An explorative study into potential partnerships between restaurants and food forests in The Netherlands

Photo Title page: blossom on a plate. By Elisa van Cappellen

Internship report

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The Potential of partnerships between restaurants and food forests in The Netherlands

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EXCECUTIVE SUMMARY

The current agri-food system puts significant pressure on our planet. The Netherlands, one of the countries of the EU with the most intensive agricultural sector, is characterized by the emphasis on more efficient food production for export purposes and increase resource use in agriculture (Bos et al., 2019). However, intensive agricultural production causes significant biodiversity loss due to land-use changes (Green et al., 2019). Dutch consumers are becoming more aware of the ecological footprint and subsequently demand alternative ways of food production as well as out of home consumption. To extend the agricultural production in the long term, a transition should take place towards transparent and local supply chains (Sargant, 2014). The foodservice sector, which contributes to an essential part of the Dutch economy, plays a large role in this transition towards a more sustainable food system.

The research objective of this study is to explore the potential of partnerships between restaurants and food forests in the Netherlands. The research aims to give insights on how partnerships between restaurants and food forests in the Netherlands could be operated best. To this end, the following research question is formulated: *"What is the potential of collaborations between food forests and restaurants in The Netherlands?"*. A food forest is a well-known alternative land-use system designed to supply food to humans and simultaneously supply other ecosystem services as well (Nytofte & Henriksen, 2019).

To answer the research question, qualitative data analysis is carried out including seven in-depth semi-structured interviews and desk research. Interviews revealed that successful partnerships are built on direct supplier relationships, internal motivation, and niche products that create a unique selling point. Together, the present findings confirm the contribution to a more transparent restaurant segment as well as the establishment of a sustainable out of home consumption experience. Short chains between supplier and consumer contribute to the solution to the long worldwide supply chains, where power is unequally distributed among players in the chain.

The major source of limitation is the current Covid-19 pandemic, which financially harms the foodservice sector and consumerism. Further research proposes to conduct quantitative data analysis as well as to define chefs' demand to participate in collaborations with food forests.

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1 INTRODUCTION

The current global agri-food system is broken. Agricultural production in the Netherlands is confiscating more than half of the total national land area and is driven by high efficiency, productivity, and innovation (Jukema, Ramaekers, et al., 2020). Although the Dutch horticultural- and livestock sector is flourishing in terms of productivity, adverse effects on the environment are taking its toll. In the past 20 years especially, biodiversity is facing a rapid decline in which insects and bird populations are dropping out of sight. In fact, with regards to the biodiversity decline, a nitrogen surplus similarly contributes to the simplification of Dutch arable landscapes (Grinsven, 2012). What is more, for a long time the Dutch government represented the interest of farmers by way of subsidies and policymaking in favour of farmers (Green et al., 2019). After WOII, the need for an adequate food supply to feed the population was high. However, environmental issues such as biodiversity decline, climate change, and food scandals caused by the agri-food sector raised concerns in the eye of the consumer as well as researchers. Consequently, nature conservation in its broad term is drawn under the attention of the society. Paradoxically, consumers are nowadays no longer connected with the producers of their food. Consumers demand more transparency about the origin of their food and a shift towards buying locally produced food is also taking place.
In the Netherlands, alternative food networks are popping up since the early twentieth century, to develop new ways of food provision to consumers which are in line with values such as seasonal produce, crop diversity, produce quality, and more healthy and ecologically fair production methods (Sargant, 2014). Alternative out of home consumption concepts are on the rise and provide an answer to the 'mass food industry', which is characterised by consumer perceptions as low quality and taste, and unsustainable production.

1.1 Reading guide

This report is divided and structured in the following manner:

- Chapters 1 introduces the central problem of the research as well as the objectives and the research question.
- Chapter 2 describes the methods used to answer the main and sub-questions.
- Chapters 3 and 4 consist of the theoretical framework and the background information. In these chapters, the concepts and theories are introduced and background information about the agri-food system, the foodservice sector, and food forests is given.
- In chapter 5 the conducted customer analysis is analysed and results are described. The customer analysis is divided into three sections: the supplier, the stock supplier, and the consumer. All the presented sub-questions are answered in this chapter as well as the next chapter.
- Chapter 6 describes a situation analysis that builds on the customer analysis. First, a SWOT analysis is made, and afterward a confrontation matrix to interpret the results.
- Chapter 7 consists of the conclusion as well as recommendations. The sub-questions are answered in the presented order and finally, the answer to the main research question is presented.
  Chapter 8 elaborates on the limitations of this research as well as further research that can be conducted in the future.

1.2 Project description

Despite the great interest in alternative out of home consumption experiences, little is known about the transformative effect a concept can evoke. This report is advisory research, the outcomes of the report are aimed to demonstrate how collaborations between restaurants and food forests can be built successfully. The project starts with a characterization of the current agri-food system in the Netherlands and the role food forests take within the system. Then, a wider perspective on the foodservice sector is given in which social-economic developments are the driving force behind extensive consumer trends, as later explained. In this project, seven interviews are conducted which reveal relevant data regarding the operationalisation of partnerships between restaurants and food forests. After comparing the observations, conclusions will be drawn. The research aims to give insights on how collaborations could be operated best as well as to provide practical information for relevant stakeholders in the field. To conclude the research, the main outcomes are presented in the conclusion, and recommendations will be given on how these insights can be applied in the sector.

1.3 Objective

The aim of the project is:

To support restaurants as well as food forest entrepreneurs in taking the first steps starting their collaboration. The project should be relevant for these two parties who consider a collaboration after August 2020.

1.4 Research questions

The main research question is formulated as follows:

"What is the potential of collaborations between food forests and restaurants in The Netherlands?"

To answer the main question, the following sub-questions are formulated:

- What are the requirements of restaurants regarding logistics and the distribution of food products from a food forest to a restaurant?
- What marketing strategies are required for successful business concepts with regards to food forest restaurants in The Netherlands?
- Which markets are necessary segments for creating successful business concepts with regards to food forest restaurants in The Netherlands?

2 METHODOLOGY

In chapter two, the methodology used to conduct the research is explained. Due to the flexible research design and the scope of the research, qualitative data analysis was chosen to be the main method adopted. Qualitative data analysis is a scientific method of observation to gather non-numerical data (Babbie, 2013) while focusing on meanings, thoughts, or experiences of a group of persons.
The research design can be seen as flexible because the outcomes are dependent on answers given during the interviews, which are subjective and interpretive by nature. Also, theories used in this research form a framework to interpret and cluster the data. However, compared to a research design where quantitative data is mainly analysed as the method, the theories and concepts used are open for adjustments. For example, the confrontation matrix added to the theory at a later stage, since this concept complements the SWOT analysis and addresses key issues retrieved from the research.

This ten-week project is divided into three phases to answer the research question:

1. Conceptualisation research design
2. Conducting interviews
3. Interpreting data

2.1 Conceptualisation research design

In the first phase, frequent meetings with the external commissioner took place to clarify the research objective and the research question. Besides, desk research was carried out. Scientific literature was found via GreenI and WUR library. Policy papers on both the national as well as the regional Reforestation Strategy and the Green Deal Food forests were studied to determine goals for the future related to spatial landscape design. Information from databases such as Euromonitor and CBS were used for figures demonstrating current trends and socio-economic developments. What is more, literature and case studies related to food forests and permaculture were studied to get acquainted with the concepts. Experts in the field like John Vermeer (Agroforestry consultant), Frans Post (Province of North-Brabant), and Jesper Bekkers (Brabantse Milieu Federatie) were consulted to get in contact with relevant interviewees and to acquire background information for this project. Furthermore, 4th year HAS students conducting their Professional Assignment (PA) on concept development and food forestry were introduced during this project to collaborate by Erwin Bouwmans. Four meetings with the BO students took place at HAS University of Applied Sciences to get acquainted with each other, to brainstorm, to discuss, and to conduct two interviews together. The purpose of this joint effort was to share relevant data and make outcomes parallel to each other.

2.2 Performing interviews

In this phase seven interviews were executed with food forest entrepreneurs and chefs/restaurant owners. Before the interview took place, the interviewees were contacted by phone or email to ask for their participation in the research.
Interviews were conducted from February 26th, 2020 to April 6th, 2020. A semi-structured form of conduct was adopted, with open questions to gather as much data as possible. Before each interview, the drafted questions were sent by email to the respondent.

The output of the interviews were used for the Customer Analysis chapter. Three Food forest Entrepreneurs (#1, 2, 8) were interviewed for their view on the existing partnership with a restaurant. Five restaurant owners and/or chefs (#3,4,5,6,7) were interviewed for their view on the (potential) partnership with the food forest entrepreneur. After each interview, the recordings were transcribed and saved in a document. Respondents' answers were used to constitute the SWOT analysis as well as the Confrontation Matrix.

Table 1 List of conducted interviews

#	Name	Location	Time (minutes)	Date (2020)	Details
1	Tânia Carvalho (Portuguese) - Areias do Seixo	Skype interview	60	26 February	Food forest entrepreneur
2	Wilco de Zeeuw	Phone call	40	6 March	Food forest entrepreneur
3	Kary Wolfs & Luuk Verhoeven - Jacks Foodbar	Restaurant Jacks foodbar, Den Bosch	50	9 March	Chef and restaurant owner and interested in partnership with a food forest
4	Emiel van der Staak - De nieuwe winkel	Restaurant De Nieuwe Winkel, Nijmegen	45	12 March	Chef and restaurant owner and has a partnership with a food forest
5	Lucas Jeffries (Australian) - Freelance	Skype interview	45	27 March	Chef and interested in a partnership with a food forest
6	Niels van Zijl - DeZusters	Skype interview	45	30 March	Chef and restaurant owner and has a partnership with a food forest
7	Victor Stukker - Héron	Skype interview	30	6 April	Chef and restaurant owner and has a partnership with a food forest
8	Martin Schrama - LekkerLandgoed	Email contact		6 April	Food forest entrepreneur

2.3 Interpreting data

The next activities were performed in this phase:

- Transcripts and coding of interviews;
- Analysing scientific reports;
- Drawing conclusions.

The activities were carried out to interpret the conclusions and discussion. The codes of the transcripts were used based on the customer analysis. The used codes were:
Yields; products and services; volumes; management; logistics; transportation; frequency; values; advantages and disadvantages; customer relationship; convenience; customers.

Scientific reports were analysed to prove the outcomes of the interviews. Conclusions were drawn after the SWOT analysis and Confrontation Matrix. Results from chapters 5 and 6 were taken into account when concluding as well as when formulating recommendations.

3 THEORETICAL FRAMEWORK

This chapter provides information on the concepts used throughout the report, which aims to create a basic understanding of the theory. Besides, a definition of a food forest is given.

3.1 Customer analysis 6 w's Ferrell

These days, customers take in an increasingly central position in the market as they influence the market with their buying behaviour on a large scale. Therefore, insights into consumer behaviour, and the needs and wants of the individuals seem to be highly important for a business supplying them. The customer analysis from Ferrell (2016) is a method to map out the external environment of a business. More insight into the behaviour and underlying motivations of the customer as well as the potential customers of a business can be displayed trough this customer analysis (Ferrell & Hartline, 2016).

The Six W's (Who; What; Where; When; Why; Why Not) of Ferrell (2016) gives a good indication on what the Customer Analysis must answer:
Who – who are our present and potential customers?
What – what do our present and perhaps potential customers do with our products?
Where – where do our present and perhaps potential customers buy our products?
When – when do our present and perhaps potential customers buy our products?
Why – why do our present customers and perhaps potential customers buy our products?
Why – why don't they?

Six W's are used in the analysis to question the buying behaviour and productivity of the customer (Ferrell & Hartline, 2016). In order to find out who are potential customers of the business, a definition of the customer must be given at first. Customers are broadly defined as:

- Suppliers
- Stock suppliers
- Consumers

In this research, suppliers are the food forest entrepreneurs, who supply the goods to restaurants. Stock suppliers are restaurants and chefs who process the food products into meals. At last, the consumers represent the end-users of the food products, the guests of a restaurant. Needs and wants of the customer, leverage point for change, and product characteristics mirror their buying behaviour and enable the business to respond accordingly (Ferrell & Hartline, 2016). The outcomes are used as input for the SWOT analysis.

3.2 SWOT analysis

The SWOT analysis stands for Strengths, Weaknesses, Opportunities and Threats and is commonly used to analyse these aspects of a business. SWOT can be used at organisational and personal levels to eventually develop a suitable business strategy. Therefore, the use of SWOT aims to improve the operational efficiency of a business (Research Methodology, n.d.)

One can distinguish internal and external factors influencing the business. As illustrated below, Strengths and Weaknesses are internal (Table 2). This means strengths and businesses can be influenced and manipulated by the business itself. Strengths can be

attributes, characteristics and factors that give a competitive advantage to the business. On the other hand, weaknesses can be attributes, characteristics and factors that weaken the competitiveness of the business in the market (Research Methodology, n.d.).

Opportunities and Threats are external (Table 2). This means, Opportunities and Threats are signals from outside the business and bound out hand and foot of a business. Opportunities can be classified as favourable situations and factors that can strengthen the competitive advantage of the business or provide the business with new sources of competitive advantage. Conversely, Threats are unfavourable situations and factors that could create issues for the business jeopardising its competitive advantage to a certain extent (Research Methodology, n.d.).

Table 2 SWOT analysis: Strengths, Weaknesses, Opportunities, and Threats. Source: Van Cappellen, 2020

	STRENGTS	WEAKNESSES
Internal		
	OPPORTUNITIES	THREATS
External		

3.3 Confrontation Matrix

Based on the outcomes of the SWOT analysis, possible strategies for a business can be identified with the Confrontation Matrix (Verhage, 2013). As Table 3 illustrates, the matrix combines (internal) Strengths and Weaknesses with (external) Opportunities and Threats. A company's strengths can enable one to respond effectively to an opportunity. This serves as a possibility to grow and should therefore be exploited. On the other hand, the combination of weaknesses and threats gives little hope and should be avoided or withdrawn. Threats can be defended by for example an investment in product innovation. It may even be possible to turn a threat to an opportunity, which can also occur in case of a weakness. The matrix is described in chapter 6. In this report, the outcomes of the confrontation matrix are used to form the final recommendations.

Table 3 Confrontation Matrix template. Source: Van Cappellen, 2020

		OPPORTUNITIES				THREATS			
		O1	O2	O3	O4	T1	T2	T3	T4
STRENGHTS	S1								
	S2								
	S3								
	S4								
WEAKNESSES	W1								
	W2								
	W3								
	W4								

3.4 Food forest definitions

This definition is based on the following characteristics:

1. A productive ecosystem designed by people, modelled on a natural forest, with a high diversity of perennial and / or woody species, parts of which (fruits, seeds, leaves, stems, etc.) serve as food for humans;
2. Presence of a crown layer of higher trees;
3. Presence of at least 3 of the other niches or vegetation layers of resp. lower trees, shrubs, herbs, ground cover, underground crops and climbing plants;
4. Presence of a rich forest floor life;
5. A robust size, i.e. an area of at least 0.5 hectares in an ecologically rich environment; a minimum area of up to 20 hectares is required in a seriously impoverished environment (Green Deal, 2017).

To create a recognised perspective and to improve laws and regulations, The Green Deal Food Forests was initiated in 2017 (Green Deal, 2017). Consequently, the Green Deal Food Forests arranges that entrepreneurs who are registered under this definition can receive subsidies from the CAP. The food forest entrepreneurs, which are the (potential) suppliers of food products from a food forest to a restaurant, form a group of 85 initiatives in The Netherlands (Doomen et al., 2019) including 23 initiatives recognised as Green Deal Food Forests (Green Deal Food Forest, 2020). These 23 initiatives are mapped out in appendix 2.

Food forests can be classified under various terms such as agroforestry, as well as permaculture and agroecology, and recognises many different definitions used worldwide. Agroforestry is the umbrella term for the land-use system on which two to forty different types of plants can be combined. Likewise, permaculture is a food production system that focusses on self-sufficiency and the holistic approach to ecosystems, plants and animals. Moreover, Agro-ecology is the term for applying ecological processes and principles to agriculture to preserve and restore ecosystem services (De Groot & Veen, 2017).

4 BACKGROUND

The following chapter provides an introduction in the research area, where interviews were conducted as well as desk research was carried out. The research site, the province of North-Brabant has been chosen since this province is one of the most productive areas regarding agricultural production in The Netherlands, and is constantly developing.
Secondly, the province is supporting food forests, which have the future potential to create business opportunities for restaurants in the area. What is more, due to the regional forest strategy, which has been launched in 2020, the construction of food forest in the province will be stimulated for entrepreneurs.

4.1 De Waardenmakers

This research is carried out as a 10-week internship placement at the Dutch organisation "De Waardenmakers" in 's Hertogenbosch. De Waardenmakers is a governmental organisation that creates value in collaboration with local initiatives in Brabant by developing inspiring ideas, initiatives, and out of the box solutions to complex societal issues (De Waardenmakers, 2020a). The organisation aims to contribute to urgent issues such as energy transition, climate change, migration, circular economy etc. through connecting different actors in the field, while simultaneously collaborating and creating new innovative partnerships.
Throughout the year more than 40 students from different study backgrounds work together with experts on research projects in collaboration with De Waardenmakers (De Waardenmakers, 2020b). Additionally, each project aims to contribute to the Sustainable Development Goals (SDG's) and creates value for a sustainable environment in Brabant (De Waardenmakers, 2020a).

4.2 The province of North Brabant

This project is in collaboration with the province of North-Brabant. The province of North-Brabant will be a first mover in the rehabilitation and reforestation of forests aiming to plant 13.000 hectares of forest by 2030 (Post, 2020). This large project, called the Forest Strategy (Bossenstrategie), is carried out in collaboration with Groen Ontwikkelfonds Brabant (GOB) and in line with the Omgevingsvisie (2018), Brabant Uitnodigend Groen (2012), Provinciaal Mileu en Waterplan (2016), Climate Agreement in Paris (2019), and Bestuursakkord (2019). In the boarding period 2019-2023, the province is already planning to plant 2500 trees with various functions aiming to increase the nature network (NNB) in Brabant. The province allocated 22 hectares for the establishments of food forests in North-Brabant, allowing entrepreneurs, farmers and others to start their food forest on 5 plots of fallow land. These food forests are one of the green initiatives to increase biodiversity on the land, stimulate local initiatives and enhance the agricultural sector to a more sustainable sector (Post, 2020).

4.3 Agribusiness in The Netherlands

International trade has always been important for the Netherlands, due to the history, the relatively small size and location of the country, and the limiting domestic production capacity (Jukema, Ramaekers, et al., 2020). Most of the exports in 2019 (54% of total) go to neighbouring countries, such as Germany, Belgium, the United Kingdom and France. Agricultural commodities are imported from Germany, other European countries and the

rest of the world. Today, 80% of the total agricultural produce (primary, unprocessed goods, and secondary, processed goods) is exported, having an estimated value of 94.5 billion euros (Jukema, Ramaekers, et al., 2020). As a result, The Netherlands is the second-largest exporter globally. Ornamentals, meat, dairy and eggs, vegetables and fruit are the most important export commodities and account for 43% of the total exports of the country.

4.4 Agribusiness in North-Brabant

In North-Brabant, the agricultural sector and its economic activities are of large importance in the Netherlands, acquiring a share of 18% of the total national companies in the primary sector (Wageningen Economic Research, 2020). Since 2000, the number of companies has reduced by nearly fifty per cent compared to 2019 as a result of the upscaling of large agricultural companies (Jukema, Ramaekers, et al., 2020). Yet, the livestock sector and crop sector are delivering substantial produce to the country as well as for the export. Approximately 45% of the national pork production in the Netherlands flows from this area, which is a striking figure since the companies in the sector have reduced by more than fifty per cent (CBS, 2020).

North-Brabant counts approximately 500,000 ha. of land, including 232,000 ha (46%) of cultivated land, which is 13% of the total national cultivated land. Livestock is raised in a highly efficient manner on a relatively small scale to meet large quantities produced.
Therefore, North-Brabant is known as one of the most cattle-dense provinces in the Netherlands.

4.5 Food forestry

Food forests are considered as a multi-layered food production system, which mimics the natural ecosystems by combining trees, crops and (sometimes) livestock on the same piece of land (De Groot & Veen, 2017). In chapter 3.4 the definition of food forests is further elaborated. This land-use system is designed to supply food but simultaneously acts multifunctional and supplies other ecosystem services as well (Nytofte & Henriksen, 2019). The vegetation is planted to enhance the ecosystems and interactions between different species (Crawford, 2010). Generally, a well-thought diversity of plants is necessary to build up a symbiosis resulting in a self-reliant, compatible ecosystem.
What is more, in a matured food forest these species require limited labour and maintenance, since plants create environments that build natural resilience and adaptivity (Nytofte & Henriksen, 2019). Thus, since they regulate their ecosystem services, food forests do not require external inputs such as fertilisers and pesticides. Similarly, heavy machinery is not necessary since the soil is not disrupted nor compacted, whereas intensive agriculture causes compaction due to high mechanical load, less crop diversification, intensive grazing, and irrigation methods (Shah, et al., 2017)

A food forest uses multiple layers, each having their function in the ecosystem, whereas a monocultural system uses one single layer. When looking at the different layers of the polyculture system, one can distinguish seven layers as illustrated in Figure 1.

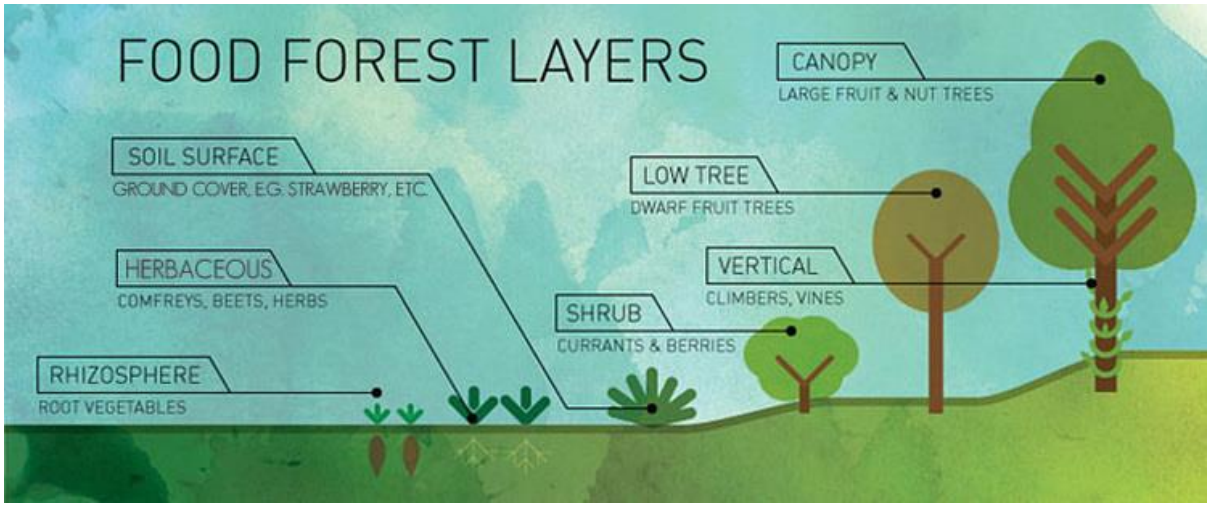

Figure 1: Seven Food Forest Layers; canopy, sub-canopy, shrub, herbaceous, soil surface, rhizosphere, climbers (Festivalbeach, 2019)

Layers:

1. Canopy layer (large fruit & nut trees)
2. Low tree layer (Dwarf fruit trees)
3. Shrub layer (currents & berries)
4. Herbaceous layer (Comfreys, beets, herbs)
5. Soil surface layer (ground cover)
6. Rhizosphere layer (root vegetables)
7. Climbers layer (climbers & vines)

4.6 The foodservice sector in The Netherlands

The food service is becoming increasingly important for the Dutch economy. About thirty per cent of the workforce is employed in the foodservice (Simon, 2019). In fact, in the past ten years, this number increased with 28% whereas the total workforce in the Netherlands only grew by 6%. Therefore, the food service is one of the largest national employers alongside with governmental and semi-public sectors.
Furthermore, the expansion of food enterprises grew rapidly from 44,900 in 2010 to 58,810 at the end of 2018 (ING, 2019), with a turnover increase from 19,5 billion euro in 2010 to 27,6 billion euro. Between 2008 and 2018 about a thousand restaurants opened their doors to the wider public and consumers conducted more transactions in 2018 than the years before (Euromonitor, 2019). Due to prosperity growth, Dutch customers spend on average more money on out of home consumption, resulting in a 1,5% increase in volume in the sector (ING & Geijer, 2020). The wage increase and tax reduction seem to be beneficial for expenditures in cafés and restaurants, especially younger consumers preferring to eat out in restaurants more frequently with greater spending (Euromonitor, 2019) than consumers in other age groups (ING & Geijer, 2020).

Despite this trend, fast-casual restaurants represent the strongest growth segment since the mobility of Dutch consumers in cities increased. Next to this, self-service cafeteria's chains perform well too, since more consumers visit department stores and home improvement chains which accommodate these segments inside the building. International fast-food chains located in public transportation, department stores and high traffic areas, expanded rapidly since 2016. However, independent restaurants will keep playing an important role in

serving food to consumers, since there will always be demand for casual dining, healthy food and full-service experiences (Euromonitor, 2019).

On the other hand, in the coming years, some factors could weaken the market position of full-service restaurants. The lack of qualified kitchen staff, decreasing foreign tourism as well as the rapid expansion of online ordering could increase restaurants' wage bills, resulting in price increases for the consumer and therefore reduced consumer demand (Euromonitor, 2019). Moreover, in restaurants, a central issue is the scarcity of time in combination with fewer employees (Fine, 1992).

All in all, the foodservice expansion is the result of the growing national economy as well as increasing incomes. A greater number of consumers can spend a larger part of their salary to out of home consumption as their lifestyles improve (Euromonitor, 2019).

5 CUSTOMER ANALYSIS

This part describes the outcomes of the research that have been collected during the timeframe of the internship. The results are based on; the conducted interviews (qualitative data analysis), email conversations with stakeholders and literature research (secondary research). The results section is divided into two chapters, discussing the customer analysis (chapter 5) and the situation analysis (chapter 6) as explained in the theoretical background. Firstly, the customer analysis is subdivided into three sections, elaborating on the customer types, which are food forest entrepreneurs, chefs and consumers. In addition, the outcomes of the customer analysis constitute the SWOT analysis and following the confrontation matrix, which is presented in the next chapter of the Results part.

5.1 Suppliers (food forest entrepreneurs)

The Food forests concept has been on the rise in recent years. This augmentation is the result of three developments (Oosterbaan, Wiersum & van Laar, 2017; Wiersum, 2017): 1. The upscaling and intensifying of the agricultural sector; 2. The growing demand for alternative ways of recreation (participative society); 3. The growing demand for healthy, local and environmental friendly produced food products.
In other words, citizens are becoming more interested in their natural environment and participate more in outside activities related to nature. Likewise, the urge to get closer to nature and the way their food is produced causes citizens to actively participate in civic initiatives such as community-supported agriculture gardens (CSA's), community gardens, as well as food forests (Mattijssen et al., 2015).

5.1.1 Food forest products

On average a food forest offers a mixture of 250 plants species on one piece of land. These species are native to the Dutch climate and do not pose a threat to other surrounding plants. Depending on the design of the forest, it can yield a wide variety of products for human consumption such as fruits, nuts, seeds, vegetables, salad crops, herbs, spices, and mushroom grown on logs. Besides, non-food products could be cultivated too: firewood,

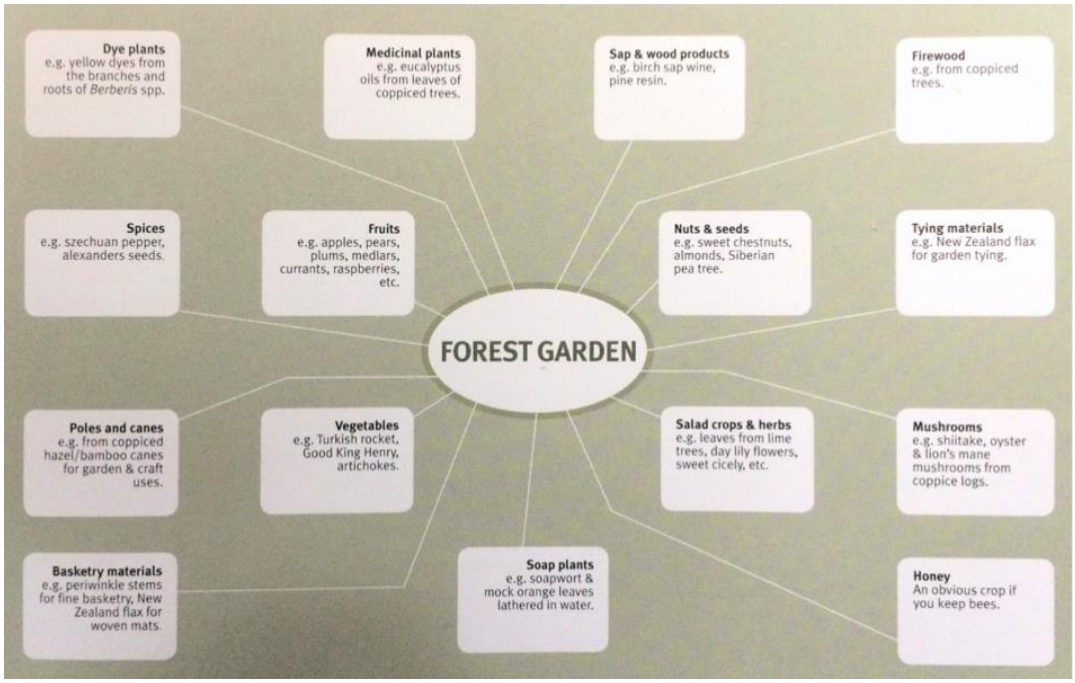

Figure 2 Forest garden product diversity. Source: Crawford, 2010

poles and canes, tying materials, basketry materials, medicinal herbs, dye plants, soap plants, sap products, etc (Crawford, 2010).

Figure 3 illustrates an overview of these different products. Due to the scope of this research, the focus is on food products destined for human consumption in the foodservice. Respondents with an existing collaboration showed similarities in products supplied from the food forest. Quince, Medlar, Japanese Wineberry, Pears Nashi, olive berries and Chinese Mahogany, are the most frequently mentioned products among the respondents. However, it is unclear whether the respondents are aware of the full product range of a food forest since many species grown. One respondent indicated to receive a list of products ready for harvesting from the food forest entrepreneur on a weekly base. The same food forest entrepreneur tracks down his yields per product per kilogram and distributes this in an excel database (M. Schrama, Personal communication, April 6, 2020). An example of such a database is illustrated in Table 4. As a result of comparisons made between yields per year, a pattern can be seen in which yields increase 8,5 times per crop per year. According to Stukker (2020), working with this food forest entrepreneur is very pleasant, since he knows roughly what products to expect in his restaurant throughout the year.

Table 4 Calendar Lekkerlandgoed Yields 2019 (gr) per month. Source: Schrama, 2020

Soort (NL Naam)	Wetenschappelijke naam	oogst 2019 (in gram, ca)	januari	februari	maart	april	mei	juni	juli	augustus	september	oktober	november	december
VRUCHTEN														
Rosaceae														
Aardbei	Fragaria spp.	0												
Abrikoos	Prunus armeniaca	0												
Appel	Malus domesticus	2500									2500			
Braam	Rubus fruticosa	11349							2251	6710	2237	150	1	
Chinese kwee	Chaenomeles sinensis	3300										1000	2300	
Framboos	Rubus idaeus	1351						1350			1			
Framboos (geel)	Rubus idaeus	231						31			100	100		
Framboos (rood)	Rubus idaeus	7119						31	6688	400				
Japanse kwee	Chaenomeles japonica	2292							400		550	1342		
Japanse wijnbes	Rubus phoenicolasius	0												
Krentenboom	Amelanchier spp.	0												
Kruisbes	Ribes uva-crispa	0												
Kweepeer	Cydonia oblonga	0												
Mispel	Mespilus germanica	12792									1250		500	######
Nashipeer	Pyrus pyrifolia	50									50			

5.1.2 Drivers

Working with the land instead of against it

Land becomes forest itself when nothing is done to the land (Crawford, 2010). It requires more energy to maintain a cultivated field or arable land because the forces of nature are actively moving the land towards woodland. Stichting Voedselbosbouw made an overview of the different land-use systems based on differences between the potential of carbon sequestration, biodiversity, external inputs of resources and climate change adaptability (Figure 3).

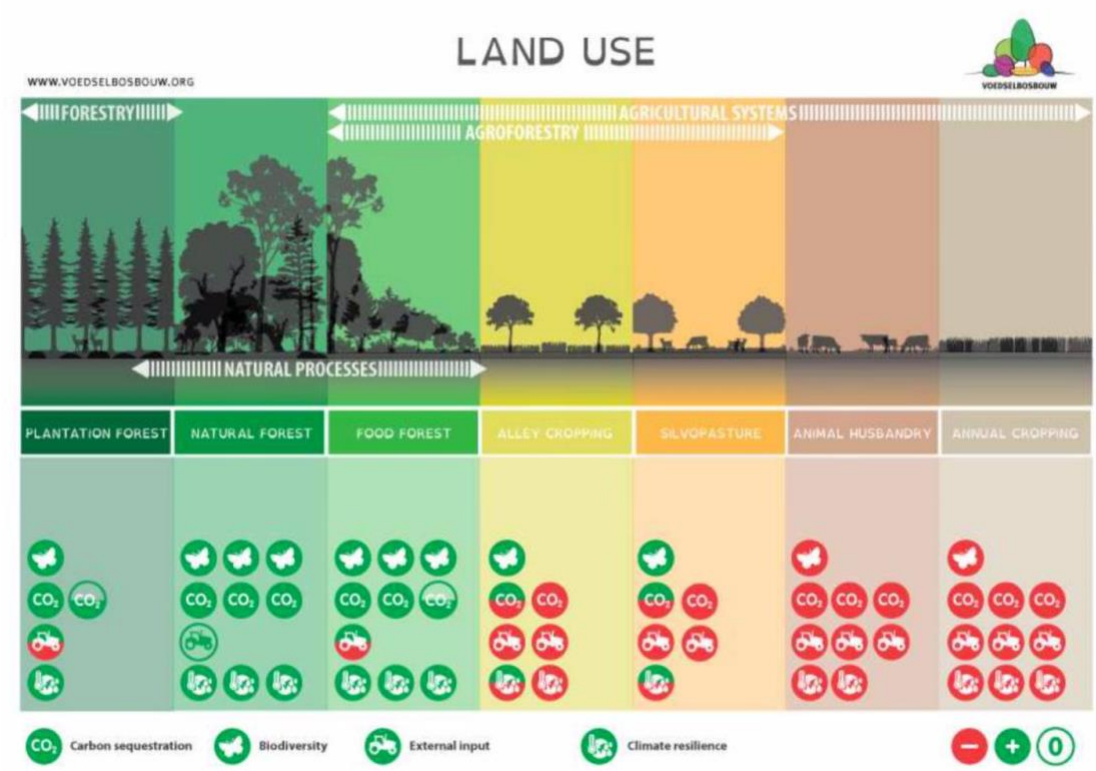

Figure 3 Land Use model. From left to Right: Plantation Forest; Natural Forest; Food Forest; Alley Cropping; Silvopasture; Animal Husbandry; Animal Cropping. Indicators: Carbon Sequestration, Biodiversity, External Input, Climate Resilience. Source: Van Eck

As seen in Figure 3, a food forest has more similarities to a natural forest compared to a monocultural agricultural system due to the close corresponding biodiversity rate as well as carbon sequestration, has minimal reliance on external inputs of resources and is adaptive to climate change. On the contrary, a monocultural agricultural system has a low biodiversity rate, almost no carbon sequestration, is extremely reliant on external inputs and is not resilient against climate change.

Low maintenance and high efficiency

As mentioned previously, a forest garden consists of a mixture of trees, shrubs, annual and perennial plants, which all need little maintenance apart from occasional pruning (Crawford, 2010). Most importantly, the soil needs to be covered at all times. The soil-covering by perennials keeps the soil in good condition, resulting in better growing conditions for other vegetation. In fact, without disturbance of soil tillage, perennials protect and hold the soil against wind and water erosion while increasing soil quality and organic matter (Blanco-Canqui, 2010; Luo et al., 2010). Depending on the design, yield could range from low to high. Food forests do not need high inputs such as fertilisers, pesticides or weeding, due to the biological system of nutrients and insects (Crawford, 2010).

High nutritional value

Perennial plants, mostly have a more extensive and deep root system compared to annual plants. This can be explained by the longer lifecycle of a perennial and thus longer time to efficiently exploit the soil space. Perennials tend to be more nutritious than annuals since they can accumulate higher quantities of minerals in the soil (Crawford, 2010).

Commercial potential

Most food forests do have a commercial element to them, it can be selling products or services to a greater or lesser extent. According to Puhe et al., (2019), food forests fulfil multiple niches and respond well to current consumer trends. To illustrate, the foodservice industry nowadays values quality and speciality products to add to their menu. Cooking with food forest products creates, therefore, a unique selling point for restaurants. By attracting more customers to the restaurant through product diversification, the food forest entrepreneur can have its fair share too by selling his products to that same restaurant.

5.2 Stock suppliers (restaurants)

5.2.1 Segmentation

"A typical day always begins in the garden. Wicker basket in hand, sun's shining and the chef wanders and collects carefully selected ingredients, that will make the journey from the land to your plate" (Carvahlo, 2020).

According to Van Dullemen (2018), one can distinguish five different types of restaurant concepts in The Netherlands: 1. Top Restaurant; 2. Luxurious Restaurant; 3. Fast Casual Restaurant; 4. Casual Restaurant; 5. Fast-food Restaurant (see Appendix 1). Each concept has different characteristics of their service, kitchen, beverage assortment and ambience.

Figure 4 Plating Tempeh dish. Source: Restaurant De Nieuwe Winkel

Hundred per cent of the respondents with an existing collaboration with a food forest can be classified as luxurious to top-quality restaurants. Each restaurant has a unique location, either in a neat neighbourhood of a city (Utrecht, Nijmegen, 's-Hertogenbosch) or in a suburb (restaurant DeZusters and Areias do Seixo). The service offered is very personal since all chefs bring the plates to the guests themselves and elaborate about the ingredients used. Moreover, the staff personally greets guests at the entrance and guide them to their table, being signs of professionality. In most cases, a sommelier is present and all of the cases a host is present. In four out of the six respondents, an a la carte menu is available alongside with a composed menu. Restaurant De Nieuwe Winkel and DeZusters indicated not to work with a la carte menu's. However, the menus are diversified and composed according to what is available in season.

Figure 5 Plating food forest dish. Source: Areias do Seixo

The tableware varies between expensive and ordinary, and seating is in all cases comfortable. The beverage assortment is a small range of high-quality products and sales are mainly focused on wines. In some restaurants, home-made fermented drinks and juices are offered as wine menu arrangement replacement. What is more, sodas and beers are limited in availability.

5.2.2 Food concept

"Annually, five to ten per cent of the products come from the food forest. However, when you look at the impact that those products have in our kitchen and how guests experience it, it is perhaps 80 per cent. Making a dish with a singular sprig of Nachimoni can make a meal the star of the evening. It is not very impressive In terms of volume, but in the story that is what has the most impact"(Van der Staak, 2020).

"I think it is important that everything is made fresh in our kitchen. So that nothing comes from a prefab bag. It is also a no-waste restaurant so we try to collect the residual waste at the back. We make stock from the vegetables, meat and fish residues. I prefer to get back all the plates empty when they return to the kitchen. That is why we also work here with modest, small side dishes so that a somewhat larger eater can still order some extra bread or vegetables. Or you can indeed choose 3,4,5 or 6 courses. But in general, there is plenty for everyone" (Wolfs, 2020).

The food itself is of decent to high quality and daily fresh ingredients are used (Figure 6, Figure 7, Figure 8). The plating is expressive, modern and aesthetic, which looks simplistic but is rather specialised (Figure 6, Figure 7, Figure 8) Food forest ingredients play a significant role in the dishes of all restaurants. At restaurant DeZusters the chef uses these ingredients as fundament, which balances out the other ingredients in a dish.

"Usually, when we ferment of pickle products, we want to create a fundament that enhances the other flavours in the meal, without even disturbing the entity of it" (Van Zijl, 2020).

Figure 6 Plating Foraged leave salad. Source: Restaurant DeZusters

Also, restaurant De Nieuwe Winkel explained that he gives the foraged products a large role in his kitchen. In all restaurants, products go through different kinds of conserving techniques such as fermenting, pickling, drying, freezing and smoking.

All respondents differ in the quantity of supplied products. This is due to the different life cycles of the food forests cooperating with them. Due to the various stages that a food forest needs to go through and because of the business model, yield could differ significantly. The more products supplied from the food forest, the more one can process in a meal. Likewise, the role of the food forest product changes simultaneously, since quantity influences the range of options and the number of plates one can serve.

"We offer a three/four/five-course menu, which means when guests consumed a three-course menu, they have to be satiated. It is a different situation when you serve a seven or nine-course menu because it is easier to process ten to twenty per cent of food forest products per meal" (Stukker, 2020).

5.2.3 Logistics

All of the respondents except one (Areias do Seixo) go to the food forest to pick up the food or even harvest themselves.

"We harvest two days a week, on Tuesday and Thursday. We harvest everything and we bring it to a meeting point which is here at the hotel of Areias do Seixo. Then the maintenance or logistics team brings it by car to the location. They do daily transportation of other goods between the four restaurants anyways" (Carvalho, 2020).

Areias do Seixo has a weekly arrangement with the food forest entrepreneurs who bring the harvest to the kitchen of the restaurant twice a week. However, this is an exceptional case since the restaurant is adjacent to the food forest, resulting in the convenient logistics for both parties. Other respondents explained to visit the food forest themselves about once a week.

"The food forest entrepreneur and I harvest together each Monday. When there is too much harvest for my cargo bike, he brings the leftover harvest on Thursday to the restaurant" (Van der Staak, 2020).

"Usually I go there every Thursday and see what I can harvest. This happens always in consultation with the kitchen. On Wednesdays, we have a staff meeting where we discuss all kinds of things. What shall we harvest next week, how can we experiment with those products, etc. Oftentimes, choices regarding harvesting and processing have to be made fast, since you work with products from the wild, which are sometimes there only for two weeks" (Stukker, 2020).

The distance from a to b ranges from within five kilometres to fifteen kilometres. The frequency of visits was irregular in cases of DeZusters since the food forest had no regular yields yet due to the early stage of the food forests. The most regular visitor of all respondents visiting the food forest on a fixed day once a week was the chef of De Nieuwe Winkel and Héron. Generally, the harvesting is done under the guidance of the food forest entrepreneur to assure a successful procurement. The food forest entrepreneur guides the chefs (De Nieuwe Winkel, DeZusters, Areias do Seixo) to the right places ready for harvesting, explains the proceedings of harvesting, and shows other crops of interest as well. The restaurant owner of Héron is a forager himself and knows what and how to harvest in the food forest and does not need guidance. Sometimes, the harvest is already done by the food forest entrepreneur, therefore the chef only needs to pick it up.

"I am a spoiled forager of berries, nuts, mushrooms and herbs. That journey is unfolded by the food forest. The resulting flavours that get introduced into the menu, will always keep our menu interesting for guests who are fond of our concept" (Stukker, 2020).

5.2.4 finance

In some cases (De Nieuwe Winkel, DeZusters) the owner of the restaurant is the chef as well. The other respondents (Héron, Jacks Food Bar, Areias do Seixo) have these roles separated. However, all chefs share full responsibility for the acquisition as well as the preparation of food products from the food forest. Areias do Seixo has the cooperation incorporated in their business model. Therefore, the food forest entrepreneurs are employed by the owners of the hotel complex of Areias do Seixo. Two out of five respondents (De Nieuwe Winkel, DeZusters) do the transaction without payments.

> "At the moment we don't pay for it, but I did say that we want to do that in the future because this is a project we want to invest in. Even if it is not so labour intensive. At the moment, the return is not yet extremely high to spend a lot of money on. So we just do that in exchange. Sometimes we are asked to cook there with the products from the food forest. To build brand awareness. She is welcome to eat at our restaurant once in a while. That will change in the future. I think a monthly or an annual amount that we pay to make unlimited use of it" (Van Zijl, 2020).

> "you can never convert the value in price because the food forest entrepreneur is so involved in that project. Then 1 euro is an insult, but 100 is actually too. It is worth much more to him. That topic also was wiped off the table within 3 seconds" (Van der Staak, 2020).

These partnerships with food forests are currently on the basis of trust and friendship. What is more, according to the chefs the products cannot be expressed in terms of money. Furthermore, the food forest entrepreneur (in the case of De Nieuwe Winkel, DeZusters, does not want to receive any reimbursement at the moment. One respondent (Jeffries) stated that he would pay for the purchased products, once he will open his restaurant. Similarly, (Jacks Food Bar) is aware of the fact that their restaurant will need to deliver at least a small reimbursement to the food forest entrepreneurs since the entrepreneurs supply their restaurant with food. In all cases, the respondents expect future collaborations to be more commercial.

5.2.5 Drivers

Behind each partnership, there are values connected that indicate the drivers of participation.

Generally, standardization of menus and processes are done in the foodservice to guarantee consistent outputs, which are important to attract customers (Robinson & Barron, 2007). To illustrate, customers will be more satisfied when the waiting time in a restaurant is reduced, proceeding greater revenues for the restaurant.

Table 5 Positive and adverse drivers. Source: Van Cappellen, 2020

Positive drivers	Customer relationship	Idealism	Biodiversity	Creativity
Adverse drivers	Convenience	Investment	Timeframe	Uncertainty

Customer relationship

All respondents agreed on the importance of the **relationship** between the restaurant and the food forest entrepreneur. The benefits of a well-maintained business relationship are the convenience in communication, trust from both parties, exclusive offers and brand awareness. Therefore, all the respondents chose to visit the food forest about once a week and keep in contact with the food forest entrepreneur.

"It is important for us to work with them for more than a year. We like a sustainable relationship with our suppliers" (Stukker, 2020).

Four out of the six respondents (Heron, DeZusters, De Nieuwe Winkel, Areias do Seixo) agreed to maintain contact with the food forest entrepreneur in the future. One respondent would consider hiring an external party to organise all the aspects of the partnership due to convenience**.** However, all of the respondents foresee more commercial partnerships develop in the future as more food forests emerge in the country. This entails a more professional and structured organisation as well as more people involved, resulting in less direct contact between supplier and customer.

Idealism

"The most frequently asked question is 'How are we going to feed the world with this'? And the counter-question is always 'look at that field that has just been mowed, how are you going to feed the world with it'? By contrast, we as humans cannot eat grass, but each field in the Netherlands has been sown with it, so there is a crisis. Paradoxically, there is relatively little attention from politics to this topic"

(Van der Staak, 2020).

Today, chefs and restaurant owners are becoming more conscious about the current food system and its boundaries. They notice an attitude shift from consumers demanding more transparency about the food one restaurant serves as well as the production methods and ingredients used. Besides consumer demand, it seems that chefs are genuinely concerned about the environmental impact of food commodities, especially products of animal origin. The respondents firmly believe to pull one's weight by cooperating with a food forest because they supply their ingredients from local and organic source, indirectly emitting less CO2, and most importantly promoting sustainable agriculture.

Biodiversity

Thirdly, the fact that the food forest brings them **close to nature** gives the feeling of connection with nature. Some chefs enjoy foraging in the woods and started this hobby even before the partnership evolved. Respondents showed their excitement when talking about the biodiversity aspects of a food forest.

"Gradually you see the food forest developing which is exciting as well as the fact that next year you will get larger berries or harvest more from a plant. It grows really fast. That makes it interesting. I also think that in those places in three to four years, you can harvest plenty of apples or plums or other fruits that may still be minimal now" (Stukker, 2020).

Creativity

The challenge is that there are frameworks, but there is actually a lot that can be done within those frameworks" (Stukker, 2020).

Cooking with harvested products from the food forest introduces new combinations of flavours and textures. Experimenting with the products is a prerequisite to come up with successful recipes. Unknown ingredients need time to get used to and combinations of other ingredients need to fit well. Most of the time, chefs experience trial and error in their cooking process, but when a new successful element has been found, a pioneer is born.

"We are often unknown to the products. Italian mountain asparagus, olive berries, Chinese Mahogany, Japanese butterbur… We have never worked with those before. These are all crops that we do not know here. Fortunately, they do have a tradition in other cultures. So we can still retrieve inspiration at times, however, in the end, you just start from scratch" (Van der Staak, 2020).

Convenience

Experimenting with new products is a long process and requires creativity from chefs. For some chefs (all respondents) it is a challenge that excites them and gives them joy, high ratings and profit in return. However, as all the respondents agreed, a large number of chefs in the foodservice sector in the Netherlands hesitate to accept this challenge. According to Dallinger (2013) convenience seems to be the largest factor holding them back. Convenience food products gain some advantages such as savings in time and costs, better portion and cost control, ease of training and evaluation, superior customer relationships trough product consistency, increased safety, ease of storage, and added eye appeal (Dallinger, 2013). Training chefs and employees to handle convenience food products seems to be easier and the employees develop less psychological pressure in their jobs compared to when using non-convenience food products.

"I have twenty years of experience in the foodservice industry and know that chefs prefer to make a seasonal-, monthly, perhaps even a weekly menu, but they want to know what they can use a month or two in advance. This is not possible with a food forest. It means that you take away a lot of convenience. Most chefs are looking for easy solutions and most entrepreneurs who do not want to invest too much money. So it is a binary interplay" (Stukker, 2020).

Investment

According to all respondents, starting a collaboration with a new supplier like a food forest can be expensive in terms of labour and logistics. In general, chefs spend more time in the kitchen experimenting with food forest products since those products are relatively unknown. What is more, training staff should be taken into account, since these products require processing and they have a limited shelf life. In addition to product handling and storage, the logistics should be wisely considered as well. Usually, food forest entrepreneurs do not deliver their harvested products to the restaurant, it is the chef who picks it up. One needs to make time for driving back and forth. It is expected that future collaborations will have a more commercial setup, therefore, costs could potentially be higher for the restaurant.

Uncertainty

Studies have shown that people strive to behave in consistence with their actions and beliefs (Cialdini & Trost, 1998). Likewise in the foodservice industry: customers as well as chefs expect and prefer consistency. Restaurants using processed products as ingredients in their menu are likely to build better customer relationships as these convenience products carry guaranteed consistency (Belasco, 2007). Since yields from food forests differ in quantity, products supplied to the restaurant can be irregular as well. High adaptability with regards to the availability of products supplied by the food forest is needed among chefs. It can be argued that uncertainty among chefs can increase when products from the food forest are not available, yet needed in their menu.

Therefore, this uncertainty driver can be seen as disadvantageous for partnerships between food forests and restaurants since consistency could be easier maintained when there is no dependence on food forest products.

"I feel like the training is the biggest thing, because if the kitchen team is involved, they can see themselves what time crops take to grow. For example, if they could see how long it takes to grow a leek, they would not send half away to the compost. I think this is something that remains a role during the years" (Carvalho, 2020).

"Generally, cooks are easy animals. They want to be able to work with avocados all year round" (Stukker, 2020).

5.3 Consumers

Measuring retail figures can demonstrate consumer behaviour and can explain the drivers behind these choices. These drivers are important for restaurants as well, since anticipating on trends could increase out of home consumption.

5.3.1 Drivers

Transparency

Detailed information about the supply chain of a food product is an important trend among Dutch consumers. Not only millennials but also the older generation imply to understand the relevance of the origin and production methods of the product. As a result of the introduction to more international brands, processed products and equally longer vertically supply chains, food scandals are pressing on the recognition of consumers for a more transparent supply chain. As demonstrated in a sustainability research of Growth From Knowledge, disbelief about sustainability claims among consumers grew with four per cent in 2018 (GFK, 2018). Consumers demand openness and transparency about an organisations policy, pricing, resources, working conditions, and profit margin. This can be translated to the need for transparent restaurants as well. In fact, in restaurants and hotels, a 4% increase in spending's on sustainably produced food is seen (Logatcheva, 2019). Without an external party, food forest have the potential to meet this consumer demand, since they produce seasonal food products without the use of chemical fertilisers and pesticides, and engage in short chains.

Especially short chains are an important factor to increase the connection between consumer and producer. Feeling connected with the origin of food is a reason to spend a higher amount of money on the product.

"I think the story you tell adds value. I think the zeitgeist has changed, so our concept fits much better in the climate, more people are aware of it. Consumers are looking for alternatives, so we offer that "(Van der Staak, 2020).

Geocentric purchasing

According to marketing research, purchasing locally produced food explains the term geocentric purchasing and is becoming increasingly popular among European consumers (IRI, 2018). Nearly fifty per cent (46%) of the Dutch consumers find it very important to consider ethical purchasing practises and have a clear preference for locally sourced products. In fact, 36% of Dutch consumers are willing to pay a higher price for sustainably produced food products (GFK, 2018).

"People are willing to drive the extra mile if they find a place unique. That is why those products help enormously. If there is only one place in the Netherlands where you can eat these products, it tickles the brain, so that is a good thing" (Van der Staak, 2020).

In 2018, Dutch consumers spend 7% more on sustainably produced food compared to the year before. What is more, the total market share of sustainably produced food is 11% (Logatcheva, 2019). Although this share is not tremendous, there is a clear demand for more local, transparent and traceable food products. Better flavour, as well as freshness, nutritional value, food safety, sustainability concerns and support for farmers and local

communities are reasons behind the motivation of these consumers (Martinez et al., 2010). Often, it is suggested that younger consumers (millennials and gen z, age between 18-34) are more concerned about the environment and thus willing to pay more for locally sourced products. Paradoxically, there is no correlation between the two since the older generation is willing to pay more for these products (IRI, 2018). This can be explained due to consumers above 34 years having a higher income than of 18- 24-year-olds. Moreover, the price for local food products is often a premium price, which remains a barrier for consumers. The drivers behind purchasing local products are support for local producers, better taste and quality. A contrast in incentives can be determined between the two age groups. Younger consumers find quality, better taste than industrial products (18-24 y.o.) and better quality-price ratio (25-34 y.o.) more important whereas older consumers (>34 y.o.) identify support for local consumers as a key priority (IRI, 2018).
All in all, today only a small percentage of consumers are willing to pay a premium price for local products.

"The elite who can afford a few per cent and which are interested in our is our target group" (Van der Staak, 2020)

Snacking

In 2016, an American trend called snacking found its way to The Netherlands. Ever since, Dutch consumers snack more regularly during the day. As a result of busy lifestyles, growing urbanisation and an increased preference for snacking on the go, traditional meals emerge to be substituted by snacks (IRI, 2018). Both healthy and unhealthy snack offerings are growing and can be purchased through different channels. Also in foodservice, this trend can be seen since consumers order more snacks than full meals. Therefore, it can pose a threat to restaurants offering complete meals rather than snacks. What is more, consumers are not bound to have lunch or dinner in a restaurant anymore, since one can be more flexible in combining work with eating out. Restaurants, café's or bars offer more possibilities to consume out of home at any time of day. Consequently, restaurants that are opened only during lunchtime and/or dinnertime could be missing the mark (IRI, 2018).

Healthy food

Next to the snacking trend, which is usually associated with unhealthy food, healthy food inspires customer interest at restaurants too (Kang et al., 2015). Generally, consumers prefer to eat more fruit and vegetables, less meat, sugar, salt and fat (Agrimatie, 2017). As a result of health-related problems such as obesity, customers seem to be more interested in healthy eating, especially in out of home consumption (Jones, 2009). Customers tend to select healthier meals, control portion sizes and prefer to visit restaurants offering the choices mentioned above (Kang et al, 2009).

Experience

Since 1995, research has been conducted on the symbolic associations of eating out and those social patterns related (Warde & Martens, 2000). Food is not necessarily a primary need anymore since it could be a form of entertainment, a means to display taste, status and distinction. Due to prosperity growth, Dutch customers spend on average more money on out of home consumption, resulting in a 1,5% increase in volume in the sector (ING & Geijer, 2020). Especially the wage increase and tax reduction seem to be beneficial for expenditures

in cafés and restaurants (ING & Geijer, 2020). Out of home consumption is already an experience itself due to tailor-made restaurants as well as their food and service offered to the public. Individualisation is a driver behind the need for a customised experience demanded by a customer. Trends such as locally produced food, food innovation, vegetarian meals and crafted beers bolster customer experience. Similarly, both the demand for authenticity and growing awareness explains the motivation to purchase a product which is regional, genuine and unique (Doomen et al., 2019).

6 SITUATION ANALYSIS

In this chapter, a SWOT analysis is done in which the outcomes of the customer analysis are applied. As explained in the theoretical background, SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. The internal analysis gives an overview of the strengths and weaknesses regarding collaborations between restaurants and food forests whereas the external environment demonstrates opportunities and threats with the perspective on the environment. After elaborating on the outcomes of the SWOT, a Confrontation matrix is executed to identify possible strategies for the collaborations.

6.1 Swot analysis

Table 6 SWOT analysis. Source: Van Cappellen, 2020

Internal	**STRENGTS**	**WEAKNESSES**
	Unique selling point	Irregular supply
	First mover advantage	Labour & Knowledge intensive
	Contributes to a sustainable food system	Chefs attitudes towards convenience and consistency
	Supplier relationship	No professional management framework
External	**OPPORTUNITIES**	**THREATS**
	Greater spending in restaurants	Growing scepticism about sustainability claims
	Growing consumer demand towards local, transparently produced food	Growing popularity towards convenience food products
	Social media marketing	Lack in qualified kitchen staff
	Growing demand for healthy snacks	Outsourcing

As demonstrated in Table 6, each quadrant counts four outcomes. Below, each quadrant will be elaborated.

6.1.1 Strengths

At first, collaborations between food forests and restaurants on itself are valued as **a unique selling point** since this factor distinguishes them from other businesses without collaboration. The **supplier relationship** is a characteristic of this unique selling point, which

is appreciated within each customer segment (food forest entrepreneurs, chefs and customers). Short chains result in convenient and personal communication between the food forest entrepreneur and the chef. Consequently, knowledge transfer is large, trust from both parties is high, exclusive offers are given and brand awareness is achieved. Due to the relatively new introduction of this concept in The Netherlands, not many collaborations exist yet. All respondents agreed that the transactions are done cost-efficiently in favour of both parties. Therefore the respondents involved, enjoy the **first-mover advantage**, the third strength as seen in Table 6. Apart from cost-effective transactions, the collaborations result in above-average returns for the restaurants (Van der Staak, 2020; Stukker, 2020, Carvahlo, 2020; Van Zijl, 2020, personal communication). What is more, customer loyalty is constantly developing due to the transparent character of the collaboration. At last, the collaboration contributes to a more **sustainable food system.** To illustrate, CO2 emissions are reduced because there is less transport between supplier and customer. Secondly, a restaurant becomes less dependent on food supplied by a wholesaler who imports food from other counterparts of the world. This player has a larger footprint than a local supplier. Thirdly, the local biodiversity is likely to increase due to the abundance of different perennial species planted in a food forest. What is more, the connection between suppliers and consumers is likely to be improved due to the transparent and personal character of the supplier relationship.

6.1.2 Weaknesses

Since food forests in the Netherlands did not reach the level of maturity yet (Green Deal Voedselbossen, 2020), yields are increasing each year, however simultaneously inconsistently. This results in an **irregular supply** of food products to the restaurants. This is a weakness in terms of internal production and communication. Due to the long life cycle of a food forest, perennial plants need a couple of years to mature. What is more, mostly there is **no professional management framework**, where food forest entrepreneurs communicate about the developments of plant growth, yields and logistics. Therefore, this could pose a challenge to new restaurants without having the experience to cooperate with a local supplier. Another weakness with regards to the collaboration could be the labour and knowledge required to harvest, store and process the products. Handling food products from a food forest could be **labour and knowledge-intensive** since the products supplied to a restaurant are not commonly known under chefs. In all cases, processing these products goes hand in hand with experiments. What is more, chefs visit the food forests themselves, which is done mainly in their free time or during workdays. This means, more labour is needed to run the kitchen and/or process the supplied products. At last, **chefs' attitude towards convenience and consistency** negatively influences their motivation to work with unknown, fresh products (Table 6). Chefs prefer to work with products that are known to them to speed up the mise-en-place. (Unexpected) changes tend to bring insecurity to them, which can subsequently lead to working overtime.

6.1.3 Opportunities

As the lifestyle of consumers improves, one will spend more money and time in restaurants. This trend has been happening since a couple of years due to the growing economy. Consumers become wealthier in the Netherlands as their income increases. This opportunity is of importance for the potential of collaborations between restaurants and food forests, meaning that these restaurants will attain more customers. **Greater spending in** these **restaurants** could result in more turnover for the restaurant.

Another opportunity could be the **growing consumer demand towards locally and transparently produced food**. Consumers tend to be more concerned about the environment and as a counterreaction consumers want to know the origin of food products. Products supplied from a food forest are traceable as well as locally produced. Another trend is the **growing demand for healthy snacks,** as consumers tend to eat at more moments as well as smaller portions throughout the day (IRI, 2018). Besides, health and the relationship with food are of growing interest. Restaurants that supply food with ingredients from a food forest in all cases provide a menu with small portion sizes and healthy dishes. Fresh ingredients are used as well as self-fermented products, which promotes human health due to the addition of living organisms that are delivered to the gut (Marco et al., 2017). Therefore, this could be an opportunity for collaborations, since they could offer healthy snacks with products from a food forest at their restaurants. Finally, **social media marketing** offers a great opportunity for restaurants that want to promote their activities or any other kind of information related to food forests to the wider public. Well-managed social media sites can encourage new guests as well as existing customers to visit the restaurants (Pantelidis, 2010). What is more, the opportunity to manage virtual relationships with guests by actively participating in social media is of great potential for the online reputation of a restaurant.

6.1.4 Threats

External threats such as the ones listed in Table 6 could negatively influence the cooperation in the future. At first, corporate greenwashing (organisations' sustainable claims in discrepancy with their actual involvement) is resulting in a lack of trust from consumers (De Jong et al., 2019). According to various researchers, Corporate Social Responsibility (CSR) initiatives can positively influence the image of a company, purchase intentions, and consumer loyalty (De Jong et al., 2019). However, when companies are guilty of greenwashing, **scepticism about sustainability claims is increasing**. The lack of trust from consumers in the foodservice sector could potentially pose a threat to restaurants. What is more, **outsourcing** could contribute to this development, due to the addition of more parties into the supply chain of food forest products, which could make product origin less traceable. Besides, another company which provides the service could be motivated by profit and a restaurant could lose the ability to respond to changes in the foodservice sector simply because there are more people involved and processes to work with (Raineri, 2019). Another threat in the foodservice sector is the worldwide shortage of **qualified kitchen staff** in fine dining restaurants (Kidd, 2019). It means employed staff needs to work harder, and in combination with the food forest products that need time and experience to work with, it could be difficult. In fact, under chefs, there is an **increasing popularity towards convenience food products.** These processed products require fewer handlings and time can be saved, therefore this could potentially pose a threat towards future collaborations between food forest entrepreneurs and restaurants.

6.2 Confrontation Matrix

In this section, the four quadrants are combined in a confrontation matrix. The confrontation matrix combines the internal strengths and weaknesses with external opportunities and threats. As seen in Table 7, the outcomes presented in the SWOT analysis are listed in numbers, each indicated by the capital letter (**S**trengths, **W**eaknesses, **O**pportunities, **T**hreats). The legend underneath the matrix illustrates the meaning behind each figure.

Table 7 Confrontation Matrix. Source: Van Cappellen, 2020

		OPPORTUNITIES				THREATS			
		O1	O2	O3	O4	T1	T2	T3	T4
STRENGHTS	S1	+	+/+	+/+	+/+	-	-	-	
	S2	+	+/+	+/+					
	S3	+	+/+	+/+	+	-	-		-
	S4		+/+	+/+	+/+			-	-/-
WEAKNESSES	W1		+				-		+
	W2		+	+			-/-	-/-	+
	W3		-		-		-/-	-/-	+
	W4						-	-	-/-

LEGEND:	
+/+ or **-/-**	= clear issue
+ or **-**	= link
Blanc	= no link

6.2.1 Outcomes

As seen in Table 7, the clearest issues are assumed to be the growing consumer popularity towards convenience products **(T2)** and the lack of qualified kitchen staff **(T3).** Combining these issues with the fact that cooking with food forest products is labour and knowledge-intensive **(W2)**, as well as the 'average' chefs, who prefer to cook with processed products due to convenience **(W3)**, could become a major issue with regards to collaborations. Although cooking with products from a food forest contributes to the enhancement of a sustainable food system **(S3)**, when both demand and supply pinpoint convenience and consistency as the main priority, restaurants will not switch to a different concept in which inconsistency, creativity and trials take place. Consumers who prefer convenience food products will take the easy route to their favourite restaurants offering food that one is acquainted with. Besides, due to the worldwide shortage of chefs in the profession, restaurants often have to deal with chefs taking leave, have difficulties finding appropriate staff and keeping staff motivated to work at their business for a longer period. This uncertainty can result in choices to take convenience and consistency as preference. Taking risks in terms of creativity with unknown products could potentially downgrade customer loyalty as well as decreasing motivation by staff. When no professional management system is available **(W4)**, logistics, distribution, processing, and marketing could be a constraint for

restaurants to invest time and effort into the management of collaborations. A solution to overcome the above-mentioned issues is to outsource **(T4)** all the aspects of the procurement of food forest products. On the other hand, outsourcing could harm the close supplier relationship **(S4),** which is at stake in most collaborations present day. What is more, involving more stakeholders into the supply chain can cause quality and transparency issues, due to the loss of control.

The most promising outcomes are assumed to be the growing consumer demand towards local and transparently produced food **(O2)** and healthy snacks **(O4)** as well as the usage of social media as a marketing channel **(O3)**. The existing collaborations between food forests and restaurants benefit from the first-mover advantage **(S2)** in which the supplier relationship **(S4)** is one of their unique selling points **(S1)**. An increasing group of consumers who are more conscious towards environmentally sustainable food production will likely choose to have dinner at a restaurant which provides a menu offering among other things food forest products. Based on the outcomes of the confrontation matrix, strategies can be composed. In the next chapter, recommendations and conclusions will be given.

7 CONCLUSIONS AND RECCOMENDATIONS

In this chapter, the answers to the formulated sub-questions described in chapter 2 are presented. Each paragraph starts with a recommendation regarding the specific sub-question and further elaborates on it beneath. At last, the main conclusion is presented in the research question: **"What is the potential of collaborations between food forests and restaurants in The Netherlands?"**

Luxurious as well as top restaurants require direct contact with the food forest entrepreneur to get guidance through the procurement.
Interviews with chefs or restaurant owners have revealed that communication between the restaurant and food forest entrepreneur is beneficial with regards to the logistics and handling of the food products. Food forest entrepreneurs could share information about production methods as well as harvesting, which is necessary for chefs. Especially chefs or restaurant owners without experience in food forest product handling need guidance through the process. Most respondents visit the food forest on a regular basis. On the short term, food forest entrepreneurs could set up a database where harvesting can be recorded weekly. Also, details about the quality and quantity aspects of the yield are advised to be described. This system could be beneficial for information exchange between both parties as well as for future prognoses.
Besides, sharing a calendar with information about harvests could help chefs in planning their menu based on food forest products. Moreover, when chefs are used to the handling and the products they could harvest from the food forest, logistics will be more convenient and efficient in terms of time. In the long term, altering the education system at culinary schools could play a big role in educating cooks towards a more holistic cooking approach. This could be beneficial in terms of the valuation of locally produced food as well as creativity.
Most chefs pick up the harvest from the food forest themselves once a week. However, future collaborations will be more commercial, which does not necessarily exclude a contract with an external party managing the logistics for a restaurant. Outsourcing could be advantageous when there is time pressure as well as preference towards consistency and convenience.

The direct supplier relationship with the food forest entrepreneur as well as the contribution towards a more sustainable food system is the unique selling point for a marketing strategy.
According to the outcomes of the customer analysis, the target group can be described as consumers between the age of 34 and 55, higher educated, higher income, middle class and the elite who are interested in new food concepts as well as sustainability. This target group is willing to pay a premium price when consuming out of home in a full-service restaurant. On both short and long term, social media marketing could be used as a channel to reach consumers. For example by online advertisements and storytelling on social media such as Facebook, Instagram and TripAdvisor. Furthermore, the website of the restaurant should update their content regularly and make information about their suppliers visible for consumers. Transparency, and locally and sustainably produced food is of importance in the eye of the consumer nowadays. The translation of short chains to customers is necessary.

Food forest products have the most potential when sold in luxurious fine dining restaurants and top restaurants in The Netherlands, compared to other restaurant segments.

In the Netherlands, full-service restaurants are still the only markets offering food forest products to consumers. These restaurants are characterised by luxurious fine dining restaurants for consumers who are willing to pay a premium price. Since food forest products are quite unknown, restaurants have the first-mover advantage to require a premium price for their menu. Yet only the above-described target group is willing to spend money on this niche.

To increase market potential, it is necessary for other segments to provide these products too. Other markets in the foodservice sector that could offer food forest products are take-away stations and online web-shops of restaurants. According to the outcomes of the customer analysis, consumer trends are snacking, and convenience products as well as sustainable produced products. This outcome suggests that food forest products could have great potential when incorporated into a healthy snack. A marketing strategy that is used by the respondents is based on the principle of product leadership. In the future, this could be improved by responding to the healthy snacking trend. Snacks could be added to the menu to anticipate on the demand of customers for convenience food. The ingredients used from the food forest are unique, unfamiliar and diverse, therefore this could create a niche when added to a healthy snack.

The potential of collaborations between food forests and restaurants in The Netherlands lies in the establishment of a sustainable out of home experience.

The increase of food forest initiatives established in The Netherlands could contribute to a more sustainable food system in various ways, since benefits for people, planet and profit are outweighing the negatives in the long term. Starting a collaboration with a food forest as restaurant owner/chef requires flexibility, adaptability and creativity.

As the lifestyle of consumers improves, one is more willing to spend money in the foodservice industry. Food forest restaurants could be the answer towards customers demanding a more sustainable out-of-home consumption experience. The supply chains are traceable and transparent since there are no intermediates between the food forest entrepreneur and the chef. Furthermore, collaborations could be a win-win situation for both parties. Food forest entrepreneurs need to have an income to pay back the investment costs of the food forest whereas chefs need to differentiate themselves through niche products, close supplier relationships and sustainability values.

8 DISCUSSION

This project describes the result of the potential of partnerships between food forests and restaurants, which shows that there is great potential for a sustainable out-of-home consumption experience. This suggests that the above-described partnerships contribute to corporate people, planet and profit responsibility, as well as consumer demand for locally and transparently produced food. From the results, it is clear that chefs embrace partnerships due to different values such as customer relationship, idealism, biodiversity and creativity. Another finding was that chefs acknowledge these requirements to perform a successful partnership. The analysis demonstrates that the dependence on convenience and consistency, uncertainty about the procurement as well as the processing of food forest products can harm the potential collaboration between parties.
These results tie well with previous studies in which new ways added value in agricultural production, like food forests and more sustainable business models, like restaurants involved in a partnership, give shape to agri-food transition pathways by demonstrating to the wider public that the partnership can be successful (Aarts et al., 2019).

One limitation of this research, however, is that no attitudes of consumers nor food forest entrepreneurs have been studied so far. Due to the scope of this research, this was not feasible in the given period. Besides, the total number of chefs and food forest entrepreneurs in the Netherlands participating in this collaboration is still unclear. From this standpoint, it may remain unclear to what extent the conclusions can be generalised.
Therefore, further research should be executed to make solid conclusions about the amount of chefs in The Netherlands who are willing to participate. In this project, qualitative data analysis was chosen as the main method to analyse the context and complexity of partnerships. It is of importance to validate the outcomes of this research with primary data by conducting a quantitative data analysis. Possible research methods that could back up the outcomes of interviews are taking samples, surveys and cross-sectional research.

It is important to highlight that the current Covid-19 pandemic could influence the future scenario regarding food service tremendously. At the beginning of writing this report, there was no pandemic, but within two weeks the situation changed. Restaurants closed and consumers were navigated towards takeaway service and home delivery. The economic recession decides whether customers will still be able to afford a premium meal over a cheap meal. This situation may alter or improve aspects of customer loyalty towards out-of-home consumption. At this stage of understanding, the pandemic could bring new prosperity towards the valuation of locally produced food. Dependant on which pathway the Dutch government will take, the food system will highly likely not be the same as before.

9 APPENDIX

9.1 Appendix 1

Restaurant Concept	Service	Food/ Kitchen	Beverages	Ambiance
Top	Personal: Greeting with handshake, and guidence to table; High personal attention; Skilled staff (maitre and sommelier present)	Specialised in all dishes; Multiple small dishes (finedining); High quality and fresh ingrredients; Diversified seasonal menu; A la carte menu not available	Small but high quality assortment; Focused on wine sales; Winecellar present; Limited soda assortment	Extraordinary location; Distance not important; Comfortable seating; Expensive tablewear; Classical music; No children faciities
Luxurious	Personal: Guidence to table; High personal attention; Skilled staff (host present)	Specialised, but less proceedings per plate; Good quality and fresh ingredients; Diversified seasonal menu; A la carte menu available	Small but high quality assortment; Focused on wine sales; Soda and beer assortment limited	Distance less important; Comfortable seating; Ordinary tableware; Calm music; No children facilities;
Fast Casual	Fast service; Greeting behind the counter at the entrance; Guest orders at the counter; No service at the table	Small assortment; Almost everthying home-made; A la Carte	Large assortment; Small alcoholic assortment	Location: city center; Comfortable seating; Ordinary tableware; Soundly music; No children faciities
Casual	Greeting at the entrance; The nessacary service; Staff largely exists of students without hospitality background	Not specialised; Large assortment; Both processed (90%) and fresh ingredients; A la carte and daily or weekly menu; Menu changes of composition ocassionally	Large assortment; Winemenu available	Located in city center or in the outskirts; Functional seating; Ordinary tableware; No or soundly music; Kids menu; Children playground
Fast-Food	Fast service; No greeting; Guest orders at the counter; No service at the table	Processed and ready-to-serve- products; A la carte on the counter	Large assortment; Soda's, milkshakes and fruitjuices	Located in city center or parralel to the highway; No tableware, only paper or plasticpackaging; Soundly music including advertisements; Children playground, kids menu and play garden

Figure 7 Restaurant concepts. Source: Van Dullemen, 2018

9.2 Appendix 2
Food forest map

Figure 8 Food forest map. Food forest initiatives according to the Green Deal Food Forest definition. Source: Voedselbosbouw, 2020

9.3 Appendix 3

Interview vragen

1. U bent restauranteigenaar en/of chef en hebt een samenwerkingsverband met (onder andere) een voedselbos waar u producten vandaan haalt. Wanneer is deze tot stand gebracht en waarom heeft u gekozen voor deze samenwerking?

2. Hoe wordt de oogst georganiseerd en wie is er betrokken? Denk aan de logistiek, administratie, personeel, opslag, etc.

3. Met welke regelmaat oogst u producten uit het voedselbos en vindt u dit genoeg met betrekking tot de capaciteit van het restaurant ofwel de gerechten die bereid worden?

4. Wat voor producten haalt u zo al uit het voedselbos en welke rol spelen ze in de gerechten die u aanbiedt in het restaurant? Wat is de verhouding van deze producten afkomstig uit het voedselbos tot andere producten van andere leveranciers?

5. Hoe ervaart u de kwaliteit van de geoogste producten?

6. Hoe worden de kosten/marges van voedselbosproducten geregeld?

7. Hoe wordt het gebruik van voedselbosproducten gecommuniceerd naar de gasten/ potentiële gasten? Hoe zou het naar uw idee het beste gecommuniceerd kunnen worden?

8. Hoe wordt er gereageerd door de gasten op het gebruik van producten afkomstig uit het voedselbos?

9. Wat zijn de meest belangrijke redenen voor de gasten om hier te eten? En als relevant:
   wat zijn de redenen dat gasten biologisch of eventueel voedselbosproducten willen?

10. In de horeca wordt over het algemeen 14% aan voedsel verspild. In hoeverre ervaart u dit als probleem in uw restaurant? Is hier een beleid voor en zo ja, wat wordt eraan gedaan?

11. Wat levert de samenwerking met het voedselbos voor uw restaurant op?

12. Wat voor problemen zijn er in het verleden voor gekomen omtrent de producten/logistiek/verwerking en hoe zijn die uiteindelijk opgelost?

13. Wat zijn aandachtspunten die nog verbeterd kunnen worden omtrent de samenwerking met het voedselbos?

14. Wat is er nodig in de keuken om de voedselbosproducten te verwerken naar een hoogstaand culinair gerecht (denk aan kennis, apparatuur, conservering, personeel,

geld, etc)? Hoe wordt er in uw restaurant door het personeel omgegaan met de producten? Wat gaat er goed en wat kan er verbeterd worden?

15. Zou u behoeften hebben om in de toekomst nog meer of juist minder producten af te nemen van het voedselbos en waarom?

16. Heeft u andere leveranciers zoals tuinderijen, boerderijen of groothandels die bij u producten (groenten, fruit, noten, kruiden) afleveren? Welke partijen zijn dit en hoeveel producten zijn dit in verhouding tot voedselbosproducten?

17. Kunt u de band beschrijven die u heeft met de voedselboseigenaar? In hoeverre vindt u het hebben van een band met de leverancier belangrijk voor het succes van uw restaurant?

18. Hoe ziet u de toekomst van uw restaurant (concept), buiten uw huidige concept om?

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