard while Frank tells us about the different crops that are planted and the purpose they serve. I notice that the old row-oriented design is still intact and I see tracks from some kind of machine between the rows. This is not something I expected to see at a food forest. Frank tells me this is done on purpose: the keepers want to show conventional farmers different ways of maintaining a food forest. We continue walking and reach the garden. I estimate it to be about 30 by 30 meters. As gardening does require plowing and makes use of annual crops, I assume this is a complement to the food forest. We then proceed to the small caravan, that is actually the “office” of the food forest. This is where the interview took

		place.

2.2 EERBEEK

Date: 20 April 2022
Location: Eerbeek food forest, in Brummen
Observer [O]: Teun Rözer
Observation time: approximately one hour
Observation type: Semi-structured

Item	Frequency	Notes
Volunteers	1	Henk, the food forest keeper, is working with one friend.
Size	Medium	In between a dirt road and a medium provincial road, the estate looks like a medium-sized acre. For a traditional farming method, it would be too large to maintain without machinery.
Vegetation	approx. 10	On the eye, the estate looks quite bare. This could be because of the visiting time, early spring. Henk tells me he just started planting and when leading me around the forest-to-be, I begin to recognize a variety of small saplings and other young plants.
Biodiversity	Mixed	This food forest was priorly a cornfield. Henk tells me that when he bought it, there was barely any soil life. He started off by planting some nut trees and pioneer trees like willows. He also deposited a lot of compost to regenerate the soil. This is slowly starting to happen, allowing for more and more crops to begin growing. He also explains that fauna is returning: birds and moles are starting to show up.
Office	1	For now, the office consists of some bales of hay.
Information supply	2	When entering the food forest, a small information sign can be found. Henk tells me that he just had a group of children from elementary school. He explained to them more about soil life.
Farm design	Mixed	Henk explains to me about the design of his food forest. The half-moon layout will face the sun direction. It targets small-scale harvesting, mostly families that subscribe to the forest, and the layout is not suited for bigger machinery to access.

Field notes		After a 45 minute drive from Nijmegen (which would be around half an hour from Arnhem), I arrived at the Eerbeek food forest. The estate is situated between a provincial road and some fields in a rural area near the Veluwe nature reserve. I have to struggle my car over a dirt road to get to the entrance of the food forest, marked by a sign containing some information. From a distance, the food forest looks fairly bare. In contrast to my earlier visit to the Waalgaard food forest, no trees are on the field yet. I make my way to Henk, the initiator and owner of the food forest, who is working together with one volunteer. He tells me that before he bought this acre just a year ago, this was a cornfield. Although the farm doesn't have a very lush look, Henk tells me that he already had some harvest last year. He explains that he purposely planted some quick growing species to financially bridge the time in which the food forest does not provide enough harvest yet. When taking a better look, I indeed see some species and small saplings. To me, this shows hope for the regenerative aspect of food forests. Even after just a year, soil life on a previously exhausted acre is coming back with the help of some compost and planting a few resilient trees. The food forest lacks some kind of office. We take place on some tree trunks to proceed with the interview.

2.3 NEAR UTRECHT

Date: 3 May 2022
Location: Food forest near Utrecht
Observer [O]: Teun Rözer
Observation time: approximately one hour
Observation type: Semi-structured

Item	Frequency	Notes
Volunteers	Two	Two volunteers were working on the garden next to the food forest.
Size	Large	The whole property is fairly large, we walked across it in about ten minutes. Next to a garden and some other organic farmers lies the food forest, which is a few acres in size. All these forms of farming belong to the same estate in hands of a co-operation that aim on regenerating nature.

Vegetation	Very diverse	On our walk to the food forest, we pass a newly planted hedge. Instead of a typical hedge, this one is edible consisting of multiple species of berries. The food forest itself is only very young, so it looks more like a grass field. When coming closer, the keeper explains more about what they planted. Unfortunately, neighbors caused some setbacks so everything had to be re-planted recently. Deer also found some saplings.
Biodiversity	High	The keeper stopped mowing the grass (except for the trails), so it's knee high and thriving with a lot of wild grasses, insects and birds. With a little imagination, one could see all kinds of trees with smaller vegetation between them growing in the future.
Office	None	A large tent serves as a storage place. It doesn't serve as an office but gives the opportunity to sit and talk.
Information supply	None	
Farm design	Not yet	The food forest doesn't have a clearly visible layout yet.
Field notes		*Respondent has requested anonymity* The food forest is very well reachable. It is about 30 minutes outside of Utrecht, one of the country's bigger cities. When entering the estate, I notice that things are still looking very new. The bridge, crossing the ditch that marks the estate border, looks to have been finished only weeks ago. I am welcomed by the food forest keeper. We walk towards the food forest itself, which is situated on a bigger estate with all kinds of alternative agriculture initiatives. A concrete path leads us to the food forest area. On our way, we passed two people working in a garden. The concrete path is replaced by a strip of grass that has been mowed in contrast to the rest of the field. In this area, grasses and weeds have had a chance to grow tall, allowing for a lush environment with all kinds of very active insects and birds. The highly active ecosystem is also confirmed by my pollen allergy. This area, about an acre in size, is designated to become the food forest. At the moment, it still looks like an overgrown meadow but at closer

		inspection I begin to recognize the newly planted saplings. At the end of the pathway, there is a tent for storing tools. This is also the place where the interview takes place. During the interview, we are more than once distrurbed by the wildlife: a hornet has found a place to build a nest on the estate. Also, we are distracted by rare bird species multiple times.

2.4 DE NOOTSAECK

Date: 8 June 2022
Location: De Nootsaeck Nut-tree orchard, Huissen
Observer [O]: Teun Rözer
Observation time: approximately 1,5 hour
Observation type: Semi-structured

Item	Frequency	Notes
Volunteers	None	
Size	Medium sized	The property is about an acre in size
Vegetation	Very diverse	Lots of different (nut) trees, berry shrubs and other ornamental and edible plants.
Biodiversity	High	Lots of different (nut) trees, berry shrubs and other ornamental and edible plants. Also a lot of birds and insects.
Office	Shop, workshop space, presentatio n room	Next to the garden, there's a building where workshops take place. There are lots of information banners here, with promotional material as well as posters of research that took place in the garden. There is also a shop where the company sells nut-related products.
Information supply	Much	In the workshop-room.
Farm design	Mixed	Rows in the centre, a ring of bigger trees and denser vegetation around.
Field notes *This interview was not transcribed*		De Nootsaeck is a company that guides farmers and other businesses that want to make a (partly) transition towards agroforestry. When arriving at the company's demo-centre (which is the house and garden of one of the owners), I'm invited to

		take some time to walk on the estate and make observations. The garden feels like a green oasis within a grass-field area with some greenhouse businesses. In the garden, I first passed a small greenhouse and garden. There seem to be some unusual crops growing here (I recognize a papaya plant). Next to the greenhouse, there is a small kitchen garden. The estate itself consists of rows of trees with shrubs under the trees. The trees vary in size. The estate is screened by a hedge of all kinds of plants, shrubs and bigger trees. When sitting down, Herman, who is one of the owners of the Nootsaeck, tells me about the company. The company strongly believes in the value that nut trees could have for our food system and they convey this message by helping people and businesses that want to do something with nut trees. They do so by selling trees and other necessities, but also by giving advice. The advice group of the company provides information and materials for farmers that want to make a (partly) transition to agroforestry. Herman strongly believes in forms of row cultivation that progressively replace cattle breeding. According to him, this way of promoting agroforestry is way more effective with farmers than the more extreme food forest concept.

3. DOCUMENT REPORTS

Relevant (policy) documents are analysed and used as research data. As these documents are in dutch, brief reports are found below.

3.1 REPLANTING OBLIGATION LAW NOTE

The analysed document discovers the Replanting obligation law and its implications for Agroforestry. A Timber stand is seen as an independent group of trees that either has a surface of more than 1000m^2 or is a row plantation with more than twenty trees. It is generally prohibited to cut down any trees in a Timber stand. A few exceptions exist, some of them are relevant for Agroforestry.

General exceptions are:

-Timber stands that are cut down because of a municipal demand.
-Timber stands in gardens.
-Fruit trees and trees that function as windshields.
-Breeding stock.
-Some planting forms of Poplars and Willows.
-Thinning out a Timber stand.
-Certain trees that are planted to create biomass.

Some forms of Agroforestry are excepted from the Replanting obligation law:

-The thinning of Agroforestry systems.
-Agroforestry systems that consist of merely fruit- and nut trees.
-Agroforestry systems with individual hedges, smaller than 1000m^2.

Other forms of Agroforestry are covered by the Replanting obligation law:

-Food forests (system trees included)
-Agroforestry systems that contain more than twenty non-food-producing trees
-Agroforestry systems that contain supporting trees and shrubs

Agroforestry is encouraged on a national level. Requirements for subsidies are made fit for forms of Agroforestry: 50 instead of 1000 trees can be placed on fields and food forests are seen as permanent agriculture. In landscape policy, it is also guaranteed that a change in landscape designation will not decrease the land value. A potential future problem with Replanting obligation could be that a food-forest acre that is being sold, is not suitable for other forms of (sustainable) agriculture anymore. This means a decrease in land value.

Two provinces have made a legal exception. Noord-Brabant has excluded all forms of Agroforestry from the Replanting obligation. The main motivation is the province's forest strategy, where the protection of the forest area is stated as an important goal. Overijssel has made an exception for food forests specifically.

3.2 FUTURE FOR THE GELDERLAND FARMER

An introductory essay looks ahead to the state of the Gelderland agricultural sector in 2030. A bright future is foreseen: the profession of farmer is very much in demand again and the economy and environment go hand in hand. Gelderland is internationally known for its closed-chain, sustainable agricultural sector.

This report is showing the province's vision for the years ahead. The main goal is being climate neutral in 2050, with the base point being a circular economy. The province sees agricultural family businesses as important players in reaching climate goals. The goals are split up in three pillars:

-Developing chances. Policy is aiming to support innovations that contribute to sustainability problems, like the energy transition.
-Space. Policy is trying to promote mixed forms of agriculture that make better use of land.
-Business models. Farmers should get fair prices for their goods. The province wants to improve their positions, for example by investing in the short-chain economy.

3.3 FOOD FOREST POLICY DOCUMENT

This policy document is put up according to four considerations:

1. Strengthen the competitiveness of the economy while reducing the burden on the environment and the dependence on fossil energy and scarce raw materials and as such achieve green growth.
2. Creativity, entrepreneurship and innovation are essential to enable this transition to green growth. With the Green Deal Approach, the government also wants to make optimal use of this dynamic in society towards green growth as an expression of the energetic society.

3. Green Deals offer companies, citizens and organisations a low-threshold opportunity to work on green growth together with the government. Community initiatives form the basis for this.
4. The results of a Green Deal can be used in other, comparable projects, so that imitation can take place and the scope of a Green Deal can be increased without specific support from the national government.

The document analyses the different actors that are involved with the development of food forests. It also defines what a food forest is. The main goals of this policy document are:
-Analysing and solving possible difficulties in the policy and legal regulations where possible
-Formulating a research agenda
-Developing a knowledge-structure
-Building communication lines for interaction with interested people in society

3.4 DE NOOTSAECK; AGROFORESTRY

This powerpoint presentation is used by the Nootsaeck to promote forms of Agroforestry. First, the Zandse Notengaard, the demonstration food forest of the company, is shown. Then, different forms of Agroforestry are examined. The nut tree is seen as the central point of these models. It regenerates the soil, provides healthy food and has value for the landscape. Some examples of farming businesses that made the transition towards agroforestry are discussed, including some basic financial feautures. To conclude, some cases and research topics are disussed.

3.5 WAALGAARD; CSA GARDEN PROMOTION

As a harvest companion you can come and pick all year round, during the season it becomes clear what and how much that is. We will inform you about this via our harvest reports.

This season we will start with the vegetable garden, with a variety of annual vegetables. During the season you can come and harvest around 35-40 different types of vegetables and herbs every week. We expect to have three to four types of vegetables in the vegetable garden every week, an average of about 200 grams per type per person. The vegetable garden season lasts about 20 weeks.
In addition, you can enjoy the (still modest) harvest from the food forest orchard. The forest is still too young to produce a lot of fruit and nuts.
But there's more to enjoy: pick as many pears as you can (Conference and Doyenne, about four to six weeks in a row in September), discover new flavours, hear the birds chirping and meander through the tall grass or laze in the hammock. De Waalgaard is also a meeting place, there is always an opportunity for a chat with this or that person.

Your contribution is for one year, for 1 person, until December 31, 2022 at the latest. There is room for a maximum of 30 harvest colleagues in 2022.

Picking days: Tuesday, Thursday and Friday from 9 a.m. to 4 p.m.

Do you want to enjoy your harvest society even more?
Reserve a spot for yourself on the Plukken en Proeven guided tours. Then you get to know the possibilities of the edible plants in the Waalgaard through and through. Harvesters get a 50% discount.

By participating you not only support biodiverse agriculture, but you also get healthy food. Other products from de Waalgaard, such as pear juice or cider, can be ordered and paid for directly via the website.
Harvest mate 2022
€ 150.00Price
Number of
1
In the shopping cart
This is how you participate

Join our community and contribute to a new kind of farming without pesticides and fertilisers. Ensure the building of greater biodiversity in rural areas. And get the exclusive opportunity to be the first to

harvest our products on the weekly picking days. Such as fruits, nuts, solid vegetables and various processed products.
Over the years, this subscription will include more and more fruits, vegetables and nuts. You not only support a wonderfully biodiverse and new way of farming, but you also receive beautiful products. Every year we ask you to renew your membership, so you are not tied to it.
With your contribution we can buy 10 fruit trees or plant 50 metres of edible hedges.