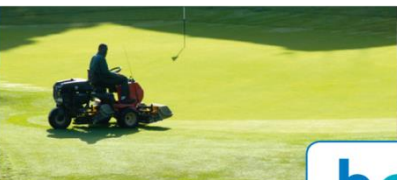
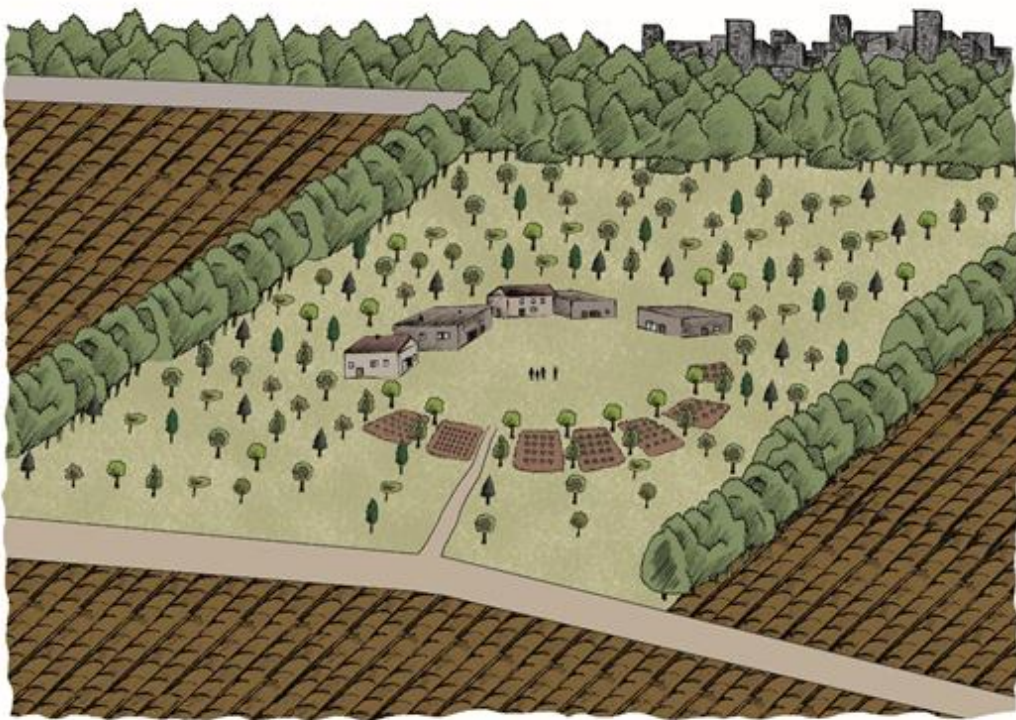


FINANCING FOOD FORESTS

Professional Assignment - Report



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Title document: Financing food forests
Project code: 19400435

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Date: 28 June 2020

Acknowledgments

This report was created through the cooperation of entrepreneurs and experts both within and external to the food forest landscape, as well as teachers and advisors of the HAS University of Applied Sciences.

We would like to thank all the actors involved in this report who kindly accepted to discuss the matters at hand and attend interviews, providing us with in depth information that shaped the content of our work: Rolf Kerkhof Mogot (HAS teacher and project leader), Ursula Kirchholtes (HAS teacher, expert in spatial planning), John Vermeer (food forest advisor in Noord Brabant), Piet Rombouts (agroforestry advisor in Noord Brabant), Dirk Hilbers (Crossbill foundation) Ghislaine Bromberger, Herrie Vissers and Wessel de Gouw (province Noord Brabant), Syne Fonk (Ecovrede), Vita Sligter (GvhK), Jac Meters (Nationaal Groenfonds), Stijn Heijs (Stichting Voedselbosbouw), Kees van der Vaart (Staatbosbeher), Marijtje Mulder (Land Van Ons) and Vidar Bakker (Triodos).⁴ This project was not only a captivating and inspiring object to work on, but also allowed us to meet and connect with interesting players in the sustainable agricultural sector, making this project a true delight.

Executive summary

While most ‘business-as-usual’ stakeholders are used to think in terms of profitability only, there is increasing attention given to other forms of value. Thanks to the increasing public awareness of the issues on climate change, nitrogen and phosphorous crisis and the decline of insect and bird biodiversity, many organizations have been seeking to counteract these negative impacts by investing in sustainable local projects.

Food forests are a relatively new phenomenon in the Dutch agriculture system, they represent a radical alternative to the conventional way that food is produced. Even though their ecological and societal benefits have become apparent to the public, food forests are in appearance still quite difficult to fund in the current agricultural landscape, due to their long returns on investment and lack of examples of existing production models, running for more than 10 years. As the previous report (Food Forest Business Models) points out on this matter, **food forests can take up to 20 years before they become financially viable, after which the economic returns become substantial. This report aims to examine possible ways to source and stimulate investments to bridge this financial gap.**

The Dutch agri-food sector is a dominant force in the agricultural landscape as it represents 20% of the country’s export value. The intensity of Dutch agriculture is a major factor responsible for the problems that the country is facing. The Dutch farming sector is ageing, and the number of young farmers is amongst the lowest in Europe due to problems like retrieving land and financing needs to start a new business. Due to the low profit margins, the high costs of land and the lack of generational renewal, farmers consider their land as a savings account and sell it when approaching retirement. This trend has led to a concentration of land amongst fewer landowners.

Food forests are an efficient way to bioremediate and regenerate polluted and degraded soils. The increase in soil organic matter has positive consequences on the water holding capacity of the soil

creating a buffer against floods and droughts. The high plant diversity attracts bird and insect populations which have a positive impact on the biodiversity. **The provision of these ecosystem services makes food forests a perfect candidate for impact projects aiming to build on natural capital. The fact that these systems can provide the base for communities to come together brings opportunities for impact investing aiming at social capital.**

In the past 10 years there has been a shift towards more nature inclusive production driven by governmental policies, corporate CSR and especially by the sensibility of young newcomers in the agricultural sector. The number of organic, community supported agriculture and direct selling farms has drastically increased. The Green Deals signed with the government have allowed to remove some of the barriers for sustainable projects. Provinces have been taking steps to incentivize nature inclusive agriculture and creation of green areas (such as the “Actieplan Duurzame Landbouw met Natuur” in Utrecht province and “Nieuwe Natuur” in Flevoland). The “Delta plan” and “Biodiversiteit Monitor” are examples of large projects worked out in collaboration of private and public actors to financially reward the positive contribution to biodiversity of land users. The CAP (common agricultural policy) subsidies, now co-responsible for the unsustainability of European agriculture seem to be taking the same approach in the new policy draft for 2021 -2027.

It is estimated that there are about 150 ha of food forests in the Netherlands currently, but this number is on a sharp rise due to the increase in popularity of the concept and to the governmental incentives for increasing nature areas such as the “CAP” and “Nature Network”.

The most popular business models (**direct sales, restaurant sales, B2B, CSA and cooperatives**) and possible revenue sources of food forests in the Netherlands (**carbon sequestration, recreation and education, annual crops, planting stock, medicinal herbs and operation of wellness facilities, care for people with integration needs, and non-timber-forest products**) were analyzed, costs and revenues of different theoretical projections and business plans (Landgoed Welna estate, Koepel plan Voedselbossen, food forest Emmeloord, food forests in Oosterwold and Noorderwold) were demonstrated to analyze and develop on pre-existing models.

There is a vast number of possible instruments of equity and debt finance for different types of food forests. **Each specific context** (location, business model, cultivation system, scale, orientation and stage of development) **requires a coherent mix of internal and external financiers** (personal investment, business partners, subsidies, bank loans, crowdfunding, venture capital, business angel, etc.).

The high prices of land are a major barrier to entry for Dutch food forest entrepreneurs. It is almost impossible to buy agricultural land and make a profit high enough to have a satisfying return on investment. Alternatives to conventional means of purchasing include **accessing land through rent or long-term leasehold with estate owners, CSA where members invest in the land together and crowdfunding.**

In order to invest, Investors demand for securities such combination of good profitability of the business plan, personal equity of the borrower and co-investment from other stakeholders There are also different strategies to attract financiers. Co-financing opportunities and bridge loan structures allow to share risks among different investors. **Guarantee schemes** from the government for green start-ups such as the Capital Enhancing Credit (VVK) allow for bank investments also in the early stage of the food forest. Food forests are long term endeavors which require high investment costs and can last more than a century. To strengthen cohesion among the present and future stakeholders, **designers can leave space for future adaptation for future generations (pergola model)**

Achieving higher rentability and positive liquidity of the food forest in a short run is still a problem in the Netherlands This is as a result of the failing food forest designs/models that are already existing, and the negative cash flow caused by having high labor and land costs.

Food forests by definition produce food (production capital) and have positive effects on the environment (natural capital). One of the main findings of this report is that **there are two major defining factors that define the business model of food forests, these are the degree of external interaction with the community (orientation) and the scale.** Social oriented food forests aim to create benefits to the community such as cohesion, welfare, entertainment and education. Individual oriented food forests aim to generate benefits to the entrepreneur only by focusing on production of goods or ecosystem services, personal development, lifestyle and self-reliance.

The scale factor is based on the empiric principle that a single laborer can manage no more than two hectares of food forest. Therefore, food forests smaller than two hectares are considered small scale and those larger than two hectares are considered large scale.

According to the business model, based on the orientation and scale of a food forest, there are many types of possible systems, designs and required investment opportunities for the food forest. Some financing stakeholders are more likely to invest in particular systems.

In this report four systems were identified and analyzed: educational food forests, rational food forests, forest gardens and alley cropping.

Each system can have within itself a broad spectrum of activities and design that are up to the individual entrepreneurs to define. Moreover, these systems are not necessarily separated. The orientation represents a spectrum and therefore there are scenarios that fall in between these lines. This model has the objective of distinguishing different systems within food forestry to give some clarity to financiers.

It is important to note that the rentability of the food forest not only depends on the scale of the food forest but also on the design implemented on the food forest including all the activities and plant species grown.

The stakeholder analysis (See: Appendix 1) lists 65 organizations within the Netherlands which are either currently involved in the food forestry/agroforestry sector or that have significant importance in the Dutch financial sector. Specific information regarding each stakeholder was sourced from the web pages of the organization or via interview with a representative.

In the Actor analysis (See: section 7.a.iii.) all the stakeholders were grouped together under different systems using Table 1.

Table 1 Actor analysis table

| | Small scale | Large scale |
|------------------------|---|--|
| Social orientation | Social oriented small scale small (educational food forest) | Social oriented large scale (rational food forest) |
| Individual orientation | Individual oriented small scale (forest garden) | Individual oriented large (alley cropping) |

Applying the Actor analysis table, four scenarios were modeled (Social orientation X large scale, Social orientation X small scale, Individual orientation X large scale and Individual orientation X small scale). The aim of creating these scenarios was to identify the financial needs of each model and the stage/phase at which these needs are experienced in 20 years. The stages of these modelled

scenarios were categorized in a time gap of 5 years i.e. (Year 1-5, Year 6-10, Year 11-15 and Year 16-20). In year 1-5, the food forest is its startup phase, this phase inquires high investment costs like purchasing land and planting materials, land preparation etc. Because of the high investment costs, there is need for a large amount of funding required in this phase. However due to the financial projections of all the four scenarios, this stage carried many financial risks like generating low net income, having negative cash flow and low cash balance. These risks make it hard for investors like the debt financiers and venture capitalists that find value in making profit.

Years 6-10 are considered as the production stage. During this phase, the food forest starts to gain momentum. There is an increase in harvest with no need of high cost inputs. The finances of the food forest during this stage are still not yet favorable to persuade certain financiers to invest in food forests. The negative finances in this stage are caused by the negative income generated in the previous stage (1-5). The food forest entrepreneur uses the earnings of this phase to settle the deficit from the previous stage.

Years 11-15 is the scale up phase. This is when the food forest will expand either in size, change business model, increase in volume production or add value to their products in order to increase revenues. During this stage the food forest is profitable however the liquidity (cash flow) in this phase is negative. The increase in scale requires newer investments. The cash flowing out on investments outweighs the cash inflow from revenues resulting to a negative cash flow. This stage requires funding, but this one is easy to source because there is collateral.

In year 16-20, the food forest is self-sufficient, the harvests are at their maximum, no input costs are required. The net income, cash flow and cash balance in this stage are positive.

All in all, the financial performance of each scenario model differs due to the difference in scale and design. With this, it is important to note that the rentability of a food forest depends on scale and design co-existing together.

From the financial needs recognized in the four scenario models, financial mechanisms were created to close the deficit gap in the different phases of the food forest.

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1. Introduction

Food forests are novel to Dutch financial institutions. Like any new revenue generating model, there is reticence from investors to take economic risk in investing in them. However, food forests also offer strong added values, and offer a viable alternative to currently failing models. There is a need for solutions to the issues at hand in the agri-food sector. The environmental crisis arising from monoculture, intensive farming, heavy pesticide and fertilizer use, etc. needs to be addressed, not only because of the obvious environmental unsustainability, but also for the economic unsustainability caused by its symptoms. Food forests are one of the possible answers to the problem and this is what sustainable entrepreneurs should capitalize on when facing an apathetic financial sector. There are still many parties that do focus on sustainability within the financial world, which need to be traced and used efficiently support the rise of sustainable projects such as food forests. There is a need for cooperation between parties sharing common goals in order to create a strong financial support network to accompany food forest entrepreneurs in establishing a sustainable landscape within Dutch agriculture. Where traditional financial institutions such as banks and insurance companies are unwilling to take measured risks in supporting projects such as food forests through loans or investments, other investors, such as public institutions and private associations and foundations, share the sustainable goals and values that food forest entrepreneurs have, and are willing to take the step that others are not.

Engaging investors is not the only issue for food forestry entrepreneurs in the Dutch agricultural sector. Access to land is also exceedingly difficult due to the high prices of agricultural land in the Netherlands. Here again, various alternatives are available, be it leasing, support from foundations and other organizations, access through larger landowners, etc. Still, the issue of having access to land when having no significant starting capital remains critical.

The response of governments, both national and European, to the climate crisis has affected the sustainable agricultural sector, and therefore the food forestry sector also. An array of subsidies has been set up to support the development of innovative, sustainable farming.

The pre-existing food forestry community of the Netherlands has already put much effort in promoting the support and development of food forest in the nation. The creation of the Green Deal Food Forests has allowed for food forestry to be recognized as agriculture and therefore be subsidized by the CAP for example but has also created a network of players in the field, strengthening the position of food forestry within the Dutch agricultural world.

The finances of the food forests in today's capitalized agriculture system carry many risks, one of the most important risks being the funding liquidity risk. This type of risk involves the availability of credit to finance the buying of assets. Potential food forest financial investors like the debt financiers (banks) and the venture capitalists use liquidity as a key source of revenues. Food forests in Netherlands generally are financially infeasible in the first 10 years of production, this means they have lower rentability in the short run, with managing the cash flow, labor and the overall system performance of the food forest (design and model) helps the lessen the funding risks that can be faced.

a. Project description

This paper has for aim to provide the reader, through advisory research, with mechanisms and tools that can be used to finance a food forest. The paper contains a stakeholder analysis with a non-exhaustive list of potential key stakeholders (65 in total) in which their positions in the landscape is defined in order to assess their interests, information over various financial strategies and mechanisms that can be used to source funding, advice on early-cash flow generating activities are given, on bundling mechanisms, etc. Four scenarios are presented to illustrate and demonstrate the paper and how to use it. The results derived from this research can be used by clients to link up with the proposed stakeholders with Dutch food forest entrepreneurs in order to close the financial gap of the first 20 years financially viable. and find ways of mitigating the risks perceived by these potential stakeholders while matching their needs and requirements.

b. Objective

The aim of this project is to provide aspiring and established food forest entrepreneurs with a framework and guideline on the various financial possibilities in the Netherlands to fund their project.

c. Research question and sub-questions

The research question of this paper is:

“What mechanisms can be applied by different Dutch stakeholder to achieve financial viability of food forests?”

The sub questions are:

1. What is the institutional and economic context of a food forest in the Netherlands?
 - a. What is the definition of a food forest in the context of this research?
 - b. What is the political and historical background linked to food forests?
 - c. What is the current financial regime of food forests?

2. How do the various stakeholders fit in the Dutch landscape?
 - a. Who are the potential stakeholders that can be involved in food forests?
 - b. What are the drivers for investment of each stakeholder?
 - c. At what stage would the stakeholders come into action to finance the food forest?

3. What are the risks, needs and requirements of the potential stakeholders who could provide resources in a food forest?
 - a. What are the financial risks, needs and requirements of each stakeholder?
 - b. What are the non-financial risks, needs and requirements of each stakeholder?

4. How could the risks perceived by stakeholders be mitigated?
 - a. How have current successful food forests mitigated the risks they have encountered?
 - b. What mechanisms could reduce external financial inputs?
 - c. How could cash flow be increased in the first years?
 - d. Under what circumstances would diverging from the green deal denomination be useful?
 - e. How could projects be bundled together to attract investments from big players?

2. Background information

It has been estimated that the annual investment for preserving and restoring ecosystems amounts between \$300 and \$400 billion, however only \$52 billion is being invested in such projects primarily by public and philanthropic sources. However, there is big potential for private sector investment opportunities that are both profitable and create the impact needed to restore and preserve ecosystems (Huwyler, Käppeli, Serafimova, Swanson, & Tobin, 2014).

Development agencies, banks and corporates are looking for ways to stir private investment in conservation finance by profitably funding enterprises with a positive impact, but the private sector perceives this unattractive due to limited large-scale opportunities, limited liquid investment opportunities, non-transparent risks, relatively low returns and long-time horizons.

The previous report (Food Forest Business Models) pointed out to the fact that as the size of the food forest increases, so does the need for negative cashflow. A 1 ha food forest will be around €250,000. A 10-ha food forest however would be around €450,000. A 20-ha food forest would need a cash flow of €850,000. This means that there are advantages in scalability as the cash flow of larger food forests becomes positive faster when the food forest is in production (Puhe, van Leeuwen, & Doomen, 2019)

Due to the long return on investment, it would be preferable for farmers starting a food forest to have a good financial position. This means that farmers with a stable and established market are at an advantage to start a food forest project. Scalability also demonstrated that the ideal size of a food forest should be of 10 hectares in terms of cash flow (note that these calculations were based on the numbers from an organic maize farm). The report concluded not only that food forests were able to respond to current trends by fulfilling multiple niches, creating a high biodiversity alternative in the agricultural landscape and responding to social values seen in consumer trends, but also that new projects can offer unique values and therefore that there was space in the market for this niche to grow and develop dynamically. Furthermore, it demonstrated the difference in social and natural values that food forests hold over the conventional agricultural landscape and that it was efficiently implementable on an individual farm level (Puhe, van Leeuwen, & Doomen, 2019).

This report furthers this research by demonstrating tangibly how to implement such models, using the advantages demonstrated in the previous report, but also by having a different scope and approach to offer innovative and in-depth solutions to the question at hand.

3. Research justification

a. Theoretical framework

This section describes the various theoretical frameworks used to build and encompass the research carried out to create the report.

i. MLA

The multilevel analysis shows the institutional and economic dynamics of a food forest in the Netherlands and is divided into three levels: landscape, regime and niche. The landscape describes the external factors associated to food forests. Five factors were determined, namely value systems, environmental problems, climate change, water management and nitrogen and phosphate pollution. The regime was divided in four subchapters: the Dutch agricultural system, farmer profile, value distortion and the CAP. The niche had nine factors, amongst which were phosphate rights, the Green Deal and the green fund scheme.



Figure 1 Visualization of the multilevel analysis (Beers, 2018)

ii. Stakeholder analysis

The stakeholder analysis depicts the various stakeholders, both direct and indirect, that hold power, influence, or can gain from involvement in the Dutch food forest landscape. It categorizes stakeholders in three main categories: landowners, investors and service providers. Landowners are subcategorized according to whether they are public or private, and each stakeholder is analyzed according to what type of entity it is, the capacity it holds, its targets, what they expect in return, the opportunities they offer, and their scale and stage and orientation. The latter are important in forming the actor analysis (See: section 7.a.iii.). Landowners play a crucial role both in the start-up phase, where they allow one to find land to establish their project on, and during the scale-up phase, in order to expand the business. The following group of stakeholders analysis is the investors. They are the main part of the analysis and are subcategorized in four parts, conventional, alternative, subsidies and crowdfunding and CSA. The coding of each stakeholder within this category is similar to the one for landowners. These investors have different requirements and values and will therefore intervene in different ways at different moments and for different purposes, some looking for long-term monetary returns for example. Service providers are subcategorized in five parts: certification providers, networks, fund management, advice, design and inspiration and retail platforms. This category consists mainly of stakeholders that offer non-monetary support to food forests, that can still allow them to save costs (sourcing volunteers for example) or facilitate additional income sources.

iii. Actor analysis

The actor analysis serves as a visual depiction of where the various stakeholders lie in the food forestry landscape in terms of their possible input in funding or service provision. It allows the reader to determine the possible interactions and complementation of each stakeholder with the other players in the landscape, as well as with the potential food forest itself, and this throughout the food forest's developmental stages. The analysis depicts which values each stakeholder holds when providing input, whether their input is individually oriented, meaning that it has for goal to support the entrepreneur and/or sector's financial and economic growth, or for a socially oriented input, meaning that the goal is to enhance ecological factors and processes, or develop social movements within the landscape or region.

The analysis allows one to position their prospective food forest within these parameters, and visualize which stakeholders align within these parameters, thus responding most effectively to the food forest's needs and being most prone to investing.

The actor analysis was created from the stakeholder analysis. It essentially consists of a table indicating where each stakeholder belongs, regrouping them according to their scope and values. To make this classification, two factors were considered: scale and orientation. The scale factor was divided into two parts, namely large scale and small scale. This was determined from the empiric principle that a food forest larger than 2 hectares necessitates more than one labourer to manage, whereas one under 2 hectares can be. Small-scale therefore indicates that the stakeholder would be willing to intervene in projects under 2 hectares, and the large scale in projects above this size. The orientation factor is also separated in two parts, individual orientation and social orientation. The social orientation designates stakeholders that are willing to intervene in projects with social or goal, whilst the individual orientation designates stakeholders who are willing to intervene in projects that have profit generating, economic goals. Whilst food forests can have both goals to varying degrees, the table focuses on which predominates. Because stakeholders can cover multiple orientations and scales (for example large scale and social and large scale and individual), they can be recurring in different parts of the table, accordingly. The analysis also divides when the stakeholders can come into play according to two distinct timelines, the start-up phase, where the project is being launched, and the scale-up phase, where the project is already established and looking to expand. These two points in time are important as many stakeholders are not willing to intervene until there is an established income and business model present, and because the start-up phase is the most crucial in terms of sourcing capital and support.

iv. Scenarios

Four scenarios were drawn according to the four sections of the "Actor analysis" graphs. These sections were based on orientation (social or individual) and scales (large and small). Each scenario followed these formats in their values, design, revenue models, but also in which stakeholders were used to finance them. The scale of the food forest determined the workforce needed, cultivation techniques, business models, etc., whilst the orientation determined the values, activities, etc. Of course, these parameters are interlinked and are therefore influenced by both factors.

b. Methodology

i. Interview justification

Qualitative data was gathered, processed and analyzed through conduction of interviews and their coding in order to gain knowledge, back already obtained knowledge, diversify points of views on key factors and open new leads to possible finance ability tools. Due to the situation at hand with

the covid-19 crisis, interviews were conducted through different means, either in person, through digital meetings, or in written form. They were all conducted in semi-structured form, with key questions prepared and themes to discuss pre-determined, but with open ended questions and space for elaboration on points, to allow for as much information to be provided by the interviewee, as well as promoting different points of view and ideas. Direct and indirect stakeholders were interviewed, food forest entrepreneurs to demonstrate how they personally tackled the issues at hand, and for the knowledge they gained firsthand. Bank representative to provide positioning of their financial institutions on the matter at hand as well as providing professional insights on complex financial processes. Various other types of stakeholders were interviewed to cover the vast landscape of agroforestry (of which food forests are a part).

Some interviewees were interviewed more than once, since as the research progressed, more information was needed from them. The interviews had personalized questions depending on the stakeholder and their role within the landscape, but all contained an introduction of the project and an introduction of the stakeholder and their role within the landscape.

Note that due to the covid-19 crisis occurring during the research, many stakeholders were not available for interviews, greatly limiting the pool of interviews that were planned. In total, 12 stakeholders were interviewed, 7 food forest and agroforestry entrepreneur or experts, 2 bank representatives, 1 governmental representative (province) and 2 representatives of groups within the landscape.

ii. Coding

Interview coding:

The interviews obtained during this research were coded to provide adequate material for qualitative research (see appendix 2). Finding relations between texts and identifying which parts relate to each other provided a strong tool to analyze the data within the text. The transcripts were coded in a semi-structured manner using a custom coding scheme which was concept driven and based on the transformative business model. The coding categories were as follows:

- Value proposition
- Products & services
- Value chain
- Stakeholders
- Valuation
- Institutions
- Practices
- Discourses
- Risks/Mitigation of risks

Stakeholder coding:

The stakeholders analyzed as shown in the stakeholder analysis (see Appendix 1) were coded in order to efficiently define their orientations, targets, scale and stage, etc. This allowed for categorization in the actor analysis and to provide a clear and succinct non-exhaustive list of potential stakeholders categorized by type and subcategorized by functions. The analysis was coded in a semi-structured manner using a custom coding scheme based on relevant criteria. Depending on the type of stakeholder (landowners, investors, service providers), different codes were used, with overlaps.

4. Glossary

Annuity mortgage: entails having a fixed monthly amount with different ratios of interest and repayment. Repayment increases and interest decreases (this means about 1% increase in net monthly costs (Boer, Annuity mortgage, n.d.).

Best-in-class: under this financing strategy, companies are screened or assigned a score based on their ESG performance (Collins, n.d.).

Compound interest: the interest an investor earns on his original interest plus all the interest earned on the interest overtime. The longer an investment is, the more it will benefit from compounding (Investopedia, n.d.)

ESG Integration: it includes a standard investment analysis but all environmental, social, and governance (ESG) risks and opportunities are also considered. This strategy is common among equity investors who can only invest within a specific income space (PRI, 2018).

Impact Investing: Investments made into companies, funds and organizations with the intention to generate social and environmental impact alongside a financial return (Chen, 2019).

Linear mortgage: entails repaying the debt in equal parts over a certain period. Since the remaining debt decreases after each instalment, interest also decreases (about 1.5% to 2% per year). Overall, this is most advantageous but has higher initial costs than annuity (Boer, n.d.).

Liquidity: refers to how easily an asset, or security, can be transformed to cash, equivalent to its market value. To gauge a company's liquidity the quick ratio (acid-test ratio) is calculated by adding up the quick assets (cash, short-term investments, accounts receivable) by the sum of the current liabilities (Chen, Liquidity, 2020). Other method, is to add up the current assets then subtract the value of the inventory and divide that value by the sum of the current liabilities (Averkamp, 2020).

Negative screening: Financers avoids investments in projects that conflict with their SRI objectives which can be tailored to a climate-specific, environmental-specific or broader ESG approach depending from the vision of the financier (ROBECO, n.d.).

Repayment-free: entails having the amount repaid at once, from subsidy or sale for example. Customization is possible (e.g. no repayment in the first year) (Geld, n.a.).

Solvency: refers to the ability of a company to meet its long-term financial commitments. It looks at the relationship between debt and equity (Hayes, 2019).

5. Definition of food forests

In this report, the term food forest is used as an umbrella term to define a food producing system which benefits nature and biodiversity, following the main principles of food forestry, such as having a multi-layered system, no use of pesticides and fertilizers, etc. Some forms of agroforestry are considered food forests even though they do not include the 7 layers.

Producing food is central to food forests but it is possible that most of the values created derive from other functions or a combination of them: recreation, care, cosmetics, timber, NWFP (non woody forest products) and ecosystem services.

6. Multilevel analysis

a. Landscape

i. Value system

Businesses have invested heavily in keeping their product prices low to stay competitive. 'When price takes priority, people and nature are put in second place' (Johannes, 2019).

While most 'business-as-usual' stakeholders are used to think in terms of profitability only, there is increasing attention given to other forms of value. For example, the produced, natural, social and individual capitals have been used to characterize different types of food forest values in the "Food Forest Business Models" report (Puhe, van Leeuwen, & Doomen, 2019) .

Private companies, under the pressure of consumers, have been seeking to decrease their negative impacts on the environment and start projects to counteract these negative impacts. For example, by investing in sustainable practices, CO₂ compensation and education activities.

Activities that do not contribute to generating profit but aim at creating positive impact are often included in organizations' CSR reports. Some companies have even started to measure their impact as a marketing instrument. Various types of "True Cost Accounting" have been developed in recent years by analyzing different types of externalities of different supply chains and production systems. The different capitals are positioned from a monetary perspective, translating them into a common currency and measuring the performance of the organization against SDGs (FAO.org, 2017).

There is still no exact and shared system to measure sustainability even though some methods are emerging, such as the Life-cycle cost analysis (LCCA), the Natural Capital Protocol developed by the Natural Capital Coalition and the Agrifood Evaluation Framework for true-cost accounting developed by TEEB for Agriculture & Food (FAO, 2017).

ii. Climate change

From the year 2000 to 2010, the global agricultural industry and deforestation produced approximately 44 billion tons of CO₂, approximately 21% of all CO₂ emissions (Perrone, 2018). As the IPCC has declared, global warming is likely to increase to the critical limit of 1.5°C between 2030 and 2052 if global net anthropogenic CO₂ emissions continue at this rate (IPCC, 2018). Monocultures are mostly based on annual crops which have little to no carbon sequestration capacity in the long-term carbon cycle. Perennial plants such as trees and shrubs on the other hand contribute to the mitigation of climate change by sequestering carbon from the atmosphere and storing in in form of biomass and pumping it underground in form of exudates. A multi-layered landscape system based on trees and shrubs mixed to arable farming has multiple benefits, for example it can slow down winds leading to lower evaporation and soil erosion, shade crops and protect from sun radiation, increase biodiversity to promote a more natural pest management and allow for more water to infiltrate the soil (Favero, Daigneault, & Sohngen, 2020).

iii. Environmental problems

Agri-business is one of the driving forces behind the Dutch economy. The agricultural sector accounts for approximately 10% of the Dutch economy (Government of the Netherlands, n.d.). Given the high density of dairy cattle in the Netherlands, the phosphate and nitrogen contained in dairy cattle manure represent significant environmental concerns.

Agriculture is responsible for about two thirds of global nitrogen pollution. More than half of the nitrogen applied on fields washes in rivers. Because of the synthetic fertilizers from which conventional agriculture depends, nitrogen keeps leaching from soils and pouring into water ways, unleashing algal blooms and creating dead zones (Pearce, 2018). The nitrogen crisis has had a large environmental, economic and political impact on the Netherlands: 118 of 162 Dutch nature reserves have an average of 50% more nitrogen than their ecological risk thresholds. This, among other things, is contributing to the decline of insect and bird biodiversity. In May 2019, the Dutch high court suspended permits for the construction of nitrogen polluting projects such as the expansion of dairy, pig, and poultry farms (Stokstad, 2019). The impact of conventional agriculture is made evident by recent crises such as climate change and the nitrogen crisis. This has led some farmers, private and public sector to seek solutions into nature-inclusive, alternative farming systems and reforestation initiatives. With the "Actieplan Bos en Hout" the Dutch government is planning to create 100 000 ha of forests in the Netherlands (CBH, 2016). Even though the project is still at an early stage, it is expected that part of it can be achieved with the conversion of agricultural land into agroforestry systems and food forests.

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iv. Water management

Soils left exposed to the elements lose their organic matter into the atmosphere; the lack of vegetation and organic cover matter increases the temperature of the soils and leads to decreased ability to store water. Recent droughts in the Netherlands have proven to farmers that weather unpredictability and major climatic events produced by climate change can drastically reduce their yields and impact their livelihoods.

In the Netherlands, the various waterboards, as well as the Directorate-General for Public Works and Water Management (Rijkswaterstaat), are responsible for water management. They work together with provinces and municipalities to ensure volumes and quality of ground and surface water. Nowadays, artificial water pools are created to counter the effects of droughts and other expensive systems are employed to counter the effects of flooding. However, nature offers a cheap and simple solution that has worked to buffer the effects of high or low precipitations: soil organic matter. The porosity of humus can attract water particles and store them underground for long periods of time, with high soil organic matter and a good groundcover, a field can soak up water like a sponge and store it, saving it for drought periods (FAO, n.d.).

b. Regime

i. Dutch agricultural system

The Dutch agri-food sector accounts for about 20% of the country's export value, bringing €52.2 billion to the national GDP. 19 000 km² of land is dedicated to agriculture, with slightly more than half being arable land. Of this, only 3 650 km² are used in forestry. 75% of the agricultural land in the Netherlands is classified as being high input in terms of fertilizer and pesticide use, whereas the rest of Europe averages at 26% (Berkhout, 2019). This illustrates the issue with soil pollution the Netherlands are experiencing currently. Profit margins being so low in the Netherlands, the country struggles to remain competitive through innovation. The sector also dealing with high investments for small relative profits, there is a reluctance towards investment in the sector. Young farmers disposing of little to no initial investment capital when starting a business or taking over one, support is needed to carry out the necessary initial investments. Agriculture and horticulture account for 13% of GHG emissions. Bird populations in agricultural areas has dropped 70% in 30 years (European Commission, 2019). The trend towards fewer and larger agricultural land holdings is a symptom of the heavy capitalization of agriculture. Average farmers rely on low profit margins and are often indebted with banks. Their business models are based on efficiency and low labour cost volumes, as well as fast return on investment. Small and diversified farms cannot compete in the market unless more land is cultivated to create economies of scale.

ii. Farmer profile

The number of young farmers in the Netherlands is among the lowest in Europe (Paramitha, n.a.). Dutch farmers are on average more than 55 years old and in most cases are reluctant to deviate from the conventional farming model which they have pursued since a young age (Johannes, 2019). Most of their capital lies in their land, which is often used as pension funds, as they sell it approaching retirement (Spoor, 2017). This is a symptom accelerating the decrease in numbers of farm and increase in average farm size.

iii. Value distortion

Distribution of added value along the food supply chain is an indicator of the bargaining power existing along said chain. The distribution sector has a higher bargaining power in comparison to farmers (Matthews, 2015). This leads to extremely high marketing bills on consumer expenditure meaning that there is a large difference between the value of produce and the consumer price. Marketing bills represent the cost of all the goods and services required to assemble, transform, pack, transport, store and retail the product. This alone shows that the production of more convenient foods or the longer chains result in the increase of the marketing bill in consumer food prices. On the other hand, distribution channels do offer advantages, such as more guaranteed prices from distribution channels (push-marketing), which protects the farmer in moving his products, but does necessitate sales at a low margin. Short chain models work through a pull-marketing strategy. This presents more risks in moving the products but allows for better margins. Unless a shorter supply chain is established to allow for higher farmgate prices, farmers usually need to either find another income source, expand or cease their farming operations (Vermeer, Interview with John Vermeer, 2020).

iv. CAP

Dutch agricultural policy is driven by the EU's Common Agricultural Policy (CAP). Today the CAP accounts for around 40% of the EU budget which makes it a large part of the expenditure. Every farmer in the European Union receives an annual subsidy of € 260/ha if all environmental and sustainability requirements are met; this subsidy can be supplemented with €115/ha with greening premium and if farmers are under the age of 41 receive an additional financial support of €50/ha reaching €425/ha (Verwoerd & Marteiijn, 2019).

Support for rural development is one of the pillars of the CAP. The rural development program of 2014 to 2020 for the Netherlands allocated 1.69 billion euros towards rural buildout, having a strong focus on the environment. The program aimed at having 6% of agricultural land under contract to increase biodiversity and ameliorate soil and water quality. The program also aimed at developing innovation and sustainability in farming, as well as supporting farmers through insurances, trainings and cooperation projects (Europa, 2019).

In 2018, the European Commission published its proposals for a CAP for the 2021-2027 period which responds to problems such as climate change and generational renewal.

The member states will have far more freedom to design the interventions to deliver the objective for the new CAP (European Network for rural development, 2019).

Because of the foreseeable changes in the CAP, nature inclusive agriculture may expect to receive increased funding (Heijs, Stichting Voedselbosbouw, 2020).



Figure 2: CAP Objectives (European Commission, 2020)

c. Niche

Even though the powerful agricultural lobby coupled with the monumental economic power of the current system slows down and compartmentalises efforts greatly, governmental and private projects such as the Green Deal, Delta Plan and Herenboeren have been promoting the creation of sustainable, alternative farming methods by connecting stakeholders, removing barriers to entry, offering support and safety in sustainable enterprising.

The systemic problems linked to climate change, the nitrogen crisis, etc. offer good reason for a redesign of the current simplified food-system landscape into a more holistic one. With the help of political institutions, banks, foundations and funds, all aiming towards the direction of sustainability, food forests become more and more central to policies, visions and business models of this country.

i. Cap & Trade

The Cap & Trade system for CO2 emissions is one of the most successful tools for measuring and valuating pollution. Although it is currently in use only in the EU, within certain industries and it is still not fully effective in limiting CO2 due to different problematics, its concept is promising. The cap

on greenhouse gas emissions is the limit on pollution set by the government. Companies can buy and sell allowances that let them emit a certain amount. The cost of allowances gives companies an incentive to save money by cutting emissions. The idea is that CO₂ generating industries can buy carbon allowances from CO₂ sequestering industries. Different countries have different carbon credit systems (Ecochain, n.d.) and new private voluntary market systems are emerging as well. Private companies such as Green choice, a Dutch energy company, subsidize projects based on their size but do not apply a scientific methodology to measure their carbon sequestration. At the moment the transaction is based on trust between the company and the project (Gouw, 2020).

ii. Phosphate rights

In 2018, the Dutch government introduced a trading system for phosphate rights for dairy cattle in the Netherlands to improve water quality by limiting phosphate production from manure and promote a shift to land-based farming. In addition to the main environmental objectives, the system also provides support for young farmers and is intended to have a positive effect on grazing and grassland.

Dairy farms were awarded phosphate rights for free in accordance with the number of cattle that existed at that farm and will only be allowed to produce phosphate from dairy cattle manure corresponding to the phosphate production rights they hold. These phosphate rights are tradable therefore dairy farms can buy and sell them to other farms so that those deciding to de-intensify will receive an extra financial incentive for doing so (Schmidt, n.d.)

It should be noted that this phosphate right policy is very dependable on its' surrounding political climate. It is therefore uncertain what evolution this system will see in the future.

iii. Green deal

The Dutch government supports sustainable economic growth by stimulating sustainable innovation. Green Deals were created to push the implementation of sustainable initiatives by taking away existing barriers for the development of green projects. In the period between 2011 and 2014, 176 Green Deals were closed in the Netherlands.

A Green Deal is a mutual agreement under private law between a coalition of companies, civil society organizations and local and regional government. Its goals are to create an inventory of policies, legislations and regulations, to analyze them and solve potential bottlenecks. It also aims at combining pre-existing research and building communication lines for exchange with various parties in society.

The Green Deal approach is one element in a standard range of policy instruments. It is used to supplement existing instruments, such as legislation and regulation, market and financial incentives and measures to stimulate innovation. It gives government a more readily identifiable presence and the other players a clear point of contact (Green Deal, n.d.).

The Green Deal Food Forests (Voedselbossen) published its own definition of a food forest:

- A Food forest has a surface of at least 0.5 ha
- Canopy trees for food production are dominating and combined with other plants with at least three vegetation layers.
- No cultivation of annual vegetation and no cattle is permitted in the food forest area.
- No use of fertilizers nor animal manure is permitted in the food forest area (Greendeal, 2017).

By complying with the above-mentioned criteria, the farmer can apply for the CAP subsidy with a crop code designated exclusively for food forests.

When signing the Green Deal, the province of Brabant has agreed to temporarily relax existing rules that may hinder the sustainable development of the 100-hectare Wilhelminapark (Boxtel), the estate home to the first Herenboerderij in the Netherlands. The experiments with new land management will be carried out with broad scientific support. This could be the source of positive agricultural policies renewal. (Herenboeren, 2017)

Furthermore, the Green deal will create a methodology and a non-ETS Dutch marketplace for the exchange of carbon credits from a portfolio of projects (Jin, n.d.). The province of Noord Brabant is pioneering a project based on the carbon credit system regulated by the Green Deal for meadows, however, since different methodologies need to be developed to measure carbon sequestration of systems such as forestry and agroforestry, a carbon sequestration system for the latter is not yet receiving any institutional attention. (Gouw, 2020)

iv. Delta Plan

The Delta Plan has for objective to restore biodiversity through nature-inclusive land tenure. The plan is aiming at stimulating the development of business models for biodiversity recovery that involve a monetary or service contribution (other than higher prices for products) from different stakeholders based on the biodiversity performance of land users. A set of KPIs that measure performance of land users still needs to be developed but there are already many stakeholders that have agreed to contribute to the plan, while it is expected that others will join along the way. For example, Dutch supermarkets would make efforts to give biodiversity a more prominent place through quality labels, standards and certifications.

From 2021 onwards, Rabobank will reward farmers through a reduction in interest rates on new and existing loans. By 2021, the Stichting Natuur en Milieu (SNM) will adjust its land lease rules to promote biodiversity and will make it a condition in all new contracts that it signs. 25 administrative units of the SNM will perform audits and work with farmers to seek initiatives and opportunities in order to put the plan's objectives into practice.

Nature conservation organizations such as Natuurmonumenten will charge lower rental fees on nature-inclusive agricultural land leases.

Public authorities will provide tax instruments and subsidies and ease the processes for permits. (Samen Voor Biodiversiteit, 2018)

v. Biodiversiteitsmonitor

Biodiversiteitsmonitor is a partnership between Friesland Campina and Rabobank, with a goal to create a standardized tool making it possible to quantify biodiversity results (for example one KPI looks at percentage of nature and landscape, such as hedges, banks of ditches, field margins, thickets, over the total surface of nature and landscape elements,. This will reward dairy farmers through benefits given by supply chain partners (for example lower interest rates on loans) and by creating new revenue models for them.

To achieve this, a system is being developed to quantify efforts made by dairy farmers to improve biodiversity. The project is still in its infancy stage, but some prototypes are already running. (Laarhoven, Nijboer, Oerlemans, Piechocki, & Puimers, 2018).

Vi. Natuurnetwerk Nederland (NNN)

The Natuurnetwerk Nederland (NNN), previously EHS (ecologische hoofdstructuur) is a long-term vision of action taken by provinces. This project has for aim to connect existing nature conservation areas, areas where new wildlife habitats are being created, agricultural land under nature-friendly management, water bodies and Natura 2000 areas (breeding areas for protected species throughout the EU) (Government of the Netherlands, 2020). To achieve its aim, new nature land must be created to bridge the mentioned existing natural areas.

Many provinces are not ready to use the expropriation tool to gain access to land. Progress is limited in all provinces because land is not easy to acquire due to rising land prices and limited resources (Bastmeijer & Kreveld, 2019). However, the decline in value of the land (due to the change from agriculture to forest denomination) can be compensated by the SKNL subsidy (see subsidy paragraph), given that the food forest remains open to the public (Jans, Fennema, & van Eck, Voedselbosbouw en wet- en regelgeving, 2019).

The Province of Brabant is taking steps towards the connection of natural areas through the GOB (Groen Ontwikkelfonds Brabant) and subsidies. There are two different sections of the Nature Network of the province. One is referred to as the “dark green Nature Network”. In that area farming is not allowed. However, within the boundaries of the other section, called the “Ondernemend Natuurnetwerk” farmers can change the denomination of their agricultural land into "nature-agriculture" land where nature inclusive agriculture and food forests are allowed; for this, they receive a subsidy equal to 50% of the value of their land (about €40,000 per ha) and an additional 50% compensation (a maximum of €8,000 per project) of the total project costs. This financial aid also can be used if the land is not situated within the Nature Network (Vissers, 2020) (Vermeer, 2020).

Vii. Actieplan Duurzame Landbouw met Natuur

The Natuur en Milieufederatie Utrecht (NMU), Landschap Erfgoed Utrecht, Natuurmonumenten, Staatsbosbeheer, Utrechts Landschap, LTO Noord and the agricultural collectives in the province of Utrecht in collaboration with the province of Utrecht, water boards and local authorities are working on the reconnection of agriculture and nature, improvement of biodiversity and variety of landscapes.

Under this project, the province, waterboards and landscape organizations give agricultural land under (regional) conditions for biodiversity to farmers who (are going to) incorporate nature inclusive agriculture into their business operations. The province and waterboards provide money for concrete pilot projects in sustainable agriculture. Natuurmonumenten, Staatsbosbeheer and Utrechts Landschap develop new lease constructions in which nature inclusive farmers can receive discounts and nature inclusive trainings (Nationaal Groenfonds, n.d.).

Viii. Nieuwe Natuur

The province of Flevoland started the program Nieuwe Natuur. Entrepreneurs, residents, site management organizations and municipalities from Flevoland were asked to come up with plans for the creation of new nature. The connection between people and nature was an important theme. The Nieuwe Natuur program offers a scope for initiatives that promote the natural interweaving of functions and break through the previously drawn strict lines between agriculture, nature and buildings. From all submitted ideas, 22 project proposals emerged, covering 14 different locations in Flevoland. With the available budget and within the applicable frameworks, the province

wants to maximize the added value of nature for people. The program can provide money and land (Provincie Flavoland, n.d.).

ix. Green fund scheme

The green fund scheme is a unique method developed by the Dutch government for funding green projects. It consists of a tax incentive of 2.5% for individual investors who want to invest into green projects that have lower return on investment. Enterprises can benefit from low-cost funding to facilitate projects with low profitability that benefit the environment as they can pay an interest rate that is on average 1% lower than the market rate (RVO, n.d.). Green financing can be requested to banks by companies in possession of a Green Declaration (Groenverklaring). To receive this Green Declaration a request must be made from the bank (RVO, 2020).

7. Food forests in the Netherlands

The Dutch government aims at solidifying the concept of 'nature-inclusive' farming through policies that promote sustainable agricultural practices. Wageningen University also created a plan for the transition towards nature-inclusive farming (al, 2019).

A study suggested that key governance challenges need to be faced to transition to nature-inclusive farming (Runhaar, 2016): the schemes and other conservation measures need to become effective, nature conservation in agricultural policies and in agri-food chains needs to be mainstreamed and a shared meaning about nature-inclusive farming needs to be created.

On the other, the private sector has taken responsibility on the towards sustainable farming.

The number of farms that engage in direct selling has risen by 17%, in the period between 2008 and 2016, the number of CSAs has grown from less than 10 to over 90 farms in the period between 2019 and 2019 and the number of organic farms has increased by 14,6% in the period between 2013 and 2017. According to a Survey by Toekomstboeren, new farmers who engage in the nature inclusive practices are generally speaking relatively young and majority is female (54% are under 40 and 55% are women) (Veen, Berg, Roeters, Moel, & Geel, 2019).

Since labour costs in the Netherlands are amongst the highest in Europe, food forests seem entirely antithetical to the Dutch model.

It has been estimated that about 150 ha of land is dedicated to food forestry in the Netherlands, most of which is located in the provinces of Gelderland, Noord- Brabant, Noord-Holland and Flevoland. With plans of various organizations to build many more in the coming years, this number should see a rapid exponential increase (Heijs, Stichting Voedselbosbouw, 2020).

a. Regulations for the set up of a food forest in the Netherlands

An important aspect of the Dutch agricultural landscape is the high price of land. With agricultural land reaching around 80,000 euros per ha and nature land costing around 15,000 euros per ha, changing denomination from "agriculture" to "nature" to start a food forest produces a loss of value of the land equal to 65,000 of euros per ha, which constitutes an intrinsic barrier to entry for farmers interested in food forestry. In the Netherlands, the municipalities are responsible for creating their

municipal zoning plan (bestemmingsplan), a plan which contains a set of detailed rules on how a certain plot of land can be used (RVO, 2020).

Food forestry is a novel and different concept that can be implemented in many different ways. There is no set of legislation frameworks to fit its creation as food forests can have a focus on agriculture, nature, wood production, social cohesion, education, ecosystem services or a combination of those elements depending on the owner's objectives (Jans, Fennema, & van Eck, 2019). Directives of some municipalities' bestemmingsplan could say that if a farmer put more than a certain amount of trees on his land, this will need to be denominated as forest land, and it will not be allowed to cut trees in it without a permit. Some local governments allow "new nature denomination" trees to be cut down (Vermeer, 2020). Some municipalities, such as Oostwaard even added food forests to their zoning policy (Nalini, Itziar, Samson, Ting, & Muhammad, 2010). Thanks to the signature of the Green Deal and the acceptance of the Ketelbroek food forest as "agricultural land" in 2016 (Raabe, 2017), it is becoming easier to overcome zoning regulations of bestemmingplan.

There are many regulations which can impede the development of food forests. Trees cannot be planted in land with archaeological value as roots may damage artefacts for example. Some landscapes must remain open and no trees may be planted there. This is the case near to prevent floods. Some landscapes also must be left open to avoid predation of endangered meadow birds. If in accordance with local regulations, a food forest can be set up on agricultural land, leading to no devaluation in land prices. However, some food forests can be set up in forest land and nature land (Vermeer, 2020). The law 'natuurbescherming', set up in 2017, allows each province to determine the definition of nature in their respective areas, not only are there national and European regulations to follow, but also regional, provincial, municipal, etc. ones.

b. Case studies

i. Schijndel

Schijndel food forest is the largest production food forest in the Netherlands. It stands on 20 hectares of land. Schijndel complies with the green deal definition of food forest (Voedselbos Schijndel, n.d.). Schijndel food forest is a production food forest aimed at food production, but has various secondary goals such as recreation, subsistence, enhanced biodiversity and education. Schijndel operates as an agricultural business, it is not open for the public. Their business model shows that commercial development and use of large-scale food forests can lead to great added value both in economic and societal contexts (Voedselbosbouw.org, n.d.). Plants are planted in rows with spaces between. Alleys are used to allow efficient use of machines and to facilitate harvesting of crops. Schijndel grows a limited number of crops. Only 20 crops are grown per hectare to increase marketability and the efficient use of machinery.

Table 1: Financing structure of Schijndel (Puhe, van Leeuwen, & Doomen, 2019)

| Financial Stakeholders | Description |
|---------------------------|---|
| Province of North Brabant | The province of North Brabant supports the Schijndel food forest through the Natuurnetwerk Brabant. Since Schijndel is part of the nature areas of the Natuurnetwerk Netherlands, this makes it eligible to receive money from the Province. The province of North Brabant therefore contributed €40,000 per hectare. |

| | |
|------------------------------------|---|
| Stichting Voedselbosbouw Nederland | Since VBNL are the co-founders of Schijndel, their main investment in the food forest is the time they spend running the food forest. This is valued at €200,000. |
| Groen Ontwikkelfonds Brabant (GOB) | In partnership with VBNL, GOB is an investor in the food forest. It was agreed upon that GOB would invest in the planting material and the earth moving. GOB invested €315,000 in the first year of production. Furthermore, it is leasing land to VBNL for a period of 20 years. |
| CAP | Because Schijndel operates like an agriculture business, this makes it eligible to getting agriculture subsidies (Daniel, n.d.). Farmers receive direct income support in form of subsidies based on the specificities of the CAP. To receive the subsidies of the CAP for a food forest, the farmer needs to produce in accordance to the green deal, be active and have payment rights. |
| ZLTO/LTO | ZLTO is an association of over 13,000 farmers and horticulturalists in Zeeland, Noord-Brabant and Zuid-Gelderland. In collaboration with other economic sectors, they invest in innovative projects. ZLTO not only provides financial aid but also has a good insight into the various subsidy programs. |
| VITAM | Vitam is a catering company in the business, hospitals, universities and government sectors. Vitam is Schijndel's main client. At Schijndel a design for a public "trial food forest" of 1 hectare is being made and this is sponsored by VITAM. |

ii. Koepel Plan Voedselbossen

The umbrella plan for food forests is a social initiative of the Stichting Agroforestry Zuid Nederland, the Brabantse Milieufederatie and various Brabant organizations and governments. Within the koepel plan, 6 food forest locations have been plotted equating to a total of 9.3 ha in total. The food forests are Snoertseplak, Liessel (2 ha), Valley of the Beerze, Oirschot (1 ha), De Pullen Ekerschot, Oirschot (0.6 ha), The Heische Hoeve, Loosbroek (0.5 ha), Loonse Bos, Helvoirt (3 ha) and Brabant wall (2.2 ha). The koepel plan includes production, nature and social food forests. The plan mainly focuses on biodiversity and soil and water management. The koepel plan aims to sustainably manage soils, increase the ecological value of the area and reduce pressure on water management by increasing water storage capacity of the soil. By creating healthy soil containing more organic matter, the soil will have better rootability, higher water retention capacity, allow less leaching and CO₂ binding will be enhanced. Furthermore, by jointly promoting "nature village agriculture", these food forests meet the needs of residents for local, healthy and tasty food, strengthening biodiversity and high-quality cultural landscapes in Brabant (Koepelplan voedselbossen, 2018).

Table 2: Financing structure of Koepel Plan Voedselbossen (Koepelplan voedselbossen, 2018)

| Financial Stakeholders | Description |
|--|---|
| Agroforestry Zuid Nederland | The foundation hired the bureau of the Brabantse Milieu Federatie to implement and manage the project. |
| Brabantse Milieu federatie | The BMF has set itself the goal of realizing at least 70 ha of food forests in Brabant in the coming years. BMF plans on planting 1 million trees. |
| Waterschap De Dommel, Aa and Maas, Brabantse Delta | These water boards have agreed to participate in this project. They contribute knowledge and are particularly interested in the water storage capacity of food forests, water quality improvement, reduction of mineral leaching and improvement of the soil. The Waterschap De Dommel signed the national Green Deal Voedselbossen on November 23, 2017. |

| | |
|-------------------------------------|---|
| Landcoöperatie Dal van de Beerze | The landcooperatie Dal van de Beerze wants to build 1 ha of food forest on its valley of the Breese in Oirschot. |
| Village councils and neighbourhoods | These help with the construction and management of the food forest in their own neighborhood. |
| Den Food Bosch | Den Food Bosch (in collaboration with Water Board de Dommel and Landgoed Bleijendijk) has built a food forest on a Volmeer plot next to the estate. W. van Eck, expert in the field of food forests, is also involved in this initiative. |

iii. EcoVredeGaard

EcovredeGaard is a social food forest that started in 2009. It is in the province of Gelderland in the city of Nijmegen. The park Lingezege where it is located offers plenty of opportunities for recreation, agriculture, nature, culture and water. EcoVrede is a social food forest. It is not only committed to preserving nature but also on the social well being of people in its surrounding. The EcoVrede food forest was developed on the foundation of showing society a better natural way of living. EcoVrede combines agriculture, nature education, biodiversity and social goals.

EcoVredeGaard is a non-profit food forest. This means that their financial landscape is almost non-existent. Most of the funding for EcoVredeGaard comes from the park Lingezege and the province of Gelderland.

c. Cultivation systems

i. Alley cropping

Perennial crops such as those grown in a food forest require a fungi-based soil and cannot grow together annual crops, which require a bacteria-based soil. When ploughed, the hyphal network is broken down, organic matter is oxidized, and soil is compacted. This impedes the development of a food forest and means that use of annuals is avoided. In fact, the Green Deal prevents the use of annuals in their food forest. However, agroforestry design of alley cropping is considered part of this research. Alley cropping often means combining annuals as companion crop to perennial trees. Many farmers in fact would rather plant tree lines in between their fields instead of completely changing their production system altogether. Trees are planted in between annual crop corridors that are the width of tractor implements or multiples of it. This allows for ease of harvest and possibility of mechanisation. Transitioning large scale farms arguably need these efficiency measures to contain operating costs of management and harvesting of mixed systems (Heijs, Stichting Voedselbosbouw, 2020).

Research shows that there are 24% more natural enemies and 25% fewer pest species when using alley cropping. Microclimate creation can stop wind damage and increase yield of some crops (sugar beets, beans, carrots, grains, alfalfa and grass) but the yield of the main crop can be 30% lower close to the tree line (yield is impacted up to a distance of about 1.6 times the tree height) (Schoutsen, 2019).

Agroforestry is eligible for the CAP and it defined as agricultural plots (with permanent crops what takes at least five year to complete and it regularly yield a harvest) with landscape elements and trees. Although, there are two criteria to comply with: “agricultural activities can be carried out in a manner comparable to agricultural activities on parcels without trees in the same area” and “the

number of trees per hectare does not exceed a certain maximum density". Currently the second criteria (Article 9, 3rd paragraph of EU Regulation No. 640/2014) only applies if the trees are not harvested regularly, in that case the maximum density is 50 trees per hectare (Oosterhof, 2020).

The used crop codes for such a system must reflect on the ongoing cultivation. However, until the cultivation system is not mature enough to produce substantial yield from the perennial crops, the main crop code can be used for arable land or permanent grassland (Oosterhof, 2020).

ii. Rational Food forest

A rational food forest aims to maximize productivity and efficiency of processes and activities within it, whilst following the guidelines of the Green Deal for food forests, so having a minimum of 3 layers, no animals within the grounds, no cultivation of annuals, etc. Many of the aspects of other agroforestry systems such as ally cropping can be found in a rational food forest, since they lead to more efficient harvest, possibility to use machinery, and other processes. Crops will be more uniform for example, and there will be a reduced diversity of varieties to optimize harvests. This type of food forest is especially used for larger food forests, where there is a need for optimization to be able to be profitable (Groot & Veen, 2017).

iii. Recreational food forest

Recreational food forests are designed to monetize educational, leisure and wellness activities. This shapes the food forest differently than a production oriented one. Designs are optimized for tours and plant density can be lower to leave space to infrastructure and open areas. Focus is on quality and variety rather than quantity and efficiency. Recreational food forests focus on the social capital and may be part of CSA farms or municipal projects.

iv. Food forest garden

Food forest gardens can be considered the more classical types of food forests, similar to those where this type of agriculture is traditional, in parts of the world such as the tropics, India, Sri Lanka, etc. These types of food forests tend to have a higher density of plants, have a strong multi-layered system and have a high count of natural processes and biodiversity. These forests are not optimized for cultivation, in terms of pruning and harvest for example. They tend to not be organized like rational ones. These food forests are the ones where permaculture principles would apply most (Groot & Veen, 2017). Forest gardens are generally relatively operating on a small scale by hobbyists and regulations of the Green Deal are not necessarily prioritized.

d. Business models

i. Direct sales (B2C)

Direct sales are perhaps the most straightforward type of revenue model for small scale farmers. This model provides multiple benefits for farmers exploiting smaller sized farms, with a large range of products to offer. Firstly, it means that the farmer can increase their profit on each product, since costs such as logistics, transport, marketing, etc. are reduced or removed. Direct sales mean the removal of middlemen such as supermarkets, etc. which would otherwise take a cut of the profit made on the product. It is important to note however that direct sales do mean more hours put in by the farm for each product (EDSA, 2019). Direct sales offer a great marketing tool for small scaled

businesses, especially in the farm to table styled businesses, where connection from the consumer to the producer is critical.

AMAP (association supporting local farmers)

AMAPs are French models similar to community supported agriculture, but with different models possible. For example, the La Ruche Qui Dit Oui system that operates in over 700 locations in France, where different local farmers cooperate to organize regular markets, for which consumers, who are also members of this association, preorder their groceries beforehand. This ensures a direct farm to table system, reduces waste (only exact quantities brought to market), and establishes a strong connection between farmers, and with their client base (LRQDO, 2020)

ii. Restaurant sales

Restaurant sales particularly benefit farmers producing niche products, as is often the case with food forests. These products offer advantageous sales prices since they are difficult to source, providing more price decision power to the producer. A minimum of 10% increase in prices can be charged to mainstream restaurants for common produce, and this number is much higher for niche products and higher end restaurants. Furthermore, restaurant sales can offer steady market throughout the production season, when there is an established connection between a producer and restaurant (Gibson, 1994).

Examples of restaurants which source directly from food forests in the Netherlands are De nieuwe winkel (Nijmegen), DeZusters (Maarssen), Héron (Utrecht) and Jacks Foodbar (Den Bosch). Restaurants purchasing products from food forest usually fall in the higher end category (luxurious and top restaurants). Sourcing from food forests offers a unique selling point, offering customers sustainable and transparent food experiences.

iii. B2B

Business to business describes transactions from one company to another. In the case of food forests, this could be from the farmer to a retailer, a wholesaler, a processing company or even a restaurant. Sales to wholesalers or to processing companies will occur more often with larger food forests, who can produce enough to meet the demands of their clients. Smaller food forests can also benefit from business to business sales, for example by selling to local organic shops, having chefs from restaurants come on site to pick what they need, or selling their produce to an artisanal processing company (cans, jams, etc.).

Food forest Schijndel supplies the catering company Vitam with produce from its food forest. Vitam is caters for companies, schools, etc. They hold strong values in sustainability and vitality and want those values to translate through their food. The chefs therefore source their ingredients from producers with values aligning to theirs. The logistics between the food forest and Vitam is efficient, with collection points designated for the products, to cut down on transport times.

iv. Community Supported Agriculture (CSA)

One of the ways to overcome the financing barrier to entry of small farms is through Community Supported Agriculture (CSA). CSAs are a contract between farmers and consumers where the

consumers pay a fee in advance to receive a portion of the harvest throughout the year. They are organizations where consumers and producers share resources and goals. For the producer this means giving up part of their right of decision to the consumer, in exchange for financial security and reduction in production costs. (Paramitha, n.a.).

The partnership between farmers and consumers involve the sharing of risks in yields and property and decision rights (CSA, 2019). There are different types of CSAs:

Producer led CSA

The farm provides a share of its production, the consumer pays a subscription for it.

De Ommuurde Tuin

De Ommuurde Tuin is an organic vegetable garden in Gelderland. It operates on one hectare of rented land. They have a vegetable box sales system, a shop, rentable space and events. The CSA system in this farm is based on customers paying in advance for a season. In exchange they receive regular vegetable boxes throughout the season. The

Community led CSA

A community assembles to own a farm, operations are often led by volunteers. Production can be shared between the community or sold on behalf of the association.

Community owned farms

Farming enterprise owned by the community, but produce is not necessarily shared with said community, instead, the produce can be sold to outside consumers, the income generated is then usually reinvested in the farm.

Herenboeren

The Herenboerderij is the first community supported agriculture in the Netherlands. It is a cooperative owned by 200 families. They make decisions over what will be produced by the farm. They employ a farmer to conduct operations. To take part in the cooperative, the members payed an entrance fee of 2000 euros, and then pay contributions regularly (about 10 euros per week). They receive fresh food from their farm in return. The farm is situated in Boxtel. Farms there are declining in numbers, and there is an interest to revive farm buildings. Effort is placed in preserving traditional rural areas there (Herenboeren, n.a.).

V. Cooperatives

Farmers can join peers to ensure they receive sufficient margins and returns. Farmers can benefit from each other's resources such as land, tools, knowledge and customer base; establish agreements on prices and combine harvests.

Agricultural service cooperative can be divided into two categories: supply cooperatives, and marketing cooperatives. The former refers to cooperatives where inputs for production are shared, such as seeds, fuel, fertilizers. The latter refers to cooperatives where things such as logistics, packaging and marketing are shared (Cobia, 1989).

8. Costs and revenues of food forests

Food forest systems are regarded as highly sustainable and present evident benefits to the environment and community. The economic aspect is of critical importance for finance. This chapter analyzes the average expenses to depict the magnitude of effort required by the different stakeholders and investors mobilized.

Only a small proportion of food forests in the Netherlands are beginning to become productive. Many others have been planted in the recent past but there is a lack of data on the revenue side of food forest balance sheets.

The size of investment needed and time frame for revenues is a strong barrier to entry for entrepreneurs. Fruit and nut trees take time before producing. Cherry, hazelnuts, pears and apples can take at least 5 years while chestnut, pecan and walnut at least 10 years, but their production will increase overtime. The investment therefore should take in consideration a long-term ROI but large compound interest. Whilst the trees are not in production, a farmer can already choose to receive CAP subsidies or farm annual crops. Other revenue models and financing mechanisms are possible and will be listed and exemplified in the next chapters of this report.

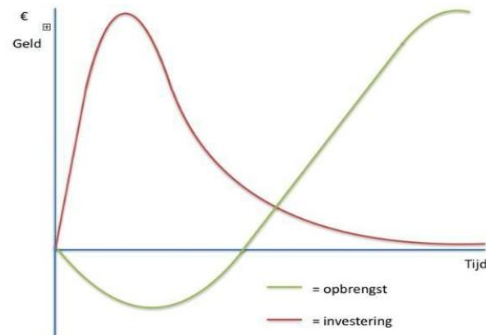


Figure 3: Graph showing the costs and revenues of a food forest over time.

a. Costs

i. Fixed costs

The start up stage of the food forest is where most of the costs are contracted. Costs include purchasing land, earth works (designing land & development plan), purchasing and planting plant materials.

Most food forest farmers plant all the layers at the same time to reduce energy input, however the rate at which these layers develop is different. (Burtner, 2014).

Land

The acquisition of land to start up a food forest differs per entrepreneur. Some farmers can decide to buy land while others, in order to reduce start-up costs, simply rent the land. Since the establishment of the green deal, food forests count as an agricultural system. However, because of their nature enhancing properties, they can be established on nature land as well. The value of land differs per province. The cost of nature land in the Netherlands is around €15 000/ha while agriculture land costs around €80 000/ha.

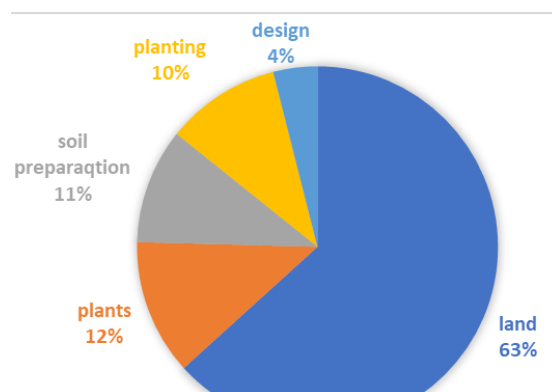


Figure 4: Comparison of the total costs incurred in the early phase of the food forest.

Soil preparation and design

Soil preparation depends on initial land conditions, desired food forest outcome and availability of finance and equipment. Some food forests are established on dry land, where earth moving activities are not as essential as on lower, wetter land. For example, food forests included in the koepelplan have no costs related to soil preparation or earth moving (Vermeer, 2020).

The costs associated with earth moving, expansion of water features and construction of paths can vary from source to source from €30 000/ha (including design) (Nature and Environment Federation Flevoland (NMFF) Embergy, 2014) to as little as €3 200 /ha (VBNL, 2018). These costs can be reduced by collaborating with the local waterboard. The cost of outsourcing and renting tools for clearing the land from forest vegetation can be estimated to about €6 000 for a small to medium sized food forest (ISM Cornelissen, 2019).

Design

The designing process entails consultation with the farmer/community to understand their requirements, drawing up the initial sketch, a detailed elaboration of specific list of tree species needed with exact position on the land and budget. Designing is usually done by a professional. This has an average cost of € 5 000 per plot (Koepelplan voedselbossen, 2018).

When constructing a larger food forest or an agroforestry system, the species density will be lower, as will the design costs per unit.

Planting materials.

When purchasing planting materials, one must choose specific varieties that favorably grow under the specific biotic and abiotic conditions on and around the site, have an optimal disease resistance and have specific gustative qualities. Based on a recent planting budget from Den Food Bosch, the amount of money required to buy planting material was estimated at €20 056/ha. (Koepelplan voedselbossen, 2018). At the Welna food forest, the cost of planting material was estimated to be €8 000/ha (VBNL, 2018) and at food forest Emmeloord it was estimated at €18 000/ha (ISM Cornelissen, 2019).

The costs associated with the delivery of the planting materials to the planting location must be considered as well, especially for rare planting stock. The costs of planting materials differ in a more natural and less productive type of food forest where trees can be planted from cuttings and less productive varieties are needed.

Labor

Labor includes sowing, planting and tillage. The cost of planting is estimated to be on average € 17 545/ha based on the budget of Den Food Bosch. The labor costs of planting a natural food forest differ too, they are of € 8470 (Koepelplan voedselbossen, 2018). At Food Forest Emmeloord it was estimated that about 252 hours/ha were needed (ISM Cornelissen, 2019).

ii. Variable costs

Labour

According to some estimates, a food forest of 1.7 ha (Eet Meerbosch) required about 250 hours for harvesting. (Burhomistrenko, 2020). Other work includes pruning, inspection and maintenance. An estimated annual cost for maintenance was estimated at €400/ha (VBNL, 2018). In Schijndel, the costs for planting were calculated at €3 000/ha from year 5, €6 000/ha from year 10, and €7 200/ha from year 15 onwards (Puhe, van Leeuwen, & Doomen, 2019).

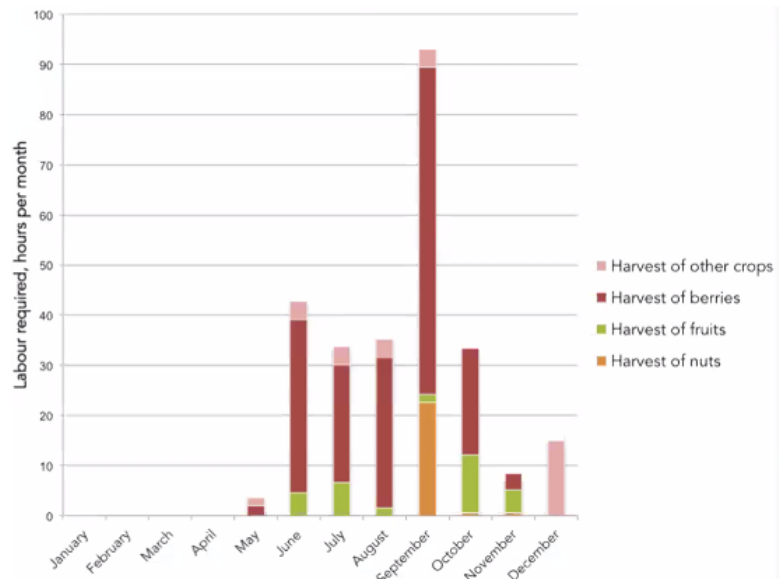


Figure 5: Labor analysis of harvest of Eet Meerbosch (projected)

Replanting

Although the design of a food forest can be considered permanent, sometimes plants need to be replaced. Replanting is necessary if the crop dies or if it does not grow or produce as vigorously anymore. Furthermore, plants should be replaced when they reach the end of their lifecycle. In order to have steady yields, these should be replaced several years before their end of life. Another reason to change crops could be a change in business model or finding varieties with higher yields.

Organization and Administration

According to the calculations of the Welna food forest, expenses for organization and administration amount to €640 per year in the first 5 years and double afterwards. Marketing costs amount to another €650 per year. The material costs budget is €2 500 per year (VBNL, 2018). In Schijndel, the organization and logistics costs were calculated to be less than €480/ha per year until year 15, increasing to 1 600/ha from year 20 (Puhe, van Leeuwen, & Doomen, 2019).

b. Revenues

Calculations from Welna estate predicted that from year 6 of production the balance becomes positive at €5 685/ha per year and can increase to €18 041/ha by year 13 (VBNL, 2018). The projections of revenues for Schijndel predicted that from year 10 the revenues of the food forest would amount to €7 151, increasing to €12 471 in year 15 and to €14 816 in year 20 (Puhe, van Leeuwen, & Doomen, 2019).

9. Revenue sources (internal funding)

In the early phase of a food forest, there are little to no revenues unless the food forest is based on forest land. In that case sales from partial harvest of timber can be used to cover part of the investment costs involved in the design and construction of the food forest.

Revenue from a food forest is usually coming from the sale of fruit, nut and berries through different revenue models.

a. Carbon sequestration

Compared to annual crops, which do not contribute to carbon sequestration in the long carbon cycle, agroforestry systems in temperate climates can capture 7 tons/ha of carbon from the atmosphere each year. According to John Vermeer, the potential for food forests is somewhere between 8-12 tons/ha. Some sources claim 25.6 tons /ha per year (Heijs, Stichting Voedselbosbouw, 2020), while other studies determined that the potential reaches 60.9 tons of carbon/ha per year

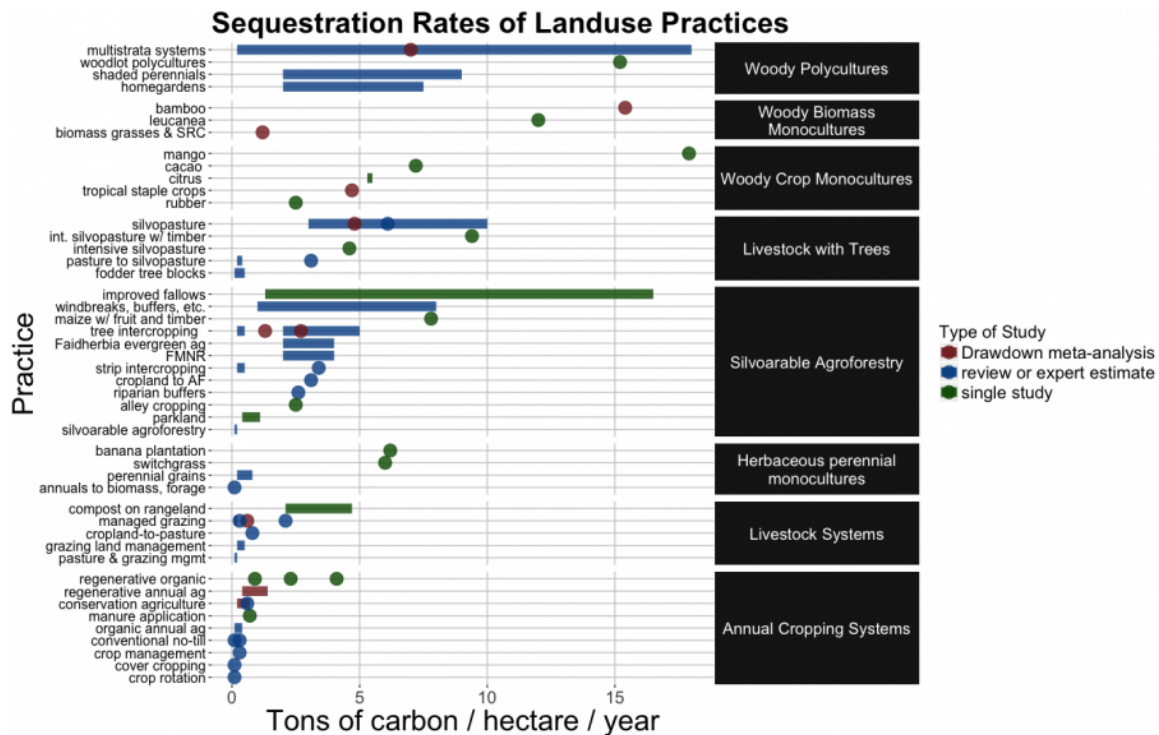


Figure 6: Carbon sequestration rates of land use practices (Ferguson)

(Udawatta, 2011).

A metadata analysis determined that the sequestration rate of multi strata woody polycultures (food forests) is the highest among all different land uses (Ferguson). The Dutch government has set measures linked to the EU Emissions Trading System (ETS) which fixed a minimum carbon price of €12.30 per ton in 2020, increasing to €31.90 per ton in 2030 (Government of the Netherlands, 2019). The yearly profit per hectare from carbon credits would therefore be as high as €749.07 in 2020, according to the most optimistic calculations. To give examples of CO₂ sequestration in the soil, two examples of established food forests are given: Food forest Ketelbroek (Netherlands), which grew from 4.5% to 7.3% organic matter in less than 10 years and Martin Crawford’s food forest in Devon (England), which grew from 7% to 13.6% in 18 years (Heijs, Stichting Voedselbosbouw, 2020).

b. Water retention

Food forests offer excellent water retaining properties, due to the high organic matter content of their soils, and the rich biotic and abiotic processes occurring within the soil (Koepelplan voedselbossen, n.d.). There is a need for water storage and management in the Netherlands, which is managed by the various waterboards.

A study has shown that as a rule of thumb, a 1% addition of organic matter to the soil can retain about 20 000 gallons per acre (187 m³ water per hectare) (Bhadha, 2017).

In heavy rain showers a soil rich in organic matter will be able to store enormous amounts of water; in the event of a long drought, the suspended water in the soil will mitigate effects efficiently. If a typical SOM content of a food forest is 12% (NMFF, DWEL, & FFN, 2014). In comparison, Dutch cropland SOM 1.1% (Conijn & Lesschen, 2015). This is an increase of 10.9%, corresponding to 2038 m³ of water stored per ha.

Water storage of 1 m³ of water costs the waterboards around €70 (Vermeer, 2020). Therefore, the water retention value of a food forest would be around €142 660 per ha.

c. Recreation and education

Food forests offer various aspects that create educational value in terms of nutritional, ecological, social and scientific education. They also are excellent tools for community building and inter-generational exchanges. Food forests by definition contain wide varieties and species of plants, be it trees, herbs, vegetables, berries, self-sowing annuals, etc. This allows for demonstration of nutritional principles. It also allows for education on health and food processing/production. The complex ecosystems created within food forests themselves allow for showcasing of ecological processes. This is coupled with education on soil and water interactions, biodiversity, etc. Food forests often have social goals that are at the forefront of their mission. These social goals can be connecting urban citizens to nature, empowering communities economically and socially, etc. (OUSD, n.a.).

Food forests can create revenue by arranging day events and culinary tours. These tours yield a relatively substantial income. In addition to this, income can also be generated from rental of space in the food forest for events such as cooking workshops provided by third parties.

The revenue from the cooking workshop of the gastronomy model is estimated to €2400/ha/year provided 24 cook workshops are organised each at €100. Botanical gastronomy guided tours generate an average of 3600/ha/year if a minimum of 10 individuals join a tour each paying €60. Due to the tours and cooking workshops, this model incurs more labour costs regarding organization and administration, marketing & Sales and material costs. Material costs include printing, refreshments and cooking facilities; set items have been included for this. In this model from year 6, apart from visitors who can harvest picking baskets no further food harvests from the Biodiversity food forest can be harvested since frequent harvesting activities are against the desired natural values. Because of this, no labour costs of food harvests are considered (VBNL, 2018)

d. Annual crops

Because of the time taken before most perennial crops and trees start producing, use of annual crops to have yields in the first years of a food forest is a promising outlook, but does contain some limiting factors. Annual crops bring in fast returns and are cheaper than perennials (in terms of initial costs). Annuals can also be self-seeding, which aligns more to food forest and permaculture values, they also allow the farmer to change cultivation in terms of demand, climactic conditions, etc. (Dyer, 2019).

However, annuals also present some obstacles in the context of food forests. Firstly, they do not align with the current Dutch green deal concerning food forests, which specifically states that a food forest can only be composed of perennials and/or woody plants. Secondly, some argue that

production of annual crops in the same area as perennials is detrimental to the soil conditions of the perennial crops, as annuals tend to rely on microbial life in the soil, whereas perennials rely more on mycorrhizal life (Heijs, Stichting Voedselbosbouw, 2020).

A practical solution to this would be to reserve part of the land separate of the food forest, and use it for cultivation of annual crops until the food forest becomes productive, and then either keep the space for annual production or integrate it to the food forest by planting perennials.

e. Planting stock

Food forests tend to contain unusual or uncommon plant species compared to the agricultural landscape in which they stand. This means that the species found within these forests hold quite a high value and are in high demand within the niche they correspond to. This makes propagation of these species as planting stock an ideal income model for food forest entrepreneurs. Not only does it supplement the income of the food forest, but it also creates revenue generating activities for the winter months, which usually see a decline in income. Using the food forest as a tree and plant nursery is an efficient way to maximize income from the existing species present, through activities such as cloning and grafting, and also promotes the biodiversity of the food forest by increasing the number of plants in the food forest at any given time. These planting stocks can be sold to private individuals, for gardens and personal use, but can also be sold to other food forest entrepreneurs, and even to local bodies such as municipalities or foundations, etc.

Food forests are ideal environments for the cultivation of organic planting stock. The high biodiversity and ecological processes mean that the young seedlings or cuttings are protected from pests and diseases due to the pre occurring processes taking place. Furthermore, planting stock production being not very space consuming, it can easily be integrated amongst the productive crops (FAO, 2010).

f. Medicinal herbs and wellness facilities

Combining food producing crops and other crops is an efficient way of diversifying production without altering the processes occurring within the food forest (pruning, harvest, etc.). Medicinal herbs are a type of product that aligns well with food forests. Their quality to the consumer is greatly improved by being organic, there are many perennial medicinal plants, and many have positive impacts on pests and diseases resistance (Máthé, 2015).

These plants can be processed in many different ways, be it for aromatherapy, massage oils, teas, essential oils, dried herbs, blends, creams, etc. This offers a high variety and versatility in products the food forest can offer.

Food forests often have other revenue models within their grounds (camping, workshops, etc.). Having a wellness facility on site which uses the plants from the forest and allows clients to find wellness from the nature surrounding them could be a successful business model for a food forest (Hilbers, 2020).

g. Care for people with integration need

The use of agriculture in healthcare has been a proven practice to help both farmers and people in the healthcare community. The therapy occurring by providing interaction with plants and animals allows for profitable business for the farmer. Disadvantaged people offer free or cheaper labor for the farmer, and in exchange receive benefits from getting this contact with nature. Programs

subsidizing this can even create income generation for the farmer. Furthermore, this offers many societal benefits to society as a whole. Not only people with disabilities can benefit from this, but other groups such as refugees have also shown to benefit from this practice. Food forests are an ideal setting for such exchanges to take place, as they provide a rich environment in terms of nature, values and adaptable work patterns (Knox, 2015).

h. Non-timber forest products (NTFP)

Trees in food forests can offer more than timber and edible or medicinal produce as incomes to the farmer. Products such as poles and canes, tying materials, basketry materials, dye plants, soap plants and sap products can all be derived from food producing trees, or trees planted solely for the production of those products. These products also benefit from having a long to indefinite shelf life, meaning that they are safe products to produce, rather than being dependent on demand.

Finance

10. Green and Sustainable finance

Companies and the investment community are actively aligning their business models with the 2030 Agenda for Sustainable Development. New financial instruments, such as green and social bonds, are being introduced. However, considering the urgency of achieving these goals, the Deputy Secretary-General of the UN has announced that the financing gap is of \$2.5 trillion per year (United Nations, 2019).

Small and medium enterprises (SMEs) contribute to employment, growth and social cohesion and are a key driver of innovation for sustainable development. The UN Environment Program claims that to accelerate the sustainability transition, the financial needs of SMEs must be considered. The main barriers linked to insufficient green finance include:

- Lack of data on the sustainable financing needs of SMEs among financial institutions.
- Incomplete integration of environmental performance into the risk assessment of investors.
- Limited set of sustainable financing products aimed at specific life cycle stage (such as early-stage) or at specific opportunities (such as nature-inclusive agriculture).
- Lack of diversity of financial institutions offering long-term capital to SMEs.
- Lack of technical capacity and financial literacy regarding sustainability related investments.

(United Nations Environment Programme, 2017)

Possible channels of green financing for food forests are public financial institutions, banking, impact investing, and fintech

Public Financial Institutions (PFIs)

A set of measures have been implemented to support access to finance for green SME in the EU. The public sector should pioneer striving for green financing to incentivize the private sector into transitioning to green economic models. Parts of this public sector are national central banks, as well as the European Central Bank. Since the European Central Bank is bound to the Paris agreements, as was confirmed by a 2018 European parliamentary report, their investment policies should reflect this. Whilst this is arguably not the case yet, various parties concerned are pushing for the European central bank, as well as national central banks, to start changing their policies and facilitating green entrepreneurship (PositiveMoney, n.d.).

Banking

Banks are increasingly committed to sustainability. However, response to specific finance needs of SMEs is usually low (United Nations Environment Programme, 2017). Banks objective is not to make risky investments in unpredictable new and small ventures but some frontrunners, pushed by their SCR are expanding their area of investment in nature inclusive and conservation agriculture.

Impact Investing

Investments for sustainable enterprises often use traditional private equity and venture capital financing models. There are two types of impact investing: specialized cleantech funds focusing on start-up providing environmental goods and services and impact-focused environmental funds which invest in a wider range of companies (United Nations Environment Programme, 2017). This impact is measured using qualitative information, metrics defined by the investors and more and more often IRIS-aligned metrics (Abhilash Mudaliar, Bass, & Dithrich, 2017). IRIS+ is the generally accepted system for measuring, managing, and optimizing impact.

Fintech

Fintech (financial technology) provides other finance solutions than the traditional financial methods. Applications such as crowdfunding, learning algorithms and smart contracts can lower the risks, reduce transaction burden, and lower the costs of investing (United Nations Environment Programme, 2017).

11. Stages of investment

a. Start-up

The start-up phase designates the creation of the food forest. It consists of the first few years in which capital is sourced, the land is prepared, trees planted, etc. It is the phase that needs the most investment whilst being the phase that is the most difficult to source funding for. It contains high risks, high costs and little to no return. This phase necessitates a high amount of labor to get the business running, and creative financial solutions to generate income (workshops, tours, etc.). After the start-up phase the business is running, the income is stable (or stabilizing), and there are little to no more inputs necessary.

b. Scale-up

After the food forest has started to show its profitability, new financing opportunities arise. Entrepreneurs can then choose to scale-up to increase their profitability. There are three options to achieve higher value from production:

- Increasing scale (buying adjacent land to produce more volume)
- Start processing to add value to the production (e.g. drying the fruits and processing the nuts to make muesli)
- Adding new revenue models and expanding the portfolio of the food forest (e.g. bed and breakfast)

12. Financing instruments for a food forest (external funding)

| | | | Stage | |
|-----------|---------------------|----------------------|-------|----------|
| | | | Early | Scale up |
| Funding | Equity Finance | Angel investors | x | |
| | | Crowdfunding | x | |
| | | Venture capitals | x | x |
| | Debt finance | Small business loans | x | x |
| | | Bridge loans | x | |
| | | Soft loans | x | |
| | | Commercial mortgages | | x |
| | Mezzanine Financing | | x | |
| | Grants | | x | |
| | Volunteering | | x | |
| Subsidies | | x | x | |

Figure 7: Type of funding according to its stage.

a. Equity finance

In start-ups, seed funds are meant to kickstart a business. They usually consist of a small amount of capital that is used for setting up the business for prototypes, market research, etc. Seed funds are used to establish the foundations of the business. Usually this capital has to be sourced from close networks (personal, family, angel investors, etc.).

Start-up funds are the first funding sought once the business is set up. It allows for the product to be launched, acquire more inventory, etc. The sourcing of this capital is usually the same as for seed funds. Investors may or may not want to have decision rights or take part in the management of the company.

Early stage funds usually occur once the business has been operating for a year or two and business is increasing. These funds are meant to increase sales, productivity and efficiency. At this stage, funds will more probably be coming from venture capitalists. Expansion funds are meant to grow one's business, through marketing for example. They can allow one to enter new markets. Late stage funds are meant for well established, profitable businesses. Late-stage funding may be used to develop or launch a new product or to support a significant business expansion. Again, venture capitalists provide this type of funding due to the amount required (LegalVision, 2019).

i. Venture Capital

Venture Capital is financing given to start-up companies and small businesses that do not have access to bank loans and that are seen as having potential for growth and high rates of returns. Venture capital firms take on the risk of investing in 50% or less of the equity of the companies. In exchange for the risk, they expect on average return is 25% on the investment if the company delivers on its potential and may or may not require partial ownership of the company (Johnston, n.d.). This start-up money from venture capitalists can give new businesses the means to become eligible for investment banking services (Investopedia, n.d.)

ii. Private investment

Private investment from friends or family is a common type of equity finance which is very accessible and cheap but personal relationships with lender or business partner may be put at risk.

Angel investors wealthy individuals or groups who invest their personal funds into high return on investment or high social or environmental impact of the project. They are experienced investors who considers more risk-taking projects than many institutional investors but expect an internal rate of return of 10%-20% (Huwylar, Käppeli, Serafimova, Swanson, & Tobin, 2014). Wealthy investors will typically look for early stages of projects such as pre-start-ups or start-ups, where banks would be more reticent to invest (Leeuwen, Interview with Benjamin van Leeuwen, 2020). Their average investment tends to be large, ranging from €50,000 to €750,000. They often provide support to the project they invest in, offering expertise, experience and use of their personal network. They seek returns in form of loans or through ownership equity.

iii. Crowdfunding

Crowdfunding entails sourcing small quantities of capital from a large pool of investors to finance a business or project. This usually occurs through social media or crowdfunding platforms online. It has the big advantage of greatly expanding the pool of potential investors beyond the traditional ones (Smith, 2019).

b. Debt finance

Debt finance designates capital borrowed to be reimbursed with interest at a future date. It could be in the form of either a secured or unsecured loan, bonds, bank loans, leasing and any other forms of debt finance.

The conditions requested by the lender will depend on the requested type of credit and bank. The financing can be long-term or short-term. In general, the longer the term, the higher the interest will be.

A loan can be secured and unsecured by collaterals or guarantees. Unsecured loans have higher associated risk and a higher interest rate. When a loan is secured by collateral, if the due amount is not paid by the agreed term, collateral can be seized by the lender.

Individuals who own their own homes or real estate can borrow against that equity as collateral. If they still have to finishing paying a mortgage on that asset, they can borrow up to what they have paid already for that asset. If the asset increases or decreases in value, they can borrow that amount. The loan-to-value ratio is around 70-75% meaning that the borrowed amount corresponds to 70-75% of the value of the property (Money Super Market, n.d.).

With fixed rates (determined by “Interest Rate Swap”), the interest costs are fixed for an agreed period of time that can be shorter than the term of the loan. Variable rates (calculated on the basis of the market rate and a surcharge) usually have a smaller annual percentage rate (APR) than fixed rates, the interest expenses can rise or fall sharply in a short time (Triodos Bank, 2020).

On top of the interest rate which can vary according to the type of loan, a risk premium is determined by the bank (1% to 7% of the loan) by examining the debtor’s experience with entrepreneurship, type of market, objective for the credit, how much personal money the debtor

can contribute and how big his equity is, how much financial space the debtor has after interest and how many repayments have been paid (Triodos Bank, 2020).

i. Small Business Loans

Small business loans are typically sought by people setting up new businesses or expanding established ones. If a company hasn't been active for long, lenders may see this as a sign of high-risk and request personal guarantees from the owner meaning that the business owner's or business owner's relative's personal assets could be used as collateral. Such loans usually have a term between 5 and 25 years. Interest rates are sometimes negotiable (Investopedia, n.d.).

ii. Bridge loans

A bridge loan (is a short-term loan) can cover the financing of a project permanently or until the next stage of financing is obtained. Money from the next financier can be used to close out the bridge loan (United Nations Environment Programme, 2017).

iii. Peer-to-peer lending (crowdlending)

This method is similar to receiving bank loans, as the organizer has to repay the loan on a regular plan. However, in this method the loans are provided by a group of investors (Lunn, 2018).

iv. Soft loans

Soft loans and green credit lines extended by public finance institutions may include advantageous financial conditions, such as lower interest rates, longer maturity, grace periods or different amortization schedules intended to ease repayment (Shishlov, Bajohr, Deheza, & Cochran, 2017). The Dutch government supports new enterprises with a range of subsidies and incentive schemes. Through the innovation credit facility the Ministry of Economic Affairs and Climate Policy financially supports SMEs in risky innovation projects (RVO, Innovation credit, n.d.). Under the Decree on Assistance to the Self-Employed (Besluit bijstandverlening zelfstandigen, Bbz) municipalities can also offer loans, credits or low-income supplements to new entrepreneurs (RVO, n.d.).

v. Commercial mortgages

Larger active companies may require larger capital than small businesses, but lenders will need security in order to reduce the risk taken. Interest rate on commercial mortgages are higher compared to regular home mortgages as these are considered higher-risk to lenders, however they are lower compared to regular business loans as these require property as collateral (Money Super Market, n.d.).

vi. Mezzanine financing

Mezzanine financing is a form of financing that combines debt and equity financing. The lender makes a loan and requires a share of ownership of the company as security. This form of financing is considered as equity on the balance sheet by accountants. This gives companies a lower debt to equity ratio, which can help attract further investors, since a low debt to equity ratio is usually an indication of less risk (Carlson, 2019). Mezzanine loans have relatively high interest rates and flexible repayment terms (Pritchard, 2019).

c. Grants

Donations, charity, sponsorship and funds offer capital or support which require no legal debt.

External parties, such as foundations, associations, agricultural goods suppliers, nurseries, but also PFIs like the EU can sponsor an entrepreneur by providing guidance, goods, or financial support. In exchange, there is often mention of the sponsorship, for example on the website of the project or with a plaque on location.

Fundraising consists of sourcing capital through voluntary donations by private entities, governmental bodies, charities, businesses, etc. Fundraising can be organized through events, donor-relationship and cultivation (where donors are usually arranged depending on the frequency and quantities donated, and are approached and managed accordingly), capital campaigns (where a campaign is created to raise funds to achieve a certain goal, for example acquiring land) and accountable fundraising (showing the donors what is happening with their donations. For example, Grootouders voor het Klimaat created a model for their crowdfunding where each donor was given a symbolic share of the food forest they invested in, in form of a part of the land being dedicated to them).

The partners:



Made possible by:



Figure 8: Partners of Voedselbos Zeewolde as shown on their website (Zeewolde, n.d.)

d. Subsidies

There are various subsidies issued by the European, national and provincial government to finance initiatives and solve issues at different scales and with different focusses. Subsidies linked to food forestry are often associated with nature development, leisure, rural development and innovation.

i. European subsidies

The European Investment Bank (EIB) provides equity (investment) debts, intermediated loans and guarantees (credit enhancements aiming at improving the credit risk profile of businesses) (EIB, 2020). The most relevant funds in the context of food forests are the European Agricultural Guarantee Fund which finances the CAP and the European Agricultural Fund for Rural Development (EAFRD) which is intended to finance rural development programs.

The subsidies granted by the European Union are usually intended as co-financing. Meaning that EU member states have to pay at least 50 percent of the costs themselves and the rest is paid by the EU (of the RDP budget in the Netherlands funding € 1.69 billion for the 7-year period 2014-2020, only 825 million were from the EU) (European Commission, 2019).

The EAFRD's goals are to increase the competitiveness of agriculture and forestry, improving environmental management, as well as the social and economic living conditions in rural areas (Europa Nu, n.d.). EAFRD funding goes into different programs. RDP and LEADER programs are delegated to the member states and regions within them: countries create and implement national Rural Development Programs (RDPs) which are partially funded through the EAFRD and focus on national priorities. The RDP priority focus for the Netherlands in the period 2014-2020 regards the

restoration, preservation and enhancement of ecosystems related to agriculture (European Commission, n.d.).

LEADER is a “bottom up” approach, bringing together different local stakeholders to form local action groups (LAGs) who, together, create their own local development strategies, on the basis of which they manage their own respective budgets (European Commission, n.d.).



Figure 9: LEADER logo

In some cases, European grants are provided directly to beneficiaries. For example, through the EAFRD, financial instruments such as loans, microcredits, guarantees and equities are made available to companies and NGOs who work in agriculture, forestry and rural areas who are undertaking sustainable and financially viable projects (European Commission, n.d.).

LIFE is a European Union financial instrument for the protection of the environment that provides subsidies to innovative projects focusing on biodiversity conservation and awareness creation (Europa Nu, n.d.). The program provides grants for pilot and demonstration projects to develop and test management approaches. Projects can receive a co-funding of up to 55% (European Commission, n.d.)

ii. National subsidies

The Dutch subsidy system aims to benefit the public interest. The government sets the amount covered by subsidies, so they only cover part of the full cost. The remaining amount must be provided by the applicant (can be through co-financing). Subsidies can be cumulated but there are limitations to this. Subsidies awarded plus any other subsidies added to this cannot exceed the maximum amount set by the subsidy scheme. For example, if a subsidy covering 50% of costs is granted to a project with €800,000 of eligible costs, €400,000 would therefore be granted. However, if a provincial subsidy was already awarded for €100,000, then the subsidy amount would be reduced to €300,000. There are exceptions to this rule, which can be inquired about with the subsidy scheme. Tax incentive schemes are not considered subsidies and therefore do not count towards cumulation. Stacking of subsidies can also be prevented, which can mean the refusal of the requested subsidy. The subsidy scheme often contains an exclusion provision for this. This is mainly aiming at preventing that different subsidies are granted by the same governing body for the same project costs. A subsidy is refused if a governing body (same or other) has granted a subsidy for the same project through a different subsidy scheme. The subsidies or bodies excluded from this are determined by the subsidy scheme and can be inquired about (RVO, n.d.). The RVO monitors and categorizes the governmental subsidies (Daalen, 2011).

SNL is a subsidy granted to agricultural collectives who develop their agricultural land according to certain guidelines aimed at conservation of biodiversity, landscapes and nature reserves (Jans, Fennema, & van Eck, 2019). SKNL is a subsidy that can provide funds to cover the change of land denomination if the land is within the Nature Network. It can otherwise fund projects aiming to improve the quality of existing nature or landscape management (Kwaliteitsimpuls natuur en landschap, 2020).

The boerderijeducatie subsidy is granted to agricultural enterprises which provide education to school groups.

The loonkostensubsidie is a subsidy issued when people with disabilities are hired. The program compensates the difference between an employee's productivity and the minimum wage.

iii. Regional subsidies

There is a great variety of programs and subsidies sponsored by Dutch provinces which promote food forestry, nature development and rural development. These vary from province to province; the regulations and application mechanisms can vary even for the same type of subsidy. An example of regional subsidy by the province of Noord Brabant is the Subsidieregeling Groen Blauw Stimuleringskader (STIKA) which finances tree planting across private and agricultural land.

Provinces can provide subsidies linked to nature enhancing initiatives such as the Nature Networks to help farmers become more sustainable and promote nature development within the region. For example, the subsidy "verplaatsing landbouwbedrijfsgebouwen voor Gelders Natuurnetwerk" allows on to relocate their farm buildings, in order to create space for a Natura 2000 area or the Gelders Nature Network. Another subsidy with similar aims is the "grond in bezit krijgen voor het Gelders Natuurnetwerk" which helps one transform land into a nature area.

e. Volunteering

Volunteering is an established form of cashflow finance used to lower the costs of planting, one of the largest costs when setting up food forests. Volunteers can provide free labour on the farm in exchange for an experience, knowledge, community building, etc. Due to the large educational potential of food forests, and their popularity at the moment, finding volunteers and offering them value for their work does not represent a challenging task. However, this strategy finds a place in social oriented food forests, where the benefits generated are redistributed to the community.

Volunteers investing time and energy are able to connect better with the project and may want to contribute with personal fund or may want to take more responsibilities at later stages of development. Volunteering can also create a more stable consumer base and better integration and exchange of knowledge with the local community. Collaborating with existing citizen groups, local associations, schools, scouting clubs etc. can help gather a solid volunteer base.

A few things need to be organized when organizing volunteer planting days: social media events, parking, training and arrangement of tasks to volunteers by experts and designers, food and beverages.

Volunteering is a useful financing tool for food forest entrepreneurs. One of the largest costs when setting up food forests is labour costs; to prepare the land, plant trees or harvest for example. Substituting these costs by having volunteers come work on the farm in exchange for an experience, knowledge, community building, etc. is a strong financial tactic for a farmer to use. Due to the large educational potential of food forests, and their popularity now, finding volunteers and offering them value for their work does not represent a challenging task. Furthermore, there are more and more associations, foundations, etc. that can help gather and organise volunteers for planting days, harvest, etc.

13. Land acquisition

Previously, the Dutch law set a maximum lease price and a minimum duration for freehold lease arrangements as well as an automatic extension of the lease period. This offered considerable benefits to the lessee but was less attractive to the lessor. Today, due to changes in regulations, the land market is fully liberalized: lease contracts became increasingly shorter-term, making land more

easily available but leaving farmers far more exposed and making it harder to invest and develop a long-term business plan. Credit loans and mortgages use land as collateral therefore the financial system is deeply interlinked with land prices and consequently with farming. Because of its commoditization and liberalization, land was a safe way to accumulate capital, leading to a surge in in prices due to speculations. Control over land became concentrated among a minority of successful farmers and investors (such as ASR). This made it nearly impossible for new entrants and poorer farmers to access new land. For farmers, the issue is not only land access but also security of tenure: when city councils change the bestemmingsplan or when tensions rise between a farmer and the landowner, the farmer often must leave that same year. In a survey undertaken by Toekomstboeren, only 13% of new farmers own land, 15% have a multi-annual lease contract and 72% have a contract of less than a year or no contract at all (Veen, Berg, Roeters, Moel, & Geel, 2019).

a. Purchase

Ownership of land offers the best opportunity to start a food forest. One must still adhere to regulations but has more freedom of choice. For a long-term project such as a food forest, responsibility ownership or co-ownership could be a guarantee of success. In Noord Brabant, the province can contribute by granting a subsidy equivalent to 50% of the land value to sustainable farmers that are settled in the vicinity of nature areas.

Kavelruil

The provinces of Utrecht, Gelderland, Zeeland and Flevoland work with nature-inclusive lot exchanges. Farmers who are willing to develop nature on 1 hectare of land are given the right to buy 2 hectares of new land and to receive a subsidy for function change contribution (functieveranderingsbijdrage) from the province. Low interest loans from Nationaal Groenfonds can be used to cover the purchasing costs not covered by the provincial subsidy (Nationaal Groenfonds, n.d.)

b. Lease (Pacht)

About 25% of agricultural land is leased in the Netherlands. The lease is established by personal agreement that binds the two parties (lessor and lessee) for a preliminary defined period (Retallack, 2020). Leasing is heavily regulated by the civil code with 96 articles present (Overwater, 2017). Furthermore, the maximum price for leasing agricultural land is defined annually per region by the government (Netherlands Enterprise Agency, 2020). The lease agreement provides only personal right over the land. Therefore, during this time the lessee has no right to swap the contract nor the land or to possess the land as his equity. Subsequently, no mortgage can be set on the land by the lessee. Annual lease payments must be recorded in a notarial deed and entered in the public registers (Overwater, 2017).

Province and municipalities have vast amounts of land which is leased to farmers (usually to store manure) for a cost of around €600 to €700 per hectare). However, the term of the lease can go up to 26 years with this kind of contracts, making them unsuitable for food forests since trees would become problematic when ownership and possibly denomination are modified at the end of the term (Gouw, 2020).

c. Leasehold (Erfpacht)

In the Netherlands, there are two types of ground ownership: freehold (eigen grond) and leasehold (erfpacht). Currently, approximately 2%-3% of agricultural land is regularly used through a leasehold (Overwater, 2017). A leasehold is a business right and is therefore linked to immovable property. A leasehold only has 16 articles in the Dutch Civil Code and therefore has a large degree of freedom of contract. Agricultural leaseholds are usually concluded for a specific period. Regular tenancy is linked to the practice of commercial agriculture by the tenant with the right to substitute a successor in a family context.

Because the leasehold is a business right, a leaseholder can encumber the leasehold with a mortgage and sell it to third parties (Weeren, 2020).

d. Rent

Renting land is a good option when the entrepreneur does not have the possibility to purchase land. Since a large investment is put in the land when creating a food forest (planting trees, etc.), it would be advantageous to have the possibility to buy the land at some point after production has started and the first revenues are visible. With a good business plan and other co-financers, it would be possible to receive a loan from a bank to buy the rented land.

Renting out to someone planting trees is not a risk for the landowners because the value of the land would increase with productive trees on it. (Heijs, Stichting Voedselbosbouw, 2020). Before signing the contract, it should be discussed with the owner if there is a buying option for the rented land in the future and what the terms for the returning of the land are (since the food forest will appreciate in value over time).

Land can be leased or rented from public (province, municipalities) or private entities (landscape managers, waterboards, etc.) with special agreements for specific use of the land that benefits nature (e.g. no use fertilizers and pesticides). Many organizations offer discounts on the lease for land when sustainable practices are taken up (Kapteijns, 2020).

14. Strategies for attracting investors

In order to invest, stakeholders often need to see a combination of good profitability of the business plan, equity of the borrower and co-investment from crowdfunding and/or a bank (Meter, Nationaal Groenfonds, 2020).

There are different ways to mobilize capital from a stakeholder, especially for initiatives that benefit the environment and the community by providing food, biodiversity, education and recreation. In this section, strategies that can be used by entrepreneurs are depicted.

a. Co-financing

Multiple financiers can agree to lend together under the same documentation and security packages but they can charge different interest rates, repayment profiles and terms (United Nations Environment Programme, 2017).

Co-financing for subsidies

Voedselbos Emmeloord got a co-financing from the municipality of Noordoostpolder, as a co-financing for the LEADER subsidy. The food forest presented goals that fell in line with the goals of the municipality, such as removing diseased trees in the area. After getting a positive response from the LAG (advice committee of LEADER in Flevoland), the proposal to separate financing in the following way was made: 30% from hours of volunteers, 30% from LEADER, 30% co-financing from the municipality and 10% from crowdfunding and local associations (Gemeente Noordoostpolder, 2019).

b. Government guarantee schemes

By guaranteeing part of the loan the government agrees to pay back the bank in case the borrower is unable to repay the loan due to unforeseen circumstances (e.g. bankruptcy), therefore lowering the risk of banks affiliated with the scheme. Through the credit guarantee scheme (BMKB), the government can offer loans and stands as a guarantor of 67.5% of bank loans to start-up companies less than 3 years old which lack sufficient collateral to receive a loan from a commercial bank (RVO, n.d.).

The Credit Guarantee Scheme for Agriculture or Meedoen als landbouwer (BL and BL plus) Vermogensversterkend Krediet (VVK) are financing schemes from the national government aimed at starting farmer entrepreneurs who want to invest in (sustainable) agricultural businesses. For these the government offers loans through affiliated banks, up to 2.5 million, with commissions as low as 1%, repayment up to 12 years and it guarantees up to 90% of the loans (RVO, n.d.).

c. Crowdfunding

Crowd funding consists of raising funds through private donors, usually consisting of small quantities of money from large groups of people. Crowdfunding tends to bring between €20,000 and €200,000 in income. As its popularity raises nationally and internationally, many platforms are being created to support this method (Smith, Crowdfunding, 2019). Several methods apply to the food forest model, combinations are possible:

- Donation-based: Investors do not expect any return
- Equity-based: Investors receive a small piece of equity in the company
- Rewards-based: Organizer offers a reward (service, object, etc.) in exchange for donations

(Gofundme, n.a.)

Crowdfunding is not a direct alternative to subsidies, loans or other traditional forms of financing. "With crowdfunding you often only solve part of the financial puzzle. The value is more in the support that you test or create with it. The crowdfunding campaign often generates a lot of publicity; the project is repeatedly brought to the attention, via conversations, information and publications in media. This makes it a project of the (local) society, people commit themselves to the goal and contribute to it, and not just financially." (Scholtz, n.a.). For projects such as food forests, where funders would often be motivated by ethical standpoints or beliefs, providing a symbolic exchange to the funder, such as naming a planted tree after them, etc. is an efficient way to make the campaign attractive to the public (Sligter, Interview with Vita Sligter, 2020).

Farmfunding

Farmfunding occurs between a specific agricultural business and private parties willing to support the business. It is a form of crowdfunding where the private parties have a connection with the farm through their funding. They will receive agricultural returns on their investment.

At Eyckenstein farm individuals can choose an amount to lend and a term for the loan (5, 10 or 20 years). By the end of the selected term, the loan will be reimbursed. There is an interest payment on the loan that can be received in different ways, selected by the private party. These are as follow:

- 0% interest, where the loan is given without wanting interest
- 1% in cash
- 2% in vouchers for the farm shop

(Eyckenstein, 2020)

d. Bundling mechanisms

Large insurance companies, banks and other large finance institutions seem to be taking steps towards investing in conservation and regenerative projects. For some stakeholders however, the investment costs of small food forests are too large. Often times it is easier to create umbrella plans by unifying individual business plans of similar projects. Large investors will have their management cost reduced and the funds can be redistributed among the single project in accordance to their proportion of size and impact.

e. Sound business plan

The application to financing requires a sound business plan which includes (Meter, Nationaal Groenfonds, 2020):

- Quantified impact deriving from the financing of the lender (e.g. hectares of new nature developed, saving in CO₂, etc.).
- Investment plan (what will be bought in total)
- Financial plan (what part of the investment will be paid with own money/third parties/subsidies and what part will be financed by the lender to which the application is done).
- Expected term.
- Repayment: The type of repayment should be predetermined. There are three main types; linear, annuity or repayment-free (see glossary).
- Timeline: When should repayments occur needs to be discussed beforehand, as well as where they should go (notary, etc.).
- Profitability (recent annual figures or forecast of the future situation, showing that the interest and repayment can be generated by the food forest). A substantiation from an accountant can be useful.
- Security: Lenders expect security for their loans by means of collateral. Often, they demand collateral having a value that is higher than the demanded amount. However, if the risk profile is low enough, the collateral can reflect this by being lower. Collateral often takes form of a first mortgage on buildings, which tend to have stable value.

- Information of the applicant (sole proprietorship, VOF, BV, foundation, etc.): copy ID of owners / board members, Chamber of Commerce registration and articles of association

f. Pergola model

The pergola model is a design feature made to maximize the involvement of future managers and users of food forests. It is based on the co-creation between the professional designers and food forest users. The former consciously leave room for further interpretation and elaboration by the latter. In this way, future administrators and users can be given the opportunity, for example in the context of an intensive design course, to design part of the food forest within the framework of the main design, of course under professional supervision (NMFF, DWEL, & FFN, 2014).

g. Financial projections

Cashflow is the ultimate measure of how the business is doing; for investors, this is a vital indicator for analyzing the risk of investment. Before potential investors will consider putting funds into any business, they will want to see a positive cashflow projection, from which they can estimate return on investment (ROI) (Ball, 2018). The net income is another fundamental metric used to determine whether to invest in a company. With the net income, investors look past revenue figures and look at the revenue the entrepreneur is retaining (i.e. how much profit is being made) (Marketbeat, 2019). When starting a food forest net income data is not present one entrepreneur can use existing food forests production models and revenues. One should also keep in mind that an investment from a conventional bank (Rabobank in this example) requires the solvency of the company to be around 35% liquidity with a current ratio around 1.5 (Leeuwen, Interview with Benjamin van Leeuwen, 2020).

15. Investment in food forests

A high-risk investment usually means that there can either be a large percentage chance that an enterprise will not earn the expected return, or that there can be a relatively high chance of a large loss of capital. In the case of food forests, the high-risk investment means that there are no successful models yet that can assure the profitability of such systems.

Business as usual is based on linear thinking that does not conceive the complexities of biological systems. Taking agriculture as an example, monocultures of annuals (arable crops) and perennials (orchards) both have a predictable yield and revenues after an established amount of time. In a food forest, all the yields and revenue predictions are based on polyculture systems in other parts of the world. Until there are quantified numbers for food forest production, conventional investors will consider food forests "risky".

The themes of sustainability and social impact are important for many actors in the food supply chain and in government. Some are starting to put aside economic returns and start to seek economic externalities. Some stakeholders, pushed by company corporate social responsibility or by intrinsic desire to do good, are ready to start investing in these obscure enterprises, others await to see profitability and require strict guarantees in order to make economically safe investments. For those seeking out high risk investments for their portfolios, food forests and agroforestry systems can be an opportunity to improve the landscapes and biodiversity in their home country, contributing to the transition towards a more integrated, sustainable and resilient agriculture.

Despite the unpredictability due to the lack of existing models running for more than 10 years, many business model's predictions expect to generate large amount of revenues from around year 20 onwards. A large compound interest can arise from the increased tree productivity, increased biodiversity, increased quality of the timber and increased organic matter and soil fertility. For some investors, food forests present low risks because land prices are stable and rising, and woodlands are increasing in value (Vermeer, 2020).

16. Stakeholder categories involved in food forests

a. Funds

Funds are usually associated with investors such as business angels and venture capitalists, but can also be associated with governmental bodies, NGOs and foundation. Sourcing capital from funds may or may not require the entrepreneur to provide economic return to the fund. Stakeholders can set up funds in order to achieve specific goals, it could be for social purposes such as increasing gender equality, improving citizens health through better food production, or for ecological purposes such as nature conservation or restoration.

b. Venture Capitals

Venture capital companies use the fund to invest in companies that they deem will become profitable. A venture capital fund is used for high-risk investments for companies with innovation. In the Netherlands, investments range from around 200,000€, to several millions, with an average of one to three million euros. In exchange they can demand partial ownership of the company or a certain quota of the profits generated (Netherlands Chamber of Commerce Financing Desk, 2020)

c. Institutional investors

Institutional investors can be insurance companies, banks, pension funds or other institutions that invest on behalf of others. They typically have long-term investment horizons and look for regular, stable returns. As much as they qualify for sustainable financing, mobilising financial sectors especially private sectors to invest in food forests requires extra effort since food forests become economically feasible in the long run. Private companies invest responsibly while preserving their liquidity, because of this, it is important to learn the different Social Responsibility Investment strategies: negative screening, best in class, ESG integration and impact investing (NGFS, 2019).

They can contribute with direct equity, bond investments and funds. Their investments can also consist in infrastructure or real estate, but this is usually associated with a cost for these riskier, harder to trade assets (illiquidity premium). (Huwyler, Käppeli, Serafimova, Swanson, & Tobin, 2014). To achieve the climate targets set in the Paris Agreement chairmen of banks and pension funds agreed to join forces to create a different structure in the financing landscape to solve the bottlenecks of financing sustainable by investing in smaller, private and innovative (Nationaal Groenfonds, 2017)

i. Pension Funds

Pension funds look for a low risk, steady return on investment which does not necessarily need to be short term. Investments in food forests are well suited for pension funds but have not occurred yet in the Netherlands. In recent years, some board members have shown interest in such collaborations (Vermeer, 2020).

ii. Banks

With relatively high land prices and slow returns on investment, banks are reluctant to provide loans for projects linked to nature restoration. They would rather finance conventional agricultural enterprises, employing known business plans as these are considered low risk with low returns investments. However, they may co-finance a food forest in certain circumstances: if a food forest enterprise shows profitable figures for at least 3 years and/or if enough collateral is available, banks can step in to finance a scale up of the pre-established company. High repayments are demanded as risk perception increases (Leeuwen, Interview with Benjamin van Leeuwen, 2020).

There are some banks such as ASN, Triodos and Nationaal Groenfonds specifically investing in nature, social projects and enterprises. Some projects (Green fund scheme) and guarantee schemes from the government mentioned under the “soft loans” chapter are accessible to some commercial banks.

iii. Insurance companies

Insurance companies are also very present in the commercial lending market, providing long-term, fixed rate mortgage loans. Providing mortgage loans is a part of insurance companies investment portfolios which are well established in their strategies (Davis, 2018).

d. Angel investors

Angel investors are high and ultra-high net worth (HNW / UHNW) individuals (holding bankable assets greater than US\$ 1 million) who dedicate substantial amounts of their wealth to good causes. They can be individuals, networks or funds (resources pooled together to act as a single investor). Accountants, banks, networks around the project and investor networks all are efficient ways to find the right business angel for a certain project or business. The Amsterdam Capital Week provides a network for start-ups to develop through financing (Business.gov.nl, 2020).

e. Private companies

Investing in natural and social projects can be a way of increasing the companies’ corporate social responsibility. Some companies may invest in food forests to offset their CO2 footprint. A tangible example of this is the different voluntary carbon credit systems developed by Greenchoice and Trees4All.

f. Foundations

Foundations typically have a philanthropic approach to finance. They demand for strict requirements but expect little or no interests. They intend to support virtuous start-up companies, foundations and projects which align with the donor objectives. Foundations have little financial risk, as they do not seek profit, but demand that the investments objectives be quantified and met (Belastingdienst, n.a.).

g. Credit unions

A credit union is a financial cooperative. The members all own and direct the cooperative in order to provide financial support and affordable rate credits to one another. The system works according to a one-member, one vote method. Credit unions are non-profit institutions. This means that when there is a surplus in earnings, the excess is used to reduce loan rates, fees, or increase return on savings (ENCU, n.a.). Credit unions get investors and entrepreneurs in contact with each other. Advantages of credit unions is that they treat each case individually, whereas banks for example have standardized requirements in terms of solvency and profitability. Banks usually also do not invest under €250,000; this is not the case with credit unions. Credit unions are also able to be used as partners for stack financing (KVK, n.d.).

h. Networks

Some organizations' role is to create networks and resource capacity by merging different smaller organizations (public, private and non-profit). Goals are aligned and resources shared optimally within the network. These organizations play a role in policy making, knowledge and contact sharing and can help newcomers navigate within the food forest sector.

Some organizations can oppose the development of food forests as their members are part of the regime and are afraid that new regulations will have a negative effect on their business structure.

Networks can have many interests but usually aim to gain economic and political strength by encouraging collaboration among stakeholders with similar values and interests. When networks create common platforms, skills, information and know-how can be disseminated more efficiently among the members and their respective areas of influence. On the other hand, the high density of networks operating in the Netherlands can be hard to navigate as objectives of different organizations can be conflicting against each other.

An example of a network is the Agroforestry Network Zuid-Nederland, which connects over 80 agroforestry farmers (Rombouts P. , 2020).

Both public network platforms, such as "Toekomstboeren", and private networks help connect tenants and landowners.

i. Farmers

More and more food forests are being established in the Netherlands as a result of two phenomena: conventional farms transforming their old farming operations into food forests and agroforestry systems once descendants of older generation farmers take over.

New farmers who have no past in agriculture wanting to engage with nature and agriculture without having access to land and machinery finding investors to access plots of land and plant food forests.

j. Estate owners

Estate owners have an interest in food forests as land management, as it allows them to delegate the maintenance of their estate and utilize natural capital whilst generating revenue and without impacting the value of the land (Egmond & Ruijs, 2016).

k. Land trusts

Land trusts purchase land through collection of donations, obligations, loans and investor certifications. The land is run by a trust and aimed to be leased to sustainability-oriented farmers (Veen, Berg, Roeters, Moel, & Geel, 2019).

l. Government

Government can provide funds or guarantees indirectly (through commercial banks) to companies using targeted lending portfolios or green credit lines. These loans have longer terms than commercial banks and below-market interest rates. Moreover, guarantees can help lowering risks for co-financers by providing loan guarantees.

Government can promote food forests directly by providing funds in form of subsidies such “Circular Award”, “SKNL”. Indirect forms of aid include policies, tax instruments, projects and priority access to land.

m. ROMs

Regional development corporations (Regionale ontwikkelingsmaatschappij – ROM) invest in the private sector whilst strengthening the local and regional economy. They mostly invest in innovative, rapidly developing businesses in their region. Funding for this comes from annual budgeting. ROMs also provide venture capital to business owners; equity ownership can be one of the returns on investment required. ROMs support business owners, looking for them to set up in their area (Business.gov.nl, 2020).

n. Provinces

Landscape protection is part of each province’s nature and environment plan. Whilst motives are similar, designations and legal protection vary widely per province. For many provinces, landscape conservation is used to strengthen ecosystem services (recreational services, business climate, etc.) as well as connecting people to nature (Bastmeijer & Kreveld, 2019).

Provinces can support farmers and the development of nature and nature-inclusive agriculture within their borders in various ways, such as offering funds, advisors and land. The province of Noord Brabant for example offers coaching for farmers who want to change their business models, each farmer being able to receive €10,000 in coaching values (Kirchholtes, 2020). Part of these €10,000 can also be used for other costs such as planting material, etc. (Vissers, 2020). Another example of support from provinces for food forests is the province of Gelderland that provided the Ecovrede food forest with plant materials (Fonk, Interview with Syne from Ecovrede, 2020).

o. Municipalities

The municipalities in the Netherlands own a total of 50,000 hectares of forest and nature areas. Some municipalities with a large ownership of forest and nature areas are united under the Natuurnetwerk Gemeenten to have a voice in the national discussions about professional terrain management (Natuurnetwerk Gemeenten, 2020). Municipalities have the capability of providing land to farmers, often through leasing contracts (Gouw, 2020).

Food forests present various advantages in financeability through their marketability and large scope of value creation. However, there are numerous factors that also limit their potential for investor interest. Their value creation being mainly oriented towards ecological processes and sustainability, investors and stakeholders involved in sustainable enterprising tend to hold the highest interest potential.

17. Actor analysis

Table 2 Actor analysis - Startup phase

| | Small scale | | | Large scale | | |
|-------------------------------|---|--|--|--|--|--|
| | Investors | Services | Land | Investors | Services | Land |
| Social orientation | <ul style="list-style-type: none"> • Agrifood Capital • DOEN • GOB • Grootouders voor het klimaat • Innovatiefonds Brabant • Nationaal groenfond • Oranje Fonds • RABO donation • Start Life Accelerate • Trees for all | <ul style="list-style-type: none"> • BOM • Bosgroep • Brabantse Milieufederatie • Brabantse Milieufederatie • EcoVrede • FoodUp! Brabant • Grondplatform • IVN natuur educatie • LIB • Louis Bolk Institute • Natuur Inclusief Fond • Regio Noordoost Brabant • SNM • Voedselbosbouw Nederland • WINK | <ul style="list-style-type: none"> • GOB • GPC • Landschappen • Municipalities • Natuur Inclusief Fond • Province • Recreatieschappen • Rijkswaterstaat • Waterschappen | <ul style="list-style-type: none"> • Agrifood capital • Brightlands • Agrifood Fund • DOEN • GOB • Green Choice • Herenboeren • Nationaal groenfond • Nationale Postcode Loterij • NME Fund • Oranje Fonds • Pymwymic • Rijkswaterstaat • Trees for all | <ul style="list-style-type: none"> • BOM • Bosgroep • FoodUp! Brabant • Foundation Agroforestry Zuid Nederland • Grondplatform • Herenboeren • Institute • IVN natuur educatie • Natuur Inclusief Fond • Voedselbosbouw Nederland | <ul style="list-style-type: none"> • GPG • Land van ons • Landschappen • Natuur Inclusief Fond • Natuurmonumenten • Recreatieschappen • Rijkswaterstaat • Staatsbosbeheer • StartLife Accelerate • VBNE • Waterschappen |
| Individual orientation | <ul style="list-style-type: none"> • Agrifood capital • GOB • Green choice • Nationaal groenfond • Natuur en Water • NME Found • Oneplanetcrowd • Qredits • Rijkswaterstaat • Trees for all | <ul style="list-style-type: none"> • BOM • Bosgroep • De Groene Koepel • EcoVrede • Farm-life.eu • FoodUp! Brabant • Grondplatform • LIB • Louis Bolk Institute • Natuur Inclusief Fond • SKAL • Voedselbosbouw Nederland • WINK | <ul style="list-style-type: none"> • GOB • Municipalities • Natuur Inclusief Fond • Province • Waterschappen | <ul style="list-style-type: none"> • Agrifood capital • ASN Bank • ASR • Brightlands • Afrifood Fund • GOB • Green Choice • Nationaal groenfond • Nationale Postcode Loterij • NME Fund • Pymwymic • Qredits • Start Green Capital • Trees for all • Triodos Bank | <ul style="list-style-type: none"> • Agroforestry Network Brabant • BOM • Bosgroep • De Groene Koepel • EURAF Netherlands • Farm-Life.eu • FoodUp! Brabant • Foundation Agroforestry Zuid Nederland • Grondplatform • Louis Bolk Institute • Natuur Inclusief Fond • SKAL • Start Green Capital • Voedselbosbouw Nederland | <ul style="list-style-type: none"> • ASR • ERF • GOB • GPG • Natuur Inclusief Fond • StartLife Accelerate |

Table 3 Actor analysis - Scale up phase

| | Small scale | | | Large scale | | |
|------------------------|--|--|--|---|---|---|
| | Investors | Services | Land | Investors | Services | Land |
| Social orientation | <ul style="list-style-type: none"> Grootouders voor het klimaat GvhK Innovatiefonds Brabant Nationaal groenfonds One Planet Crowd Oranje Fonds Trees for all | <ul style="list-style-type: none"> BOM Bosgroep Brabantse Milieufederatie FoodUp! Brabant Grondplatform Herenboeren LIB LTO Nederland Milieufederatie Voedselbosbouw Nederland | <ul style="list-style-type: none"> Herenboeren Land van Ons Municipalities Recreatieschappen Staatsbosbeheer Waterschappen | <ul style="list-style-type: none"> Agrifood capital Nationaal groenfonds Oranje Fonds | <ul style="list-style-type: none"> BOM Bosgroep FoodUp! Brabant Foundation Agroforestry Zuid Nederland Grondplatform Herenboeren LTO Nederland Voedselbosbouw Nederland | <ul style="list-style-type: none"> Natuurmonumenten Recreatieschappen Staatsbosbeheer Waterschappen |
| Individual orientation | <ul style="list-style-type: none"> ASN bank ASR Nationaal groenfonds Oneplanetcrowd Qredits RABO bank Start Green Capital Trees for all Triodos Bank Voor de Groei | <ul style="list-style-type: none"> BOM Bosgroep De Groene Koepel Farm-Life.eu FoodUp! Brabant Grondplatform SKAL Start Green Capital Voedselbosbouw Nederland | <ul style="list-style-type: none"> ASR ERF | <ul style="list-style-type: none"> Agrifood capital ASN bank ASR Borski Fund Future food fund Kredietunie Brabant Nationaal groenfonds NVP Oneplanetcrowd Qredits RABO bank Start Green Capital Trees for all Triodos Bank Voor de Groei | <ul style="list-style-type: none"> Agroforestry Network Brabant BOM Bosgroep De Groene Koepel EURAF Netherlands Farm-Life.eu FoodUp! Brabant Foundation Agroforestry Zuid Nederland Grondplatform Herenboeren SKAL Start Green Capital) Voedselbosbouw Nederland | <ul style="list-style-type: none"> ASR |

18. 4 Scenario models of food forests.

a. Methodology

In this chapter of the report, four potential financing mechanisms are developed for four food forest model. Each model corresponds to a section of the graph “Actor Analysis” based on orientation (social and individual orientation) and scales (large and small scale). Social orientation represents the food forest whose scope is to create benefits to the community, such as social cohesion, welfare for disadvantaged people, entertainment, sharing of knowledge and experience (educational food forest or rational food forest). Individual orientation represents food forests focusing on production of goods or ecosystem services for generating a revenue for the entrepreneur only; personal development, lifestyle and self-reliance can also be objectives of this orientation (can be forest garden or alley cropping).

The scales factor is based on the empiric principle that a single laborer can manage up to 2 ha of food forest (Roy Doomen, 2019). Therefore, a food forest smaller than 2 hectares is considered small

scale (forest gardens or educational food forests) and more than 2 hectares considered large scale (alley cropping or rational food forests). The larger the scale the simpler the design will be to allow for smaller operating costs.

Table 4 Actor analysis table

| | Small scale | Large scale |
|------------------------|---|--|
| Social orientation | Social oriented small scale small (educational food forest) | Social oriented large scale (rational food forest) |
| Individual orientation | Individual oriented small scale (forest garden) | Individual oriented large (alley cropping) |

Each scenario is based on a specific context (“General description” subchapter) where the location, mission statement and activities are elaborated. In the “implementation” subchapter the setup of the food forest is discussed (e.g. use of volunteers, spread of investments over time and the infrastructure needed).

Furthermore” financial projections” of these modelled food forests are made to recognize the financial needs of the food forest at the specific point in time (*See: attached excel document*). These include the forecasted revenue, net income, cash flow and the cash position of the food forest for the first 20 years divided in phases of 5 years i.e. year 1-5, year 6-10 year, 11-15, and year 16-20. It is however important to note that the figures used to make the financial projections are mainly based on the calculations made by Stichting Voedselbosbouw Nederland. (VBNL) for different food forest models at “Landgoed Welna” (“volume production”, “gastronomy” and “Experience models”). For the social oriented small scale small and social oriented large-scale small scenario, the “experience” model was considered as a benchmark, for the individual oriented small-scale scenario, the “gastronomy” model was used and for individual large scale, the volume production model was used.

Basing on the context and activities of each scenario, these benchmark figures from Landgoed Welna were modified. Percentage assumptions were made to show the context variations between these modelled scenarios and the Landgoed welna models. Furthermore, other figures used to make these calculations were collected from other sources for example from model of Koepelplan voedselbossen, Schijndel and the Food Forest Emmeloord (*See: Chapter Costs and Revenues*).

Finally, when the financial needs per phase are recognized, the “financing mechanisms” per scenario and phase r will be made. These mechanisms are developed from the Actor analysis of the stakeholders. Potential financiers at different stages of the food forest will be identifies and the different investments they help co finance.

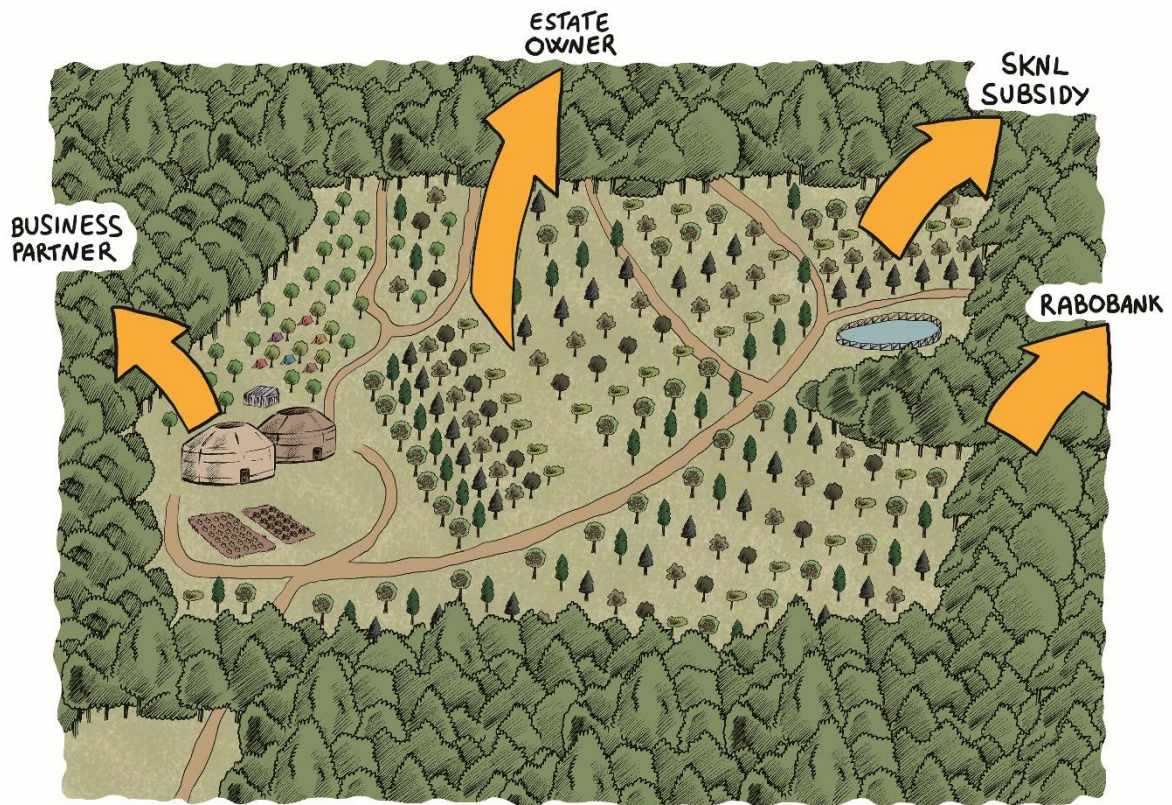


Figure 10 Illustration for Social oriented large scale food forest

b. Scenario 1: Social oriented x large scale

i. General description

The food forest is in Maastricht sitting on 4 hectares of land. This food forest belongs to an estate owner willing to preserve nature and to inspire and bring together the community of the neighborhoods in his area. The estate is located on the outskirts of the city.

An earth ship is built together with volunteers and will become the center of all social activities. There is a teahouse open to the public, a large space to host meetings and events and a storage room for tools and harvest. The estate is divided in three zones according to the permaculture zoning system. In zone 1, around the earth ship there is a camping site, flower and herb garden with some beds of annual crops where children play and learn about ecology and farming. In zone 2 there is a food forest constituted by fruit trees and biomass accumulators. In zone 3 the original forest of the estate is regenerated by planting under canopy tree species. Hiking paths are created around the estate. Musical events, weddings, birthday parties, cooking workshops, bird sighting, meditation and yoga classes are organized throughout the year are organized on this food forest. Teachers and activity organizers can pay a fee to use the spaces. Independent working group will meet in the estate and create a large community that meet together during harvest periods, at that time they can bring some harvest home, the rest is sold to local companies and is used to cook treats sold in the teahouse.

ii. Implementation of the food forest.

The construction of this food forest is carried out in 2 years. In the first year, a team of expert builders will guide volunteers during weekends. Volunteers pay the price of the “building workshops” by providing their work. A day-care service is offered on site to let families participate. In the second year, with the earth ship completed, volunteers can plant the trees and work on the other necessary infrastructure. After the year 6-10 when the production of the food forest has gained momentum, the farmer will require to scale up the size of the food forest by 2 hectares.

iii. Financial projections

The financial projections of this food forest form on the figures “Experience” theme food forest of Landgoed that sits on 4 hectares of land combined with figures from different sources. Since this estate food forest has more income generating activities than the Landgoed Welna experience model, an assumption is made that it generates 5% more revenue, utilizes 10% more costs in setting up and investing in the food forest than the estate

Net income

The net income of this food forest is negative for the first 10 years. With year 1-5 generating the lowest income. From the previous research carried out, the financial feasibility of most food forests in the Netherlands is seen to function in this same manner with the first 10 years of the food forest having a very low rentability

Cashflow

From year 1-15, the food forest has a negative cashflow, with year 10-15 having the lowest cashflow. Having a negative cashflow indicates that the food forest is spending more cash than it is generating. This implies that the total cash inflow from the various activities is less than the total outflow. The cash flow from year 11-15 hits the lowest because during this period, the food forest is transitioning from the production to scale up phase. The scale up phase in this scenario includes increasing the size of the food forest by 2 hectares, the estate therefore spends more money on developing the 2 hectares of land. From year 16-20, the food forest gains momentum and produces a positive cashflow.

Cash position/ Cash balance

As a measure to the financial strength or liquidity of a business, the cash position of this food forest was carried out. The cash balance of this food forest is negative from year 6-20, with the lowest cash balance seen in year 11-15. This negative cash balance is an identification that the food forest is having many credits, from year 16-20, the cash position of the food forest starts to improve.

iv. Overall financial analysis

From the finance projections, years 1-5 and years 11- 15 are very critical phases of this food forest with the most financial needs. Years 1-5 have generated low revenues with a low cash flow thus producing low net income while years 11-15 have the lowest cashflow out of all other years. Basing on the higher revenues this food forest is generating, the estate owner can be advised to issue stocks to other private investors or negotiate for a bank loan in order to lessen the deficit gap. Furthermore, to improve on the cash position from year 6-20, the food forest farmer could raise cash by requiring the customers to put down a deposit in order to keep the money in circulation, acquiring loans to increase the working capital especially in years 11-15 and make decisions that allow management to find other ways or alternatives of sourcing finance.

V. Financing mechanism

Biasing on the financial needs observed from the financial projections and the requirements of the possible stakeholders to invest in any project or business venture (*See stakeholder analysis*), the following ways this food forest can be financed and the examples of the possible investors at each phase are given below.

Table 4 The financing mechanism

| Finance instrument | Time | Investors | Investment |
|--------------------|-----------|-------------------|--|
| Private equity | Year 1-20 | Estate owner | land |
| | Year 1-5 | Business partner | Infrastructure Bureaucracy |
| Subsidies | Year 1-5 | SKNL | Land preparation Planting materials (zone 2) |
| Debt finance | Year 6-10 | Commercial bank | Land preparation Planting materials (zone 3) |
| Volunteering | Year 1-20 | Community members | Labour |

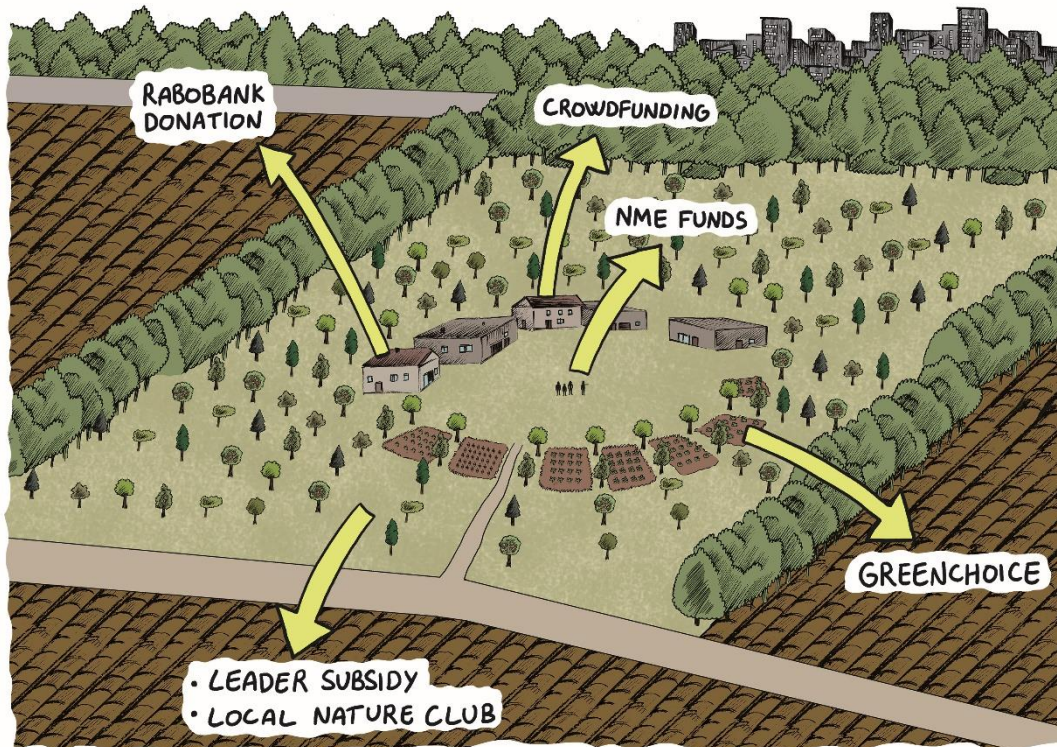


Figure 11 Illustration for Social oriented small scale food forest

c. Scenario 2: Social oriented food forest x small scale

i. General description

This food forest is located on 2 hectares of forest land in the outskirts of Utrecht. It is constructed as a Community Supported Agriculture (CSA) production model where the consumers buy shares of the food forests harvest in advance. This food forest is non profitable, it is constructed by the CSA members with an aim of generating social cohesion in the community, promoting education in sustainable farming, ecology, and the value of healthy food and nature to children and adults from the city and providing healthy food to the disadvantaged people in society.

Due to high demand of biodiversity by the CSA members, many plant varieties are planted. The food forest contains a diverse variety of annuals, fruit and nut trees, shrubs and flowers. CSA members pay an annual cost of €500 in one lump. This upfront payment helps to buy the seed and other inputs needed for the food forest. From the annual costs, the food forest will be provided immediate income to begin the year production season. By paying at the beginning of the year CSA members share in the risk of production.

In return for their membership fee, the members receive a variety of freshly picked harvests every week. All revenue made from this food forest goes on carrying out the activities and developing the food forest. The CSA members don't get a share of the food forest revenues. They however get rewarded with satisfaction of knowing where and how the food they consume is produced.

The CSA members together with their families have a 24-hour access to this food forest, they can volunteer to work on the food forest though it is not mandatory.

Furthermore, as an attempt to restore the butterflies and bee populations in this area, insect hotels and flowering annual plants are maintained on this food forest. It is coupled with programs to preoccupy people with disabilities. Five handicapped people are provided with wage labor and the food forest receives labor cost compensation from the government (UWV).

On this food forest, it is possible for members or non-members to arrange events, however this comes with additional costs.

It is important to note that besides the weekly produce given to the CSA members, the rest is sold to local restaurants and donated to food banks.

ii. Implementation of the food forest

This food forest is developed on the CSA model. However, for easy administration and management of the CSA members, the farmer decides to start with only having 20 members in the first phase and increase each phase by 20 members i.e. Year 1-5; 20 members, Year 6-10, 20 members, Year 11-15, 60 members and year 16-20, 80 members.

The 2 hectares of land required for the construction of this food forest are fully sponsored by the European Commission under the LEADER subsidy from EFRAD since this food forest is associated with local empowerment through which local members of the community are involved in the implementation and the decision making of this food forest.

This food forest is designed by stichting Voedselbosbouw (VBNL), and land is prepared by volunteers. A local agricultural machinery company sponsors the food forest by providing a tractor, plough and digger for the land preparation. The food forest is prepared over the course of a year, volunteers prepare it in forms of workshops.

In year 11-15, the food forest is scaled up by increasing on its size by 1 hectare of land.

iii. Financial projections.

Unlike in scenario 1, the financial projections of this food forest seem to differ from that of Landgoed Welna. This is due to reasons like the operations resources of an estate differ from an ordinary stand-alone permaculture system, that is non-profitable and built on the CSA production model. Therefore, no specific overall % assumptions are made.

Net income

The net income of this food forest is seen to grow exponentially over the 20 years. The higher revenues generated over the costs incurred makes this food forest financially feasible.

Cashflow

The cash flow of this food forest represents all the cash flowing in and out of this business. This includes labor costs, management and operation costs, money from sales and services, buying planting materials, construction costs, CSA membership fees, money from all subsidies. and other miscellaneous costs.

Years 1-5 and years 11-15 have negative cash flows with year 11-15 having the lowest cashflow. Despite year 1-5 having very low sales in comparison to other year gaps, the cash position at the beginning of the phase production from the CSA membership subscription fee boosts up the cash flow.

The low cash flow in this phase year 11-15 is caused by having very high investment costs. It is in this phase that the food forest scales up. The growth in assets in this phase constitutes the use of cash and reduces cash flows from operations.

Cash position/cash balance

The cash position in this scenario is the lowest in year 11-15, this is as a result of having a negative cash flow thus affecting the cash balance.

iv. Overall financial analysis.

Basing on the financial projections, this food forest is financially feasible all throughout the 20 years. The financial viability of this food forest is highly attributed to the CSA membership subscription that helps cover most of the production costs while having the CSA members partake on the risks involved in running this food forest.

The cashflow in the year 11-15 can however be improved if the net income of the previous phase (Year 6-10) can be increased. The cash flow statement of each phase begins with the negative net income of the previous phase. In this case, the negative net income from year 6-10 results to the decrease in cash flow from the operating activities of year 11-15.

All in all, this scenario strongly highlights the role of having community members involved in projects such as food forestry, it not only promotes environmental sustainability but also social sustainability in terms of having a sense of belonging and economic sustainability from making profit.

v. Financing mechanism

Table 5 The financing mechanism

| Finance instrument | Time | Investors | Investment |
|--------------------|-----------|---|---------------------------------------|
| Subsidies | Year 1-20 | European Commission through the LEADER subsidy. | Land |
| Donation or grant | Year 1-5 | Green Choice | Planting materials Bureaucracy |
| | Year 1-5 | NME funds | Education material and infrastructure |
| | Year 1-5 | Volunteering | Land preparation |
| | Year 1-5 | Rabobank donation | Infrastructure |
| Equity finance | Year 1-5 | Crowdfunding | Infrastructure |
| | Year 1-5 | Local nature club | Land and bureaucracy |

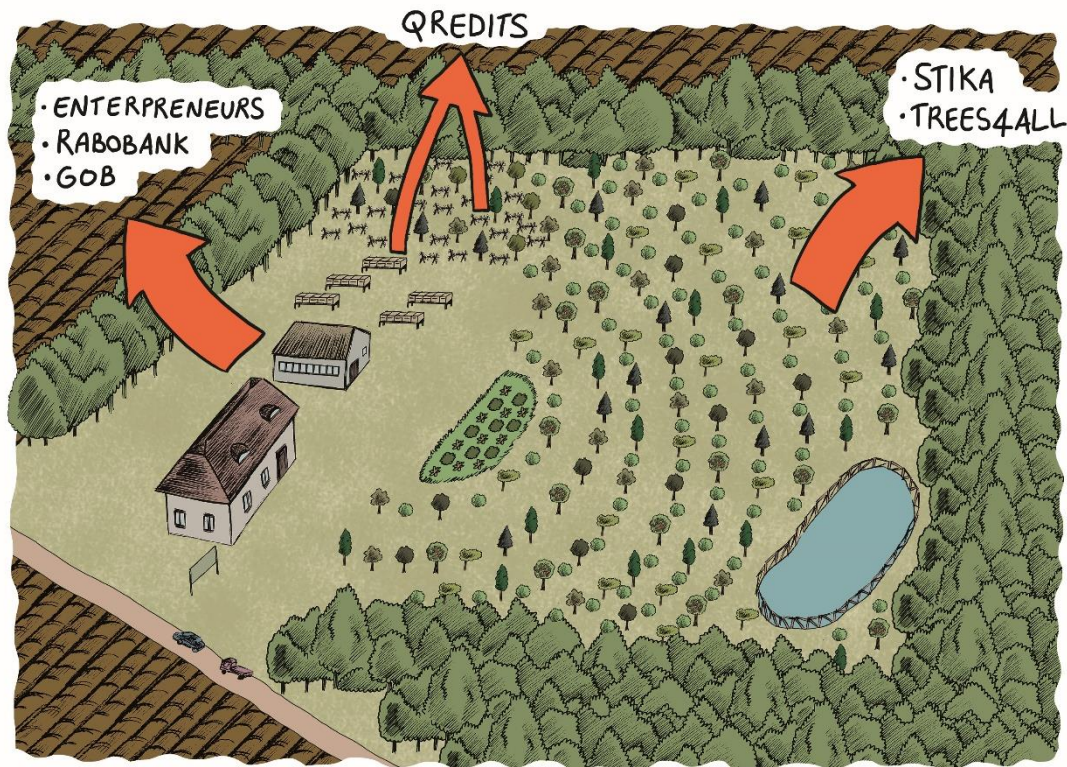


Figure 12 Illustration for Individual oriented small scale food forest

d. Scenario 3: Individual oriented food forest x small scale

i. General description

The food forest is based in the neighborhood of Den Bosch on 1.5 hectares relatively wet land. The aim is to produce high value products to create a living for the family; the two parents have a daily job and want to invest into a more sustainable future for their children. The food forest consists mainly of various nut trees and shrubs, perennial herbs as well as mushroom production. They want to produce different kind of mushrooms and herbs that they sell both fresh and dried. The aim is to capitalize on products with long shelf life. The food forest therefore has a food processing lab where products are dried, mixed, powdered and packaged.

In order to harvest efficiently as well as simplifying the post-harvest process, only a few selected varieties are chosen that are of high quality. The farmer prefers having quantity over variety. On this food forest, the farmer also rears bees, he therefore sells honey in the food forest shop.

ii. Implementation of the food forest

This food forest is constructed on a 1.5-hectare of Agriculture land. The total cost of this land is €120,000. However, the land is bought with personal savings and a bank loan of €32,000 with a 5% interest rate backed up by the Capital Enhancing Credit (VVK) guarantee system that is to be paid off in the first 5 years of production. The GOB subsidies 50% of the total land cost (€60,000).

From year 1-10, the farmers still maintain their daily jobs because they need money assistance to pay off the food forest credits. In these first 10 years, the farmer only sales fresh harvest up until the

food forest is self-reliant. In years 11-15, the farmer buys a processing machine and starts to sell both fresh and processed products.

iii. Financial projections

The financial projections of this food forest are based on the 'Gastronomy model' of the Landgoed Welna food forest. The Gastronomy model is chosen because this food forest involves producing various foods like mushrooms, nuts, honey as well as processed foods.

An assumption is however made that the food forest produces 40% less than the landgoed Welna gastronomy model. The landgoed model grows 60 varieties of edible crops which are quite many in relative to this family food forest. Furthermore, the landgoed Welna food forest generates income from other activities like cooking workshops, education tours, etc. which is a different case from this food forest scenario.

Net income

The net income of this food forest gradually increases over the 20 years. This scenario food forest differs from the known fact that food forests in the Netherlands become financially feasible after 10 years. The profitability of this food forest is created by having sufficient capital (Cash position at the start) and financial resources like subsidies from GOB to sustain and run the food forest.

Cashflow

The cashflow steadily increases over the years. In the first phase (year 1-5) the cash flow of this business is negative due to the many investment costs relative to the cash at the start of the production phase. Furthermore, it is during this period that the land Mortgage and its interest is fully paid off. In this food forest, a huge increment in the cashflow can be detected between year 6-10 and years 11-15. This is associated with increase in production and sales in the value-added products (processed food). The processed products provide consumers with an incentive to buy the products thus increasing cashflow.

Cash position/cash balance

The cash position in this scenario is the lowest in year 6-10, this is as a result of having a negative cash flow thus affecting the cash balance.

iv. Overall financial analysis

Depending on the revenue, cashflow and net income of this food forest relative to its scale, this food forest is visible. With this financial performance, this family stands a chance to gain different forms of funding from subsidies to debt finance to help grow and even increase the scale of the food forest. This farmer identified a growth opportunity in his business which is adding value to the harvests by processing them. This increases the market of the food forest produce ultimately making it more profitable.

V. Financing mechanism

Table 6 The financial mechanism

| Finance instrument | Time | Investors | Investment |
|--|-----------|----------------------|--|
| Private equity | Year 1-5 | Entrepreneurs | Design, land preparation and bureaucracy |
| | | | Land |
| Cashflow finance | | | Labour |
| Bridge loan (Meedoen als landbouwer BL+) | | Rabobank | Land |
| Subsidy | | GOB | |
| Alternative finance | | STIKA | Planting materials |
| | | Trees4all | |
| Debt finance | Year 6-20 | Qredits Microfinance | Processing equipment |

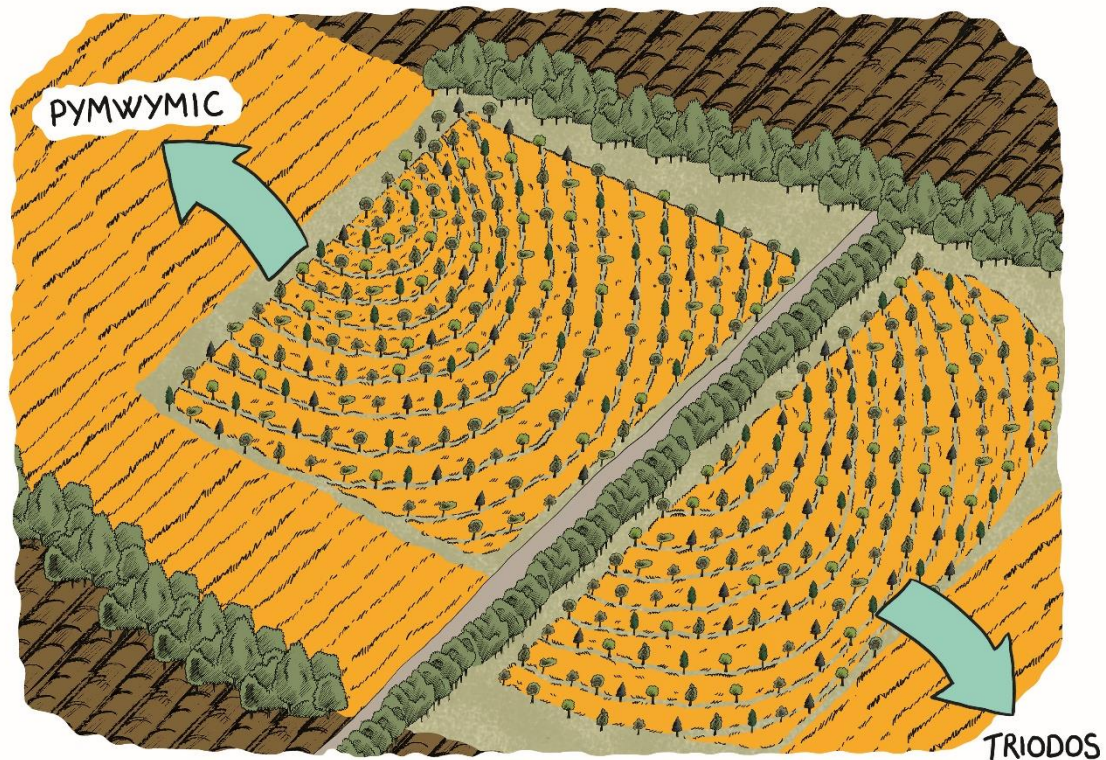


Figure 13 Illustration for Individual oriented large scale food forest

e. Scenario 4: Individual oriented food forest x large scale

i. General description

The farm is located in Flevoland and operates on an area of 40 ha of land where wheat, buckwheat and alfalfa are cultivated. It is a generational family owned farm where the farmer's son that is to take over the farm has a vision to cultivate in a more sustainable way while generating enough money to grow the family business. He therefore implements an agroforestry system based on walnuts and berries. The number of varieties are limited and selected carefully to overlap with the Dutch demands. The farm can continue to use its machinery on the land because the tree lines are as wide as the range of the tractor.

The land is closed from the public, but occasionally open when events are held on the farm. However, on the farm there is a shop where the farm produce is sold. It is operated by one of the employees.

The farmer however plans on having an agroforestry first on 12 hectares of land, if it turns out to be successful, then an agroforestry system will be developed on more 12 hectares of land.

External laborers and consultants are hired for planting, managing and harvesting the agroforestry system. The farm applies to the biologic certification from SKALL.

Produce from this agroforestry farm are sold in the farm shop while others are sold to local shops, restaurants and bakeries.

ii. Implementation of the food forest.

The food forest is established on pre-owned land. It is established on 12 hectares of land. An agroforestry system is set in place with rows of walnut trees placed in rows 10m by 10m from each other. The trees are planted when they are 7 years old. Walnut trees usually start producing considerable amount of yields (5 kg/tree) when they reach the age of 10 so it takes 3 years to start production. On 1 hectare of land, 50 trees are planted. Each walnut tree of 7 years costs €200, therefore for 12 ha of land a total amount of €120,000 would be required to buy the walnut seedlings. The cost of productive varieties berries for the 12 ha is estimated around €10 000.

iii. Financial projections.

The financial projections of this agroforestry system are based on the Landgoed volume production model. An assumption is made that this agroforestry system produces 50% less than the Welna model due to having limited varieties of plant species. The figures used to calculate the revenue generated from the Walnut trees were derived from the amounts presented for Landgoed Welna from year 7.

Net income

The net income of this agroforestry system increases over the years. Years 1-5 generate the lowest income because during this period, the Walnut trees are not yet fully developed to produce more nuts for sale. From the first phase (year 1-5) to the second phase (Year 6-10) there is an enormous increase in the net income of the food forest. The walnut trees and berry plants are then fully developed and producing more harvest.

Cash flow

The cash flow in this scenario is increase over the years. Only in the first phase is the cash flow negative of which is due to the investments required to start up the agroforest. From year 6-20, then cash flow is positive, there is a huge inflow of revenues from the highly producing walnuts and berries

Cash position

The best liquidity of this agroforest is best acquired in the year 16-20. Despite the high revenue generated in the years 6-15, the liquidity remains negative. This means that the assets (plants) cannot easily be converted to cash up until years 16- 20. The inability to convert the trees and berries into cash affects the profitability of this business.

iv. Overall financial analysis.

Basing on the financial projections, this agroforestry system is feasible. However, the negative cash flow in the first 15 years would inhibit some debt financiers like the banks to invest in this system. Debt financiers like banks would prefer to take a low risk position before offering loans to any project, they would like to ensure that the current assets of the agroforestry system can easily be converted into cash (positive cash flow).

V. Financing mechanism

Table 7 The financial mechanism

| Finance instrument | Time | Investors | Investment |
|--------------------|----------|--------------|------------|
| Private equity | Year 1-5 | Entrepreneur | Land |

| | | | |
|-----------------|------------|----------|--|
| | | | Design, land preparation and bureaucracy |
| Venture capital | Year 1-10 | Pymwymic | Planting material and planting costs (12 ha) |
| Debt finance | Year 10-20 | Triodos | Planting material and planting costs (24 ha) |

19. Discussion

Creating a food forest requires a large front investment required especially for land and planting materials and the younger generations of farmers (who are the most likely to engage in this business) are the least likely to not have access to the necessary capital. In fact, food forests cannot finance themselves as it could be the case for annual crops, since the early production is delayed for at least 7 years after planting and peak production requires about 15 years. Investors like to see fast impact or economic returns, but biological processes have a different time scale for their development. Food forests are part of the puzzle necessary to solve the systemic problems of the broken food system and degraded landscapes. Moreover, as the IPCC has declared, global warming is likely to increase to the critical limit of 1.5°C between 2030 and 2052 if global net anthropogenic CO₂ emissions continue at the current rate.

The lack of existing models running for more than 10 years create uncertainties in the assurance of income of food forests. So far, only a limited part of the investment community is ready to fund sustainable agriculture. Conventional banks for example are not willing to provide loans to start-up style projects that do not have a history of profitability of at least 3 years. Banks are powerful stakeholders which may prove invaluable in the future when more detailed information of food forest financial history and models become available.

Banks are not willing to take risks when lending capital to start-up style projects such as food forests. They have strict policies in terms of cash flow, financial history and collateral in order to accept a project proposal. Therefore, the most common financial channel to access loans that are banks is already closed off to new entrants. Banks are willing to participate when there is already a profitable and stable model in place and collateral, giving the possibility to scale-up. Whilst traditional horticultural companies have much lower solvency, it is assumed that they will not go bankrupt in the first 4 years, they are able to produce enough income to have a satisfying balance sheet, so banks are willing to finance them. They also tend to have stable supply chains with contracts and assurances, allowing the bank to estimate the company's value and risk profile. The unstable supply chain food forests tend to use make it difficult to estimate their value. To be marketable to a bank, a food forest would have to use "soft" values (estimations, forecast etc.) in their business plan, but this would still contain too high risks.

As shown throughout the report, there are many ways to not only make food forests attractive to investors, but also mechanisms to generate income and help bridge the income gap in the initial years of the food forest. There are different co-financing opportunities for different types of food forests. Each specific context (location, business model, cultivation system, scale, orientation and stage of development) requires a coherent mix of financiers, and external financiers (personal investment, business partners, subsidies, bank loans, crowdfunding, venture capital, business angel, etc.).

There is a wide array of European, national and provincial subsidy programs which aim at decreasing the barriers to entry for innovative, nature inclusive farmers and communities wanting to engage in restorative projects.

Thanks to the growing awareness and concerns at a consumer level and to the growing evidence on the effects of climate change on agriculture, incentives to sustainable farming alternatives are standing out more and more to policymakers, companies and land managers. The current CAP, the largest pool of subsidies for European farmers, is still very much coupled with the extension of the

agricultural land. The proposal for the CAP 2021-2027 however, aims to compensate farmers for ecosystem services such as addition of green elements and tackle problems such as climate change and generational renewal through subsidies.

Thanks to the signature of the Green Deal and the acceptance of the Ketelbroek food forest as "agricultural land" in 2016, it is becoming easier to overcome zoning regulations of bestemmingsplan. To be considered "agricultural" (to avoid land value loss and the opportunity to receive CAP subsidies), food forest needs to subscribe to strict guidelines which limit the use of annuals and animals and define the size.

To receive CAP subsidies, the food forest and annual production must remain separated in defined areas of the farm. Small scale farms forest gardens and market gardens such as "Tuinderij De Gout", however combine trees and annual beds to create biodiversity and resiliency.

Under the Green Deal, forests have acquired agricultural status and became a tool for provinces to complete the Nature Network as they represent a productive and nature inclusive nature management system that creates economic returns and ecosystem services at the same time. Farmers who operate in the vicinity of the Nature network can receive subsidies such as SKNL to change land function and transition from conventional agriculture to food forests.

Agroforestry is eligible for the CAP as well. It is defined as agricultural plots with landscape elements and trees. By harvesting the trees in a regular manner, the status of the land stays in a category agriculture despite the presence of trees. Moreover, the main crop code only needs to be changed, if the perennial layer starts to produce substantial yield.

The high prices of land are another major barrier to entry for Dutch food forest entrepreneurs. It is almost impossible to buy agricultural land and make a profit high enough to have a satisfying return on investment.

Synergies can be created with insurance companies, nature managers and provinces and municipalities to lower rental fees for nature inclusive farmers. Cooperation between food forest farmer and nature management organizations could bring mutual economic benefits. Food forest farmers could pay lower tenancy costs and nature management organizations could have their management costs reduced. Coordination between different institutional landowners to set baseline rental fees and regulations for food forests can be a strategy to efficiently promote the development of food forests. This research has shown that the interests of most stakeholders are aligned but, with the exception of the Delta Plan, there is little evidence of shared plan of action. Once food forest entrepreneurs have clarity over tenure contracts, it becomes easier to find investors. Networks such as Milieu Federaties can play a role in the creation of a common playing field.

The remaining alternatives include renting land, accessing it through a lease or a leasehold, which necessitates assurance that either the land can be rented for long enough for the project to be viable (at least thirty years), or rent it with the possibility to buy the land in the future, when enough capital is generated to do so. There are also other players such as large farmland owners that are able to provide access to land, through purchase or leasing (See: Stakeholder analysis).

Investors start to see that production from these resilient systems not only is more appealing to current markets, but also it offers more security on the long term compared to the unsustainable conventional alternative. A food forest is able to withstand extreme climactic conditions, meaning that it is a safer investment than a monoculture crop that is highly dependent on weather.

Food forests should be seen as a tool to be used by the various institutions for expansion of nature networks, water retaining areas, nature education, etc. Cooperation between public institutions and food forest farmers would benefit both in their respective and mutual goals.

The dependence of food forest on responding to a niche market is a currently strong way to ensure profitability. The values the model presents means that sourcing volunteers who adhere to these values is a simple way to cut costs. Furthermore, the sale of these products at high prices due to the added value from said niche allows for profitability on small scale production. However, the question remains of what will happen to this model when the food forest landscape in the Netherlands outgrows this niche status. Whether the agricultural landscape in general will have evolved alongside food forests so that prices and productivity have stabilized, or the model of food forests will drown in the competitive, margin driven landscape we currently have is still to be determined.

20. Conclusion

Various mechanisms can be applied to achieve financial viability of food forests. The most efficient way of ensuring that mechanisms are implemented efficiently is to collaborate with stakeholders that hold similar values and visions. Since many organizations' objectives and mission statements in regard to sustainability agree on vital role of sustainable agriculture for the future, it becomes key to gain their support by creating credible business plans with quantified foreseeable impact created, possibly utilizing a standardized true cost accounting (TCA), "Agri-food Evaluation Framework" or TEEB. With standardized ecosystem services and externalities, investors can more easily evaluate projects candidates.

Strategies such as bundling different project together can save administration costs for both entrepreneurs and investors and can help attracting the attention of large investors such as development banks and insurance companies as well as European and national subsidies.

The two main obstacles in setting up food forests are acquiring land and sourcing investment capital from traditional investors. Although this report has demonstrated various manners to overcome these issues, they remain obstacles and limitations to the growth of the food forestry sector in the Dutch agricultural landscape.

This study allows one to find the appropriate mechanisms, stakeholders, strategies and instruments to create an attractive model to financial institutions and individuals alike, in order to source the necessary capital to implement their project. It depicts the advantages and limitations food forests hold and how to capitalize on the former and avoid or transform the latter. It also provides clear depictions of how the report can be used to create working models, through the scenarios presented.

An important step that remains to be taken for the advancement of food forests in the Netherlands is the consolidation of food forestry as a whole within the Dutch agricultural landscape. Whilst this report illustrates how to implement food forests in the current agricultural climate, it is important to keep a wider, longer term scope for their development. It is crucial for a small sector facing so much adversity to find ways to consolidate itself, create clear definitions and standpoints and build a strong network in order to grow as a player within the landscape. This will further legitimize food forestry and ease the current issues linked to finance ability.

Furthermore, Community Supported Agriculture (CSA) would be a very important financing mechanism for food forests in the Netherlands. Traditionally, CSAs involve members sharing risks and benefits of food production with the farmer, they buy a share of the farm's production before each growing season, in return, they receive regular distributions of the farm's bounty throughout the season. The farmer receives advance working capital, gains financial security, earns better crop prices, and benefits from the direct marketing plan. However, food forest entrepreneurs should adapt the CSA model to fit the benefits of food forests and these include; Institutional health and wellness programs, Multi-farm systems to increase scale and scope, Season extension technologies; and Incorporating value-added products, offering flexible shares, and flexible electronic purchasing and other e-commerce marketing tools."

21. Appendix

Appendix 1: Stakeholder analysis

Landowners

Private

ERF

(ERF, 2020)

Type of entity: Limited Liability Company (BV) The only shareholder is the ERF Stichting

Goal: Temporary management of reserve land on the edges Flevoland cities. Want to take on a pioneering role in the agriculture of the future

Requirements: Organic production, focus on reserving biodiversity, resilient crops and healthy ecosystem. Projects which are bringing living, working and recreation together.

Expected returns: Financial (fulfilling environmental demands of new national and European policies)

Opportunities: Municipalities and other governments can change ground functions more easily in this way. It prevents soil speculation and costs involved. In 2020, 60 ha of strip cultivation should be created to the existing 40 ha. The former should include large-scale agroforestry (alley cropping).

Orientation: Individual

Scale and stage: Small scale, scale up – Large scale, early stage

Public

Rijkswaterstaat (RWS)

(NMFF, DWEL, & FFN, 2014)

Type of entity: Governmental body

Target: Entrepreneurs, organizations, individuals and governments

Expected return: Non-financial (new potential initiative takers and investing in existing and new networks)

Opportunities: They want to work with food forest frontrunners and invest in the sustainable use of 'vacant' land for the regionally oriented production and recycling of edible nature, green raw materials and sustainable energy

Orientation: Social

Scale and stage: Small scale, early stage – small scale, production - large scale, early stage – large scale, production

Groen Ontwikkelfonds Brabant (GOB)

(Vermeer, Interview, 2020), (Heijs, Interview, 2020)

Type of entity: Limited liability company (BV)

Target: Entrepreneurs, organizations, individuals and governments

Expected return: Non-financial (new potential initiative takers and investing in existing and new networks)

Opportunities: Offer land and or money for nature inclusive initiatives. The conditions can differ from project to project. Usually the land is given through a deal → No rent in the first couple of years, or the cost is highly decreased (50%). For example, for Schijndel it is €421/ha/year, cheap leasing options, low buying price. The monetary support is meant to boost the realization of the nature network. Therefore, these grants are aimed for farmers with existing land. The conditions and amounts also vary from project to project. € 1 000/ha per year subsidy for Schijndel.

Orientation: Individual, Social

Scale and stage: Small scale, early stage – small scale, production – large scale, early stage

Waterschappen

(Waterschap, 2020)

Type of entity: Regional government bodies

Goal: safe, steady water resources, find solution for flooding and droughts. Waterschappen are looking for alternative agricultural land use without chemical fertilizers and pesticides.

Expected returns: Non-financial (water storage capacity, water quality improvement, reduction of mineral leaching and improvement of the soil)

Opportunities: De Dommel, Aa and Maas, Brabantse Delta are part of the Koepel plan and Green Deal Voedselbossen. Keen on analyzing soil and water quality changes after the food forest implementation. Money and land for food forests can be obtained if the food forest serves water retention and water protection purposes.

Orientation: Social

Scale and stage: Small scale, early stage – large scale, early stage, scale up

Recreatieschap

(Recreatieschap Drenthe, 2020)

Type of entity: Regional government bodies

Goal: develop, manage and operate facilities for outdoor recreation outside urban areas such as (swimming) ponds, picnic areas, bike and hiking trails and canoe routes These are basic facilities that are public and usually accessible for free. Promotion of nature, information and education.

Expected returns: Non-financial

Opportunities: Often advises on design plans for the rural area

Orientation: Social

Scale and stage: Small scale – Large scale

[Natuur Inclusief Fond](#)

(Natuurinclusief, 2020)

Type of entity: Foundation

Target: Entrepreneurs, organizations, individuals and governments

Expected return: Non-financial (transition from conventional farming to nature inclusive)

Opportunities: The foundation acquires land from farmers in or close to the nature areas, then denominates it to nature land. They then lease it out to farmers with nature inclusive plans. 22.5 hectares of land offered in Brabant.

Orientation: Social, individual

Scale and stage: Early stage

[Gelders Particulier Grondbezit \(GPG\)](#)

(Gelders Particulier Grondbezit (GPG), n.d.)

Type of entity: Federation of Private Land Ownership

Goal: Socially valuable private land ownership. Sustainable economic development regarding agriculture and nature conservation.

Requirements: There must be opportunities for landowners as entrepreneurs to make their landownership profitable, also in the long term. Landowners do need a sound financial basis for any project they can invest in.

Expected returns: Financial (in the long term)

Opportunities: Positioned between large-scale agriculture and large-scale 'wild' nature. 'Spokesperson' for landowners of Gelderland.

Orientation: Social, individual

Scale and stage: Small scale, early stage – large scale, early stage

[Nationale Postcode Loterij](#)

(Postcodeloterij, 2020)

Type of entity: Joint-stock company (NV)

Goal: Bird Protection in the Netherlands

Expected return: Financial

Opportunities: support to farmers' cooperatives that are committed to nature-friendly agriculture to protect meadow birds. Buys agricultural land and then leases it to farmers on condition that they start farming in an inclusive manner.

Orientation: Individual

Scale and stage: Large scale, early stage

ASR

(Bouwmeester, 2019) (ASR, n.d.)

Type of entity: Joint-stock company (NV), Private landowner

Goal: Financial goals

Financial landscape: ESG including impact investing, pension funds

Expected return: Financial

Opportunities: already involved in nature-inclusive agriculture and is prepared to new forms of lease where land is only made available with a discount on the lease price if certain sustainable goals are achieved. Provides agricultural entrepreneurs, businesses, private individuals and governments with land. Financing options include: Financing for agricultural land, Financing for agricultural leasehold, Leases, land financing projects.

Orientation: Individual

Scale and stage: Small scale, scale up – large scale, early stage - large scale, scale up

Land van ons

(Land van ons, 2020)

Type of entity: Cooperative landowner.

Goal: restore and preserve nature on agricultural areas

Expected returns: Financial (working to restore biodiversity and landscape)

Opportunities: Social land buying

Orientation: Social

Scale and stage: Small scale, scale up – Large scale, early stage

Staatsbosbeheer

(Staatsbosbeheer, n.d.) (NMFF, DWEL, & FFN, 2014) (Vaart, 2020)

Type of entity: Public Benefit Organization

Goal: play a stimulating role on the basis of its social task and as a tenant of 50,000 hectares of land to farmers. 5.000 hectares of new forest by 2030, to further contribute to CO₂-fixation.

Expected returns: Non-financial (Conservation and promotion of nature areas, nature-inclusive agriculture (mainly agroforestry))

Opportunities: Participated in Food forest Eemvallei (Oosterwold) South (Flevoland). Have plans for the development of 2 food forests in Oosterwold and Noorderbos (Houtrak) of approximately 60 ha each together with Flevoland Landschap. They have a cooperation with Voedselbosbouw, but it is not decided yet if they start with food forests on their property. Manages 273,000 ha of forest. Have 4,000 ha of land available to facilitate a transition to nature-inclusive agriculture, Preferably near Natura 2000 areas.

Orientation: Social

Scale and stage: Small scale, scale up – large scale, early stage – large scale, scale up

Landschappen

(Stichting Landschappen Nederland, 2016), (Landschappen.nl, 2020)

Type of entity: Public benefit organization (ANBI)

Goal: Integrated management and protection of nature. Connect our areas so that animals can move from one area to another.

Expected returns: Non-financial (cooperation for connecting nature areas, introduction of non-native species)

Opportunities: purchasing and managing areas, supporting others with advice on landscape management and species protection. Dialogue with government.

Orientation: Social

Scale and stage: Small scale, early stage – Large scale, early stage

Natuurmonumenten

(Natuurmonumenten, 2020)

Type of entity: private organization

Goal: acquisition and management of nature reserves. Improve biodiversity of insect populations

Expected returns: Non-financial (recreation; restoration and conservation of natural and historic sites.)

Opportunities: Restoration and creation of new nature with different projects, also in collaboration with provinces, municipalities and other nature conservation organizations

Orientation: Social

Scale and stage: Large scale, early stage – large scale, scale up

Investors

Conventional

Nederlandse Vereniging van Participatiemaatschappijen (NVP)

(KvK, 2020), (nvp.nl, 2020)

Type of entity: Organization of private equity firms

Goal: To promote investment climate and awareness (+image) for private equity.

Financial landscape: ESG funds, conventional equity and bond investments

Target: seed, start, later stage venture capital. Buyouts and growth financing

Requirements: Business model with nvp return of investment in given timeframe.

Expected return: Financial

Type of food forest: produced capital, social capital, natural capital, individual capital

Opportunities: They can provide expertise and access to their business network

Orientation: Individual

Scale and stage: Large scale, scale up

RABO Bank

(Huwyler, Käppeli, Serafimova, Swanson, & Tobin, 2014), (Leeuwen, Interview, 2020)

Type of entity: Cooperative

Goal: Secure the funds that they are holding

Financial landscape: Loan

Target Running companies

Requirements: annual report of the past 2 years to calculate interest rate. Solvency: 35% for diary, 15-20% for horticulture, other sectors are specific, but around 35%. Liquidity: positive. Current ratio: 1,5 depends on production

Expected return: Financial

Opportunities: Rabobank has developed a Green and Sustainability Bond framework, under which it can issue Sustainability Bonds – with proceeds allocated to a portfolio of existing or future loans to SMEs with selected sustainability certifications on products, processes or buildings.

Orientation: Individual

Scale and stage: Small scale, scale up – large scale, scale up

ASN

(ASN Report, 2017)

Type of entity: Bank

Goal: Climate change: all of ASN Bank's loans and investments are to be net climate positive by 2030.

Biodiversity: ASN Bank's loans and investments are to have a positive impact on biodiversity by 2030.

Financial landscape: Sustainable investments

Requirements: has to comply ASN's sustainability criteria

Expected return: financial

Target: financially viable enterprises

Orientation: Individual

Scale and stage: Small scale, scale up – large scale, early stage – large scale, scale up

Triodos Bank

(Triodos Bank, 2020), (Huwyler, Käppeli, Serafimova, Swanson, & Tobin, 2014)

Type of entity: Bank

Goal: finance projects that contribute to a green and fair economy, for example, investing in humane care, clean energy and organic agriculture

Financial landscape: Business loan.

Target: financially viable enterprises

Requirements: The product or service is ready for the market, there is proven demand for the product or service, you can repay the credit plus interest, your risk-bearing capital and the financing are in a healthy relationship. Triodos' lending criteria starts with assessment of the motivations of entrepreneurs, in order to understand their sustainability attitudes alongside the systemic significance of their venture in context – followed by assessments of commercial feasibility and risks. Triodos employs a range of safeguards to ensure sustainable value creation, including financing clearly defined activities, and monitoring impacts.

Expected return: Financial

Opportunities: network with social and environmental entrepreneurs.

Orientation: Individual

Scale and stage: Small scale, scale up – large scale, early stage – large scale, scale up

Nationaal Groenfonds

(Nationaal Groenfonds, 2020) (Meter, Interview, 2020)

Type of entity: non-profit social enterprise and green investment institution

Goal: Improve quantity and quality of nature in the Netherlands

Financial landscape: Low interest rate loans (often half a percentage point below the level of regular financing)

Target: province, farmers, land developers, others with direct and indirect finance for nature objective, only for business entities (zzp, BV etc) no private,

Requirements: good and complete business and financial plan, profitability, acceptable collateral value, good solvency. Investment need to be combined with equity, crowdfunding or other bank loan.

Expected return: financial.

Opportunities: assess the project and advise on additional financing options. Help projects find suitable financing and thereby limit financial, organizational and political risks. They can help finance the “functieveranderingsbijdrage” (plot exchange) if the farmer already applied (and was granted) for the relevant subsidies.

Orientation: Social, Individual

Scale and stage: Small scale, early stage – small scale, scale up – large scale, early stage – large scale, scale up

Qredits Microfinanciering Nederland

(Qredits Mircofinancing Nederlands, 2020)

Type of entity: Foundation

Goal: to make entrepreneurship accessible

Financial landscape: 4 types of business loans: Microcredit, SME Credit, Corporate Mortgage and Flexible Credit.

Target starting and existing entrepreneurs

Requirements: Interest rate 7.75% or 8.75%, social entrepreneurs borrow at 5.75%

Expected return: financial

Opportunities: optional 1 year of coaching

Opportunities: They provide coaching for entrepreneurs (improving the business case)

Orientation: Individual

Scale and stage: small scale, early stage – small scale, scale up – large scale, early stage, scale up

DOEN

(Stichting DOEN, n.d.)

Type of entity: Foundation created and funded by the Nationale Postcode Lottery

Goal: create a greener, more social and creative society

Financial landscape: program grant; a donation in the form of money for a specific project from or within an organization; an institutional subsidy; a donation in the form of money to support an organization as a whole; a subsidy with resolute conditions; a donation in the form of money, which is refunded in the event that an organization succeeds in generating sufficient income after the start-up period; loans usually cover 1/3 of the total investment budget.

Target: foundations, cooperatives, associations, sole proprietorships, VOFs and BVs focusing on natural, social capita

Requirements: Policy for applicants, has to be in line with their context

Expected return: Non-financial, financial

Orientation: Social

Scale and stage: small scale, early stage – large scale, early stage

Local Rabobank donation

(Rabobank lokalebank zuidwest-brabant, 2020)

Type of entity: cooperative

Goal: support one-off local projects from which residents of our region can benefit for a long time

Financial landscape: donation (cooperative dividend)

Target foundations and associations

Requirements: Application to Rabobank of the local municipality

Expected return: Non-financial

Orientation: Social

Scale and stage: Small scale, early stage

NME Fund

(Fonds NME, 2020)

Type of entity: part of the Van Dijk Nijkamp foundation

Goal: stimulate nature and environmental education in the Netherlands

Financial landscape: guarantees or donations

Target: associations and foundations, private individuals and groups working on social and nature causes

Requirements: encouraging a structural form of NME, connecting with existing volunteer groups or encouraging new volunteer group, above €2500, a detailed project plan is required.

Expected return: Non-financial

Orientation: Social, individual

Scale and stage: Small scale, early stage – large scale, early stage

Future food fund

(Future Food Fund, 2020)

Type of entity: Venture capital fund

Goal: profit from the development of green farming

Financial landscape: Fund

Target: High growth companies that have their own innovative technology or innovative use of an existing technology

Requirements: Company must have maximally 7 years of turnover (non-pilot), be live, have found their product/market fit, have more than a single founder or management team, be scalable and have a base in the Netherlands.

Expected return: Non-financial (minority stake of 20-40%.)

Orientation: Individual

Scale and stage: Large scale, scale up

Brightlands Agrifood Fund

(Brightlands Venture Partners, 2020)

Type of entity: Regional venture capital fund

Goal: Providing venture capital agri-food companies fitting the Brightlands ecosystem.

Financial landscape: Closed-end fund

Target: Early stage, including the 'seed' phase

Requirements: Global market potential, pioneering unique technology, business model, exit option within 5-7 years

Expected return: Non-financial

Opportunities:

Orientation: Individual

Scale and stage: Large scale, early stage

StartLife Accelerate

(StartLife Accelerate, n.d.)

Type of entity: ROM

Goal: To help realizing green start-ups

Financial landscape: venture capital, angel investors, impact investors

Target: Startup working on technologies and new business models in the food, agriculture or bio-based economy

Requirements: the company must have the ambition to scale and grow fast, a highly innovative technology or product, have a prototype or MVP of the product, have at least two founders

Expected return: Financial

Opportunities: several training weeks, workshops and events. €10,000 pre-seed soft loan at the start and €25,000 after successful completion of the program. After validating the growth strategy, one is eligible for another €50,000 soft loan. 300 start-ups already running.

Orientation: Individual

Scale and stage: Large scale, early stage

Borski Fund

(Borski fund, 2020), (Sanchez, 2020)

Type of entity: Venture capital Fund

Goal: creating a more diverse landscape in the Netherlands by promoting women entrepreneurs, SDG 5/12 certified.

Financial landscape: Fund

Target: Women led enterprises

Requirements: female (co)founder with min. 5% equity share, located in the Netherlands, annual turnover of min. 500k, reducing gender inequality.

Expected return: financial

Type of food forest: Social capital, produced capital.

Orientation: Individual

Scale and stage: Large scale, scale up

Agrifood capital

(Agrifood Capital, 2020)

Type of entity: partnership of companies, knowledge institutes and government authorities

Goal: Developing the smartest and most sustainable food production systems

Financial landscape: help SMEs from Northeast Brabant in their search for growth financing

Target: North-East Brabant

Opportunities: invested 50 000 euros in Den Food Bosch

Expected return: financial

Orientation: Individual, Social

Scale and stage: Small scale, early stage – Large scale, scale up

Pymwymic

(Pymwymic, 2020)

Type of entity: impact investing cooperative

Goal: People, planet, profit

Financial landscape: Investments

Target: Early stage sustainable enterprises

Requirements: Business model impacting people and planet. Change in system. Proof of concept, traction and scalability. Transparency and values aligned.

Expected return: Financial

Type of food forest: Natural capital, social capital, produced capital.

Opportunities: Offer support to the companies they invest in to help them grow. Companies that they have invested in also benefit from the network created by Pymwymic.

Orientation: Individual, Social

Scale and stage: Large scale, early stage

Oranje Fonds

(Fonds O. , 2020)

Type of entity: Foundation

Goal: To ensure everybody can participate in society

Financial landscape: Philanthropic donations / subsidies

Target: start-up costs for new initiative (administration fees, advisory design etc.), costs for developing new practices and programs, expanding inventory. From small neighborhood projects till major initiatives (start up, scale up).

Requirements: social relevance, concrete results and impact, continuity, involvement of volunteers.

Expected return: Non-financial

Opportunities: Additional advisory for funded projects. They also operate a knowledge and experience exchange platform.

Orientation: Social

Scale and stage: Small scale, early stage -- Large scale, scale up

StartGreen Capital

(StartGreen, 2020), (NMFF, DWEL, & FFN, 2014)

Type of entity: Private

Goal: Investing in innovative and sustainable entrepreneurs

Financial landscape: sustainable and impact Investments, venture capital

Target: innovative and sustainable entrepreneurs

Requirements: An application form and a detailed business plan to show the viability of the project. The project must be innovative and sustainable (product/service/technology).

Expected return: financial

Opportunities: Asset management as well as fund management, also partner of crowdfunding platform Oneplanetcrowd. After assessing the application, they can redirect to the most matching fund (of the 5). Providing entrepreneurial guidance.

Manages 5 other funds:

- Participatiefonds Duurzame Economie Noord Holland
- StartGreen Sustainable Innovation Fund
- StartGreen Consumer Products Fund
- The Next Women Crowd Fund
- Borski Fund

Orientation: Individual

Scale and stage: Small scale, scale up – large scale, early stage – large scale, scale up

Kredietunie

(Kredietunie Brabant, n.a.), (Kredietunie Brabant, 2020)

Type of entity: Nonprofit cooperative association

Goal: To provide SMEs with adequate financial support in the region. Focusing on the agri-food sector (only in northeast Brabant)

Financial landscape: conventional loan with maximum 8% interest, payments monthly.

Target: existing SMEs

Requirements: turnover of minimum € 100,000 to € 20 million, or number of employees between 2 and 100, company based in northeast Brabant.

Expected return: Financial

Opportunities: Financial coaching is available before and after the lending.

Orientation: Individual

Scale and stage: small, large scale up

Voor de Groei

(Voor de Groei, 2020)

Type of entity: Private company, B.V.

Goal: to connect wealthy individuals, investors, insurers, pension funds with entrepreneurs

Financial landscape: SME finance, loans

Target: SMEs

Requirements: min. 2 years old business, 2 years of financial growth, sufficient cash flow, filling out

the quick scan form, interest rate: 3,5% - 12%. Depends on the risk class for that they check, the current ratio, solvency, URA Rating and the Debt Service Cover ratio.

Expected return: Financial

Opportunities: Repayment mode can be linear, annuity or redemption. They continue to monitor the company closely during the loan period, even intervene if necessary.

Orientation: individual

Scale and stage: Small scale, scale up, Large scale, scale up

Alternative finances

Green Choice

(Vermeer, Interview with John Vermeer, 2020)

Type of entity: energy company

Goal: offsetting CO2 impact of natural gas sales (bosgecompenseerd gas)

Financial landscape: Donations

Target: Money is invested in food forests through foundations like SFNL and DOEN to pay for licenses, man-hours, arrangement, design.

Requirements: Sustainable venture

Expected return: Non-financial

Opportunities: Subsidizes projects with carbon sequestration. Carbon credit systems.

Orientation: Individual, social

Scale and stage: Small scale, early stage – large scale, early stage

Trees for all

(Simone Groenendijk, 2019) (Trees for all, 2020) (Heijs, Interview, 2020)

Type of entity: CBF certified non-profit foundation

Goal: Raise awareness about the effects of use of fossil fuels (degradation of ecosystems) and promoting sustainable development and adapting behavior. Compensate the environmental consequences of using fossil fuels.

Financial landscape: donations

Target: “Entrepreneurs could go to trees for all to ask for financing if they have a project. If they have land, etc. then it could work.” They have a project with an organic dairy farm called Jannemiekeshoeve in NB to transform 2ha to ff.

Requirements: “They prefer working with a foundation for safety and transparency.”

Expected return: Non-financial

Opportunities: “If they compensate 100th of a tonne for 14 cents, then one tonne is 14 euros, so this times 25.6 is 358 per ha per year. That’s already a lot. This is around the same as income from putting maize etc. And this could run from year 1. Then if you have the contract with companies like trees for all that you can show to the bank, it helps financing.” For CO2 compensation in the NL €296.656 (2018) they donate trees and shrubs, finance planting and the sustainable management of the project’s area.

Orientation: Individual, social

Scale and stage: Small scale, early stage, scale up– large scale, early stage, scale up

Subsidies

EAFRD

(European commission, 2020)

Type of entity: EAFRD

Goal: strengthen the EU's agri-food and forestry sectors, environmental sustainability, and the wellbeing of rural areas in general.

Financial landscape: loans, microcredits, guarantees and equities

Target: rural Europe

Requirements: financially viable projects that support the priorities of the EAFRD

Expected return: Non-financial

Opportunities: Funding instrument of the CAP, supporting rural development projects

Orientation: Individual

Scale and stage: Large scale, scale up

Climate and efficient raw materials and consumables

(European Commission, 2020)

Type of entity: RVO

Goal: Themes such as climate, earth observation, eco-innovation, circular economy, resource efficiency, water, nature-based solutions, sustainable cities and cultural heritage are all involved.

Target: Organizations active in research, technological development or innovation contributing to a sustainable economy and society. Both research and innovation projects, every organization active in this field.

Scale and stage: Large scale, scale up

CAP

(Jans, Fennema, & van Eck, Voedselbosbouw en wet- en regelgeving, 2019), (European Commission, 2020)

Goal: Improve farming production and appropriate revenues for farmers. Preserve nature and rural areas/economies.

Target: food forests in agricultural land in accordance with the definition of the Green Deal.

Requirements: food forest owner must have payment rights and be an active farmer. The plot must mainly contain perennial species that yield edible products now or soon. There is a crown layer that has a maximum of 50 tall trees/ha. The products are harvested and sold at a commercial market price.

Opportunities: Since 2019, the combined statement, which farmers must complete annually to indicate which crops they grow, includes a special crop code for food forests: "crop code 1940". Earlier, a food forest had to separate plots for all different species that grow in a food forest and justify every vegetation in the food forest.

Scale and stage: Small scale, early - large scale, early stage

Interreg Vlaanderen – Nederland

(Europees Fonds voor Regionale Ontwikkeling, 2020)

Type of entity: European Regional Development Fund (ERDF).

Goal: To promote closer cross-border cooperation across the European Union by reducing development disparities between European regions and improving economic cohesion.

Target: Organizations for water and nature management, public and private partnerships, governments, farmers and foresters.

Scale and stage: Large scale, production

Food2020

(Food2020, 2020)

Type of entity: European Regional Development Fund (ERDF).

Goal: To strengthen the competitiveness of the food sector in the German-Dutch INTERREG area by focusing on the European 2020 concept for smart, sustainable and inclusive growth.

Target: Medium-sized and small companies and knowledge institutions

Scale and stage: Large scale, scale up

SKNL

(Kwaliteitsimpuls natuur en landschap, 2020)

Type of entity: Ministerie van Landbouw, Natuur en Voedselkwaliteit through the RVO

Goal: This subsidy is a combination of two subsidies. It is possible to apply for one or to combine the two of them. To promote improvements and developments of agricultural management types or landscapes.

Target: Professional farmers with own (or leased for +25 years) land

Opportunities: Allowed in combination with other subsidies

Scale and stage: Small scale – large scale

SNL

(Jans, Fennema, & van Eck, Voedselbosbouw en wet- en regelgeving, 2019)

Type of entity: Ministerie van Landbouw, Natuur en Voedselkwaliteit

Goal: The conservation and development of (agricultural) nature reserves and landscapes. Agricultural collectives show which performances they want to achieve at area level and how they contribute to achieving the goals from the nature management plan.

Target: Certified agricultural collectives (consists of farmers and other land users in that area who have volunteered to carry out agricultural nature and landscape management.) With a minimum of 75 ha of land (total).

Scale and stage: Large scale, early stage, scale up

Provincial subsidies

Provinces hold different subsidy programs for green development within their constituency, depending on the goals that province holds for the development of sustainable enterprises, agriculture and nature development. Often these subsidies can be sourced through bodies with missions relating to the nature network

of that province. For example, the GOB ensures that the provincial goals for their nature network are implemented through funding, subsidies and missions. The Nature Network of Gelderland holds subsidies to aid farmers in developing nature on their grounds for example. The provinces also hold subsidies that can help food forest entrepreneurs in developing their business, for example with the Regeling Economie & Innovatie Noordoost Brabant subsidy that aims at promoting green developments in agriculture, energy, etc. Utrecht has a number of subsidies that apply to food forests, such as the nature and water subsidy, which subsidizes communication, education and research for the benefit of nature and landscape, for example for communication and educational projects, but also supporting nature policies, conducting research on nature and landscape or promoting the experience of nature.

[Subsidieregeling Groen Blauw Stimuleringskader Noord-Brabant \(STIKA\)](#)
(Brabant, 2020)

Type of entity: Province of Noord Brabant

Goal: To enhance the countryside landscape by promoting nature in the area (around or on the land)

Target: Farmers and private landowners

Scale and stage: Small scale early stage, scale up - Large scale, early stage, scale up

[Subsidy for employing people with disabilities \(Loonkostensubsidie\)](#)
(Rijksoverheid, 2020)

Type of entity: Governmental

Goal: Support people with disabilities in having access to work

Opportunities: Wage subsidies that compensate the difference between an employee's productivity and the minimum wage + wage received by the employer (subsidy can cover a maximum of 70% of the minimum wage). Social and advisory support to the employer and employee

Requirements: Certifications for the employer. Lower productivity of due to supervision of employees.

Expected return: Non-financial (support for people with disabilities in their work environment and social integration)

Scale and stage: small scale, early stage, scale up – large scale, early stage, scale up

[Crowdfunding and CSA](#)

[Grootouders voor het klimaat](#)

(Grootouders voor het Klimaat, 2019)

Type of entity: Foundation

Goal: Combat climate change by transitioning faster towards 100% renewable energy. The Grootouders voor het klimaat are committed to this transition.

Financial landscape: Crowdfunding

Target: Young entrepreneurs, political climate, general population (education)

Requirements: Sound business plan

Expected return: Non-financial

Type of food forest: All, emphasis on Natural

Opportunities: Movement in 8 countries, where seniors aim to reduce climate change. In the Netherlands, they have made a crowdfunding campaign for the Leuker Voedselbos.

Orientation: Social

Scale and stage: Small scale, early stage – small scale, scale up

[Oneplanetcrowd](#)

(Oneplanetcrowd, 2020).

Type of entity: Crowdfunding platform

Goal: Crowdfunding with financial return and sustainable impact.

Financial landscape: Crowdfunding, loans, SME funds

Target innovative and sustainable entrepreneurs

Requirements: Must fulfill at least one sustainable development goal, for loans the business model must be well composed. The loan period 1-10 years, interest is 4%-10%

Expected return: Financial (percentage taken by platform)

Type of food forest: All, emphasis on nature

Opportunities: convertible loan, linear loan, annuity loan, bullet loan

Orientation: Individual

Scale and stage: Small scale, early stage – small scale, scale up – large scale, scale up

[Herenboeren](#)

(Herenboeren, 2020).

Type of entity: Cooperative of farms with shared ownership by member citizens supported by a national organization

Goal: Improving food quality, creating an alternative, sustainable food production movement.

Financial landscape: Non-financial

Target: Citizens

Requirements: Members contribute an initial 2000 euros, supplemented by a weekly 10 euros on average. Food produced on the land is redistributed amongst the members. transparency

Expected return: Non-financial

Orientation: Social

Scale and stage: Small scale, scale up – Large scale, early stage

[VoorNatuur](#)

(VoorNatuur, 2020)

Type of entity: Crowdfunding platform, part of Voor je Buurt national platform of social initiatives

Goal: Improving nature and biodiversity in neighborhoods while enhancing social life.

Financial landscape: crowdfunding/donations

Target: Employees of nature organizations, private individuals,

Requirements: Filling in campaign plan as complete as possible, then they contact to create the campaign. Project must contribute to nature and biodiversity while turning neighborhoods more socially active.

Expected return: Non-financial

Opportunities: They provide advice on the feasibility of the submitted projects. Admission to the Voor je Buurt Academy to improve your project

Orientation: Social, Nature

Scale and stage: Small scale – Large scale

Service providers

Certification providers

SKAL

(Skal, 2020)

Type of entity: Foundation

Goal: Provide organic certifications to businesses that meet the required standards of the European organic rules and standards in primary production

Target: Agribusinesses

Requirements: fee for audits and certification

Expected return: Financial (Strict application of organic rules and regulations)

Orientation: Individual, Social

Scale and stage: Small scale, production – large scale, production

Bosgroep

(Bosgroepen.nl, 2020)

Type of entity: cooperative associations

Goal: sustainable nature/forest management

Target: affiliated members (private individuals, foundations, estates, care institutions, nature conservation organizations, water supply companies and governments, such as water boards, defense and municipalities)

Expected return: Non-financial

Opportunities: Can assist with dehydration, eutrophication, grazing or other problems. Sometimes financing can be arranged for the implementation of restoration measures such as deepening or dampening ditches, creation of forest edges and tree planting. Bosgroepen manage SNL applications (Subsidy System for Nature and Landscape) making it the largest collective applicant for nature management. When new nature is developed in agricultural land or when existing nature is improved, Bosgroepen can apply for SKNL scheme (Subsidy for Quality Impulse for Nature and Landscape) for members through a collective application (a bundled subsidy application).

Orientation: Social

Scale and stage: Small scale, early stage, scale up

Advice design and inspiration

Networks

LTO Nederland

(LTO Netherlands, n.d.).

Type of entity:

Goal: promotes the interests of Dutch agricultural and horticultural entrepreneurs and employees. Improving the quality of nature and biodiversity for the benefit of the health of Dutch agriculture

Target: existing companies

Expected return: Non-financial

Opportunities: part of The Delta Plan. They advocate for a greener CAP in 2021 where farmers receive a fair price that matches the efforts for nature inclusiveness. Want to find ways to financially reward farmers and horticulturalists for their extra efforts for agro-environmental services

Orientation: Individual, Social

Scale and stage: Small scale, scale up – Large scale, scale up

[IVN natuur educatie](#)

(IVN, n.a.)

Type of entity: Foundation

Goal: Connect people and nature through courses, projects and campaigns.

Target: Food forest entrepreneurs

Expected return: Non-financial

Opportunities: Support for food forest entrepreneurs, advice. Support food forests such as food forest Zeewolde, create their own mini food forest of 30m², designed as educational material

Orientation: Social

Scale and stage: small scale, large scale early stage

[Agroforestry Network Brabant](#)

(Rombouts, Luske, Vonk, & Veluw, 2018)

Type of entity: Foundation

Goal: reintroduction of trees in modern agricultural management (business approach)

Opportunities Guidance and support with information and calculations for cost and benefits.

Customization of business plans

Target: farmers and estate owners

Expected return: Non-financial

Orientation: Social

Scale and stage: Large scale

[EURAF Netherlands \(Agroforestry Netherlands\)](#)

(EURAF Netherlands, n.d.)

Type Entity: foundation with a network of researchers, companies and organizations

Goal: to stimulate and further develop agroforestry systems in the Netherlands

Target: Target: Farmers in transition

Expected returns: Non-financial

Orientation: Social

Scale and stage: Large scale

Foundation Agroforestry Zuid Nederland
(Agroforestry netwerk Zuid Nederland, 2020)

Type of entity: Foundation

Goal: Development of agroforestry systems in the south of the Netherlands by building up knowledge and exchanging experiences with agricultural entrepreneurs on this subject.

Target: Farmers in the south of the Netherlands

Expected return: Non-financial

Opportunities: Part of Koepel plan. The foundation will serve as a formal applicant and will hire the bureau of the Brabantse Milieufederatie to execute and manage this project. Initiating and executing projects, organizing education and information meetings and offering coaching and guidance. Supported by experts from the Duinboeren farmers and the Louis Bolk Institute

Orientation: Social

Scale and stage:

FoodUp! Brabant
(Brabant F. , 2020)

Type of entity: Governmental independent platform

Goal: the implementation of Uitvoeringsagenda Brabantse Agrofood.

Opportunities: coordination between different stakeholders (such as BMF and GOB), province and public. Connecting people and parties who have interest in creating a new, sustainable and fair food systems (transition).

Target: general public, projects and companies in Brabant

Expected returns: Non-financial

Orientation: Social

Scale and stage: Small scale, early stage – large scale, early stage – Large scale, scale up

Brabantse Milieufederatie
(Together for Biodiversity, 2018)

Type of entity: Foundation, network of citizens and farmers

Goal: contribute to the transition of agriculture. BMF aims to realize at least 70 ha food forests in Brabant

Expected returns: Non-financial

Opportunities: contribute to the Delta plan by developing new business models for nature and agriculture by setting up six provincial carbon banks and supporting three provincial land banks. Milieufederaties hold influence and political power around the theme of food forests. Provides inspiration, communication and knowledge exchange. BMF organize excursions, workshops and meetings for members of the Platform Food Forests Brabant. Go to existing food forests to learn and network with existing projects.

Share knowledge about the creation and maintenance of food forests and about available subsidies.

Orientation: Social

Scale and stage: Small scale, early stage – small scale, scale up

EcoVrede – FFRM Network
(Fonk, Interview, 2020)

Type of entity: Foundation

Goal: Alleviate poverty, improving relations between society and nature

Expected returns: Non-financial

Opportunities: have a food forest, namely “EcoVredeGaard”, Network of members and stakeholders

Orientation: Social

Scale and stage: Small scale, early stage

Fund Management

Brabantse Ontwikkelings Maatschappij (BOM)
(BOM, 2020)

Type of entity: Public non-profit company

Goal: to stimulate cooperation between entrepreneurs, knowledge institutions and the government aiming for sustainability.

Target: Innovative and sustainable project based in Noord Brabant.

Expected return: Non-financial

Orientation: Individual

Scale and stage: small scale – large scale

WINK (Waardevolle Informatie Natuurgedreven Kwaliteit)
(WINK, 2020)

Type of entity: Project by the Dutch ministry of agriculture

Goal: alternative to the KWIN for nature-driven farmers. contribute to the transition to more nature-inclusive agriculture.

Opportunity: practical 'farmer's tool', without lengthy lists of numbers, but full of substantiated inspiration. The WINK will lower thresholds and encourage people to think and act differently

Target: Anyone involved in sustainable primary food production.

Orientation: Individual, Social

Scale and stage: Small scale, early stage

Farm-Life.eu
(farm-life.eu, 2020)

Type of entity: Foundation

Goal: transition of conventional agriculture towards climate resilient agroforestry.

Opportunity: Development of farm plans and profitable agroforestry business models. Sharing information and bringing together people, stakeholders and decision makers.

Expected returns: Non-financial

Orientation: Individual,

Scale and stage: Small scale, early stage – large scale, early stage

Louis Bolk Instituut

(Luis Bolk Instituut, n.d.).

Type of entity: non-profit organization

Goal: Expand agroforestry

Opportunities: Research on most effective combinations of trees, shrubs and livestock. Development business models and management, measuring impact of agroforestry

Expected returns: Non-financial, financial

Orientation: Social

Scale and stage: Small scale, early stage – large scale, early stage

Stichting Voedselbosbouw Nederland

(Stichting Voedselbosbouw Nederland , 2020)

Type of entity: Foundation

Goal: Creation a minimum of 150 ha of Food Forests on Dutch agricultural land 5 years

Target: Investors (companies, citizens and governmental Organizations)

Expected return: Non-financial (co-financing of planting materials. Minimum of 5 hectares in accordance with the definition of the Green Deal)

Type of food forest: Produced, individual, social and natural capital

Opportunities: free professional support for the design, preparation, maintenance and management of food forests. co-financing of planting materials by involving external investors (companies, citizens, NGOs).

Orientation: Social, individual

Scale and stage: Small large scale, early stage

Retail platformsLokaal Voedsel Flevoland

(Flantua, 2020)

Type of entity: non-profit Foundation

Goal: It is a platform to connect the local economy with the local community.

Target: individuals, companies, high schools, governments, farmers, catering

Expected returns: Non-financial

Orientation: Social

Scale and stage: Small scale -large scale

Grondplatform

(Grondplatform.nl, 2020)

Type of entity: Private company, BV

Goal: To create a connection between seller and buyer of land.

Opportunities: After choosing a land, they contact you to provide the details within 24 hours.

Expected returns: Non-financial

Orientation: Individual, social

Scale and stage: Small scale - Large scale

De Groene Koepel

(Stichting De Groene Koepel, 2020)

Type of entity: Foundation

Goal: sustainable development of green vacationing recreation in the Netherlands

Opportunities: knowledge development, innovations in the sector, for those interested, both. They offer a wide range of businesses in various sectors to visit.

Type of entity: Social capital

Expected returns: Non-financial

Orientation: Social, Individual

Scale and stage: Large scale

Appendix 2: Interview coding

Value proposition

Banks and investors

| Interviewee | Organization | Date |
|---------------------|--------------|------------|
| Benjamin v. Leeuwen | Rabo Bank | 13/03/2020 |

"[Benjamin] analyses yearly reports of companies who already have loans at the bank or they want to get one. Based on the result of this analysis the bank can decide the interest rate."

"With a food forest it is a different story, the bank does not know the value of the forest, plus for who you can sell it (no machinery etc.)? Many companies have 60-70% of solvency and their own capital is the risky capital, if they make a loss then their own capital diminishes but the banking capital is safe."

"About food forests: a third-year report would be fine for the bank to start the finance, but ffs do not produce much then."

"Banks could start financing ffs when they are running feasible, for at least for 3 years. (not for startup but for scale up)."

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

"When you want to innovate in milk container you can get maybe 30,000 euros without any problem, but when you want to make an innovation in Social aspect, understanding and connecting to nature then you have a real problem because then the answer is: "that's not in our financial possibilities". They are not interested because most of the financial structures are directly connected to company interests. Innovation needs to be for monetary profit, they are not interested as much in social, nature profit."

"We work for 10 years and everybody can see our activities are and how we work. Social and nature innovation investments must be made easier."

Farmers

| Interviewee | Organization | Date |
|-------------|--------------|------|
|-------------|--------------|------|

| | | |
|--------------|---------|------|
| John Vermeer | Advisor | 2020 |
|--------------|---------|------|

"[on his farm] they have 15 cows, they let the calves with the mother cow. They milk them only once per day. people pay more money for such a system than biological. he can earn almost the double than conventional milk."

| Interviewee | Organization | Date |
|----------------|--------------|------|
| Piet Romboutss | Advisor | 2020 |

"Farmers want to plant trees, but they don't want to invest themselves. He pays 2000 per ha which is little but other pilots they are 60 000 per ha. About funding, they had a market in province building where Heineken and circunie (super factory) wanted to buy carbon rights and farmers were as collective selling."

"Now starting a new program in Zeeland, south Holland and clay area of Brabant this agroforestry complex system will be used in de Peel and realize ecological corridors with agroforestry."

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

"We want to improve the grass outside vegetation because permanent grasslands is good for the CO2 in the soil So we are trying to stimulate Farmers not to change the grass land into corn fields. You could make this infrastructure also for agroforestry."

Food Forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

"To start a food forest, Ursula advises to contact Piet Romboutss for designs of food forests, and in order to develop and inform oneself and get inspired, one should connect with all the meetings, workshops, etc. organized by things such as Stichting Voedselbos, go sightseeing existing food forests, connect with Natuurlijk Boeren for example, in order to see what the possibilities are and meet people who can be useful. As well as connecting with Sjef van Dongen to get a design, etc."

"For Ursula, a food forest should include the 7 layers, animals should also be present as they are part of the cycle, especially as Brabant has a lot of animals, this would make more traditional farmers want to join to integrate this in the system."

| Interviewee | Organization | Date |
|--------------|------------------|------|
| Dirk Hilbers | Crossbill Guides | 2020 |

"There is the recreational aspect, day trips, etc. There is also people going out for sports or mindfulness, this is a trend of people to use the outdoors to clear their heads, this could be spiritual, philosophical, getting rest or clearing your head, these values are becoming more apparent, it is a value that nature and the outdoors provides for people, this could be applied to FF through heritage tourism/awareness."

| Interviewee | Organization | Date |
|--------------|--------------|------|
| Vita Sligter | GvhK | 2020 |

"They had their first planting day in January, grandparents could go and help planting. This was only planting the structure of the food forest, building hedgerows – so the outline is formed now and rows within the forest. In the autumn the other plants and trees will be planted. The main reason for the grandparents to participate was to have a concrete action. They were already demonstrating, which is concrete, but for some grandparents this did not feel like something was really being done (politicians are slow, planting a tree is a very immediate result). It makes them feel like they have

done something that helps with pollution directly, some did it in the name of their grandchildren, by printing a certificate showing that they have a piece of the food forest (sponsorship)."

"Gvhk wants to organize workshops etc. on the land, what they demand in exchange for their help though is certificates, proof of where the money has been going (trees). That they can show what happened with their money, for example to show their grandchildren. Some are curious and want to help, look at the farm, see how it will evolve, where the money is going, so news updates are crucial for that. They are thinking of giving workshops and company visits to companies, etc. who donate a lot, those who give around 1500 euro, can get a visit with the company, to push people to donate more and get their logo on a board on the farm, etc."

"It also helps, that the stichting voedselbosbouw organised an excursion to the one in Goesbeek for farmers, so that farmers could see what would happen in ten years. So if there is one in the area, getting excursions to demonstrate it, or having the media come to showcase it, through time lapses, interviews (with wouter van Eijk for example), then you can have more of a feeling for what it will be like, whereas there you can show the farmer that it can work, to get 3000 euros per hectare. Getting more insights from other food forests that are already there is a good way to promote it to new prospects."

"They were thinking of giving a tree to each crowdfunder (sponsor a tree) but then decided to tell them they had a piece of the food forest, because otherwise people would want to know which tree was theirs specifically, etc. Also, it is a nice idea that it is land that is transformed."

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

"In the previous report, they were comparing ff with potatoes, which you can only produce every 4 to 5 years, so you should the saldo every year divide it by five and add the other four years you can cultivate there which is usually maize or grassland, which brings next to nothing, 300 to 400 euros a year, whereas potatoes is 4000 euros, ten times bigger, and then you come to an average of 1000 to 2000 euros per ha per year in income, it's easy to reach that with a ff."

"Exploitation money flow is interesting, the first 5 years there is not much to do, so it is interesting, the system itself has no costs. In ten years' time in full production, if the harvest costs are higher than the price then you don't harvest and don't have costs, whereas a potato farmer, even if the prices are bad he has to harvest because he needs every penny to pay back his loans."

"He is now working on a ff business plan for Schijndel, because then he will have a template which he can use for other projects, to have a plan with all the risks etc., so they can finance their business."

| Interviewee | Organization | Date |
|-----------------|--------------|------|
| Marijtje Mulder | Land Van ons | 2020 |

"It is essential to cut out middlemen like the banks that try to benefit from things. So, because we know we cannot depend on corporations or the government because they are so intertwined in the Netherlands, we cannot trust them to revalue land and return the land to the people. They keep using speculation to value the land and they will continue like that as long as it is political people are in charge, so we try do it ourselves as people of this country "

Sector

Products & services

Banks and investors

| Interviewee | Organization | Date |
|---------------------|--------------|----------|
| Benjamin v. Leeuwen | Rabo Bank | 13/03/20 |

"Parts about the long-term low risk investing:

A bank would be definitely interested about a long-term short risk construction. Although, nowadays the land is not sufficient collateral anymore, instead the bank focuses on the business model of the company. It needs to be built around paying back the loan/investment. Conventional, already proved business plans with low risk, therefore low return is the most appealing for the bank. (low risk=low return, high risk=promises high return but not certain).

People who are interested in green funds they would not go to a bank to invest. They would go to investment bank. “

“bank has to have a clear goal, why the money is needed. This goal does not have to be creating higher profit with the investment. The company has to carry the weight of the loan, but the loan can be used for almost everything(if the farmer wants to buy a house, he get money out of the company, then the bank can fill up that gap).”

“Rabo does not make a lot of money on investments. They just want security and some return. However, Rabo can connect a farmer with investors, who takes higher risk, but also expects higher return.”

“Getting loans nowadays is extremely easy. Farmer has to call an account manager for funding, then send his balances and then the acc manager gives an offer. Moreover, the interest rates are extremely low now.”

Farmers

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Combine all the green regions for animals to pass from one part to the other. they are busy for 3-4 years. it is difficult to realize because it is difficult to convince the farmers. they made a competition where 23 ha (5 plots) are given out. they ask for business plans. people sign in so they see who would be interested, then they see who are interested. GOP will then buy land from farmers for a good price and give it away to food forest entrepreneurs.”

| Interviewee | Organization | Date |
|-------------------|--------------|------|
| Ursula Kircholtes | HAS | 2020 |

“The province has coaches (Frans den Ouden) for farmers who want to transition to another business model. Ben Bruurs (meadow pigs) was asked if he wanted a coach to have ideas for his new business plan. As a professional farmer, getting this support is useful. It is 10000 euros of advising value, with a lot of networking from the coach.

At HAS for example, Ben Bruurs, her and another farmer have written a research proposal for entrepreneurs, where HAS [...] There are subsidies for HBO, for entrepreneurs to apply, and HAS does the research – called the SIA Takeoff. This gives money to help entrepreneurs.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“We gave them 10,000 Euros to make a plan to help farmers make a plan to change their businesses in a more mature nature inclusive way We also have coaches who help those Farmers. they can lease from the province for a fee only after presenting a good plan.”

“10,000 each could also include the costs of the coach that helps them making a new business plan, they can hire specialists to make a plan with it (agroforestry can be part of the plan). If they only need five thousand Euros, they may also use the auto 5000 Euros for planting materials etc.”

“We are working on a carbon credit system together with the water board but that but it's not operational at this moment.”

“Yeah, we have a subsidy program which is called agricultural nature conservation and farms every year get money for the the meadow` birds or insects but this subsidy program is only for special region in our Province. Yeah, we have a subsidy program for the nature Network, we have a subsidy program for honeybees, we have a subsidy program to plant trees called Subsidieregeling Groen Blauw Stimuleringskader (*StiKa*).”

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|----------------|--------------|------|
| Piet Romboutss | Advisor | 2020 |

“Network said they need strong financial support in the first 5 years about 500 ha (program of about 50 million euros for Brabant (3000 ha of agroforestry which he thinks will be there in 5 years). The network will ask the money the province budget of nature (program of protein). From water management for ecosystem services (about 200 euros per ha) + 1000 kg carbon 50 euros then 200 euro per ha + protein (with agroforestry has higher production) + biodiversity (another budget). If they bring together this money it is likely 500 euros per ha because agroforestry (yearly income) GLB and cap is more challenging. European program in Belgium they pay 95 % of planting but the 5-7 years are not payed. First 8 years there is no loss of production in agroforestry (legumes). Agroforestry is part of production he paid 6000 euros (from the ministry as showcase) to plant about 170 walnuts (35 euros per tree) 3 ha. Still trying to find money but this farmer is convinced in the future of this system. Lines space 27 m and line is 3 m of grass so arable crops are planted on 24 m length. machines of up to 12 m can be used. In the future this farmer may want to increase number of trees and shrubs.”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“We say to the province Gelderland and other people: "we need land, not money, because we are a network and we want to start other food forests.”

“Land is the only requirement because we are a non-profit organization, we can organize everything what is needed and take care of all the other costs involved in the starting up phase of food forest with our members that are already experts and can help for free.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| Vita Sligter | GvhK | 2020 |

“They brainstormed over how gvHK could help and the idea of crowdfunding came up. Stichting Voedselbosbouw also helped with funding (money). It was arranged that the money coming from gvHK would only go to the plants and trees themselves. That way they could tell the grandparents that their money really was just going to that (plants) – that they are really planting a tree through their donation.”

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

“20 ha like Schijndel is a big area for ff, he has done the external analysis of the market, if you look to a good, productive ff, and look at the amount of food produced by 20 ha, and what is the

yearly consumption of biological food products in NL, which is only 5% of the total food products, and then look at the consumption of people 25km around the Schijndel ff, even with 20 ha in full production, it is a small part of the local consumption of food. So as long as you don't have a couple thousands ha of ff in the Netherlands you are still in the niche market."

Sector

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

"Wessel would like to have a system where there is a front desk for which companies can pay money for their carbon credit emissions, on the other side of the front desk are all kinds of measures to compensate for that co2, such as agroforestry, forestry, meadows, organic matter, the front desk helps companies, for which it is not 'sexy' to invest in meadows, etc."

Value chain

Banks and investors

Farmers

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

"Ursula formed a large network of farmers trying to involve the whole chain – landowners, primary farmers, processors (cheese making etc.), retail, banks, and government – forming a community."

"One needs to cooperate with partners in the same area to make a business model."

"Farmers have seedbanks in the Netherlands, Rene Groene for example, of landgoed baest, who is a biodynamic grower, is in a group who together have a seedbank. This reduces costs."

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

"Van der hand makes organic muesli. Chosen specific fruits and nuts so future harvest is already sold. short chain and high prices."

| Interviewee | Organization | Date |
|----------------|--------------|------|
| Piet Romboutss | Advisor | 2020 |

"[Piet is] coordinator of network 80 farmers in north Brabant, already plant 150 ha of agroforestry, planning 250 ha next year, in total plans for 500 ha. Started network 3 years ago."

"He started the network in Gelderland near Arnhem, Wageningen in Achtruc, they also started a network in Limburg and Zeeland. Written a masterplan for 25 000 ha in Holland of agroforestry."

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

"The farmers they cooperate with such as Ben Bruurs say they can't provide enough meat to the market, so there is a business model for meat production in food forests."

Sector

| Interviewee | Organization | Date |
|----------------------|---------------------|------|
| Ghislaine Bromberger | N. Brabant province | 2020 |

“She ordered 800 plants through Yves Rocher, once a year you can order plants from them for 40 cents per piece. There are ways to access cheap planting material.”

Stakeholders

Banks and investors

| Interviewee | Organization | Date |
|----------------------|--------------|------|
| Benjamin van Leeuwen | Rabo bank | 2020 |

“There are loans for ff at Rabo. But they are exceptional. One ff farmer is actually taking over his father’s conventional company and would like to convert some of the land. Since his father was already the client of Rabo, and paid his debt good, the bank finances the transition.”

“Land van ons, crowdfunding, buying lands and give it away for ff. Sctichting BG grondbeheer in den Hague gives loans without any interest. Above a million loan the bank has to access the risk annually. RVO provides grondverklaring for (even minimally) sustainable companies. With that the interest rate is a bit lower”

“A highly divers system is useful for nature, but it is difficult to calculate.

Business case from Phien is too divers and too unstable to calculate with. Schijndel is easy to calculate.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“[John] has a very big investor from the Hague who is paying the ground, trees. wilco is putting his labor. he lives with his wife, veterinary. She earns the money.”

“GOB has 250 million coming from energy company (Essent) whose shares were owned by local government and it was sold to RWE for 1.2 billion euros. of those they invested 600 into roads, 250 million invested in the GOB foundation to finish the nature network.”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“We talked a lot with the municipalities of Arnhem and Nijmegen and province of Gelderland, we also had some contact with the Dutch government. We also talked with Rabobank. Rabobank was especially interesting because they were very clear in their opinion and said: "it's not interesting to us because the results will be too late". So, there you see the basic problem in the financial system. And maybe there could be a solution because local farmers are completely out of order. Rabobank has I believe 40 billion or invested in farmers. The pressure on transforming the traditional agriculture into biological or more nature inclusive is very strong at the moment. Sometimes the communication with this sort of parties would need to be on a legal basis.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“Stika is a subsidy, a farmer can ask this for planting landscape trees, hedges, etc. It’s not connected to a carbon credit system. Wessel can connect us to the project leader of the Stika project, Pieter de Groot. Judith van de Mortel (HAS) who is head of Iecoraat of soil, can maybe help us as well with carbon credits, with regard to soil.”

Farmers

| Interviewee | Organization | Date |
|----------------|--------------|------|
| Piet Romboutss | Advisor | 2020 |

“Another farmer has walnuts alleys with hazelnut and on the side there are asparagus (Groningen), another way berries, in Oisterwjk a student from the HAS (Karijn) making a row with 4 layers.”

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

“[Ursula] also got involved in the green deal meadow pigs in Elschorst, in De Kempen, where there is nature management with pigs.”

“An old HAS student, Joshua Wersch, started de Varkens Boerderij in south Limburg, and got a coach from the Rabobank, as a young entrepreneur (We asked Ursula if it was through the AGR13 fund, she didn’t know, probably not.)”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“Our land was farmed conventionally for 35 years so we had to transform the whole soil and system. We got some plant material from the Province Gelderland.”

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“In sporug, Kattenberg <http://www.voedselboskattenbergsebroek.nl/activiteiten/>. has 2 ha of food forest and 10 ha of agroforestry.”

“there is a masterclass next year with Wouter van Eck. to learn how to manage regulations and denomination”

“people contact bmf (have an agreement with tegsop, international NGO who get free license (Microsoft for example) also agreement with google grants (who has 10 000 for advertising)). BMF direct people to Jhon because he used to work there. sometimes they have ground and look for farmer, sometimes the opposite. he matches people.”

“2 courses 25 people, always full.

not a system to connect people in the food forest network, only informal connections through John Vermeer or other networkers.”

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“John Vermeer is going to work in ff and he orients himself towards agroforestry. 2 target groups. Food forest farmers are mostly people without land, max 2 ha, usually new farmers. They have lots of knowledge and enthusiasm. Farmers for agroforestry have 10-15 ha. They started with 1-2 ha agroforestry and now farmers start with 4-5 ha. One farmer started with 18 ha 25 ha, arable farmer with 35 ha, an estate in Limburg thinking about 35 ha. 50 trees per ha, 1/3 of parcel is tree the rest will be arable (alley cropping) could be a line with multiple types of trees and shrubs. Arable farmer planting 170 walnuts together with legumes. He is representative of Holland of Euraf they made the selection of crops for agroforestry systems.”

“It is very difficult so asked the province to help the small initiatives of the groups of agroforestry and ff. he works in koepelplan voedselbos (Jon Vermeer) 5 farmers are going to plant 2 ha of food forests and a student from the has is doing the monitoring. calculations were made and Ursula knows about it. John wrote the proposal and knows about the proposal.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| Vita Sligter | GvhK | 2020 |

“One of the sons of the farmers is involved in a cooperation of the companies that are around the food forest. They see each other every month, sharing drinks, etc. at a different location every time, so they wanted to host it at the food forest as well (but corona occurred). They need to find ways to get other players to know the farm, they are new at crowdfunding so learning still.”

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

“The ruminant part does not do well, so the sons do not want to take it over. They therefore decided to make a ff. The father will stop with ruminants in 2.5 years and they will change the rest of the farm into a ff. They will sell their phosphate rights to pay off part of the debt to the bank and invest in the land, in the meantime the son works at a company to have an income until the ff starts producing (2024). Their funds: they have the land already, helped with funding for sustainable breakthrough of ff, this payed for the design and architecture and guidance. [Greenchoice] funding 1000 euros per ha for sponsoring the trees and hedges. They had contact with gvkh foundation who wanted to support projects like this, they supported funding of plant material, they work with province Limburg, who has a subsidy program where they want to plant more trees, 1 million. They look for projects of people planting trees, so they applied to that as well. So, they found different ways of filling the gap.”

“Another project is the one from [balanassau] a young person coming out of university who thinks he can get money from friends and family, crowdfunding, he is interesting because he has a good business plan and will ask people to invest in the company and get payed back in ten years’ time, with a better interest than the average bank saving account would. He is looking for a financial side, he is looking with the groen ontwikkel fonds of Brabant, so he is renting 6 ha for 20 years, and then has a buying option. He starts by renting and not buying, then finds investors for planting, and in 20 years, he hopes to be able to pay back the early investors partly and go to the bank and show his model works to be able to finance buying the land.”

“FFF found funding for their projects, trees4all, they have a contract with them, they will co-finance ff with them for 50000 euros. It is an investment in planting material. And fff said they can do more than that because they are talking about 25.6 tons of co2 sequestrated per ha per year with a ff in production. Their program is 150 ha (**Duurzame Doorbraak Voedselbosbouw**), they have 50 ha from eemvlei and Schijndel so in their total plan they will go in the next years to 200 ha of co2 sequestration, for them it is an important part of their earnings model.”

“Trees4all has a carbon sequestration project and they are having trouble finding people planting trees.

Entrepreneurs could go to trees4all to ask for financing if they have a project. If they have land, etc. then it could work, ofc they prefer working with a foundation for safety and transparency.

If they compensate 100^m of a ton for 14 cents, then one ton is 14 euros, so this times 25.6 is 358 per ha per year. That’s already a lot. This is around the same as income from putting maize etc. And this could run from year 1. Then if you have the contract with companies like trees4all that you can show to the bank, it helps financing.”

“He thinks with a good plan he could get people in nl to invest 1000 euros, and then in ten years’ time they would get a good return on investment.”

Sector

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“Green choice has interests in ff (carbon rights)”

“Half of 80 farmers in network are working with walnuts. He selected 8 of them to develop a cooperative for walnut oil production (chain without external stakeholder) including production, processor, retailer. To avoid making the farmer week. Make agreements of costs and financing.”

“Marco van bel is writing the farm life plan. He is part of Larenstein. He is responsible of business models. Agroforestry network Brabant, Nicole is economy specialist. She wants to learn about our model. She made 10 plans for farmers -> survey. Jan van orst, ilvo, bert romers sent about cost Belgium of planting (normeboek). Andrew Dowson is working in Wageningen is economic man in agroforestry and food forest. Model about agroforestry sytems in arable farmers -> he can organize a meeting with farmers in the end of June”

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

“Piet Rombouts was on the board of this community – Community of practice natural farming (natuurlijk boeren). He was working at the Brabantse Milieufederatie at that time and was involved with defining the program. He represented the Brabantse Milieufederatie on the board. Now he doesn’t work at the BMF anymore, but started the agroforestry project, and is doing a research project at the Van Hall Larenstein called Farmlife. She is also in contact with people from Van Hall Larenstein, they exchange results on research.”

“One needs to cooperate with partners in the same area to make a business model. There are different entrepreneurs such as recreational, farmers, retailers, landowners, waterboard, staatsbosbeheer, brabant landschap, etc.”

“First regional carbon bank in the Netherlands – natuurandmilieufederaties.nl”

| Interviewee | Organization | Date |
|--------------|-----------------|------|
| Dirk Hilbers | Crosbill Guides | 2020 |

“The IVN (Institute for Nature Education) do a lot of nature education, reconnecting with nature, within one’s garden, or allotments, reconnecting to farming for yourself, which also includes growing trees, and they maybe work with food forests actually.”

“There is a new way also, there is an organization called Land van Ons (meaning land of ours) (landvanons.nl), there is a membership situation there, but it is a very level organization, It is a gathering of likeminded people, anyone can become a member of it for a fee, about 20 euros, and as a member one can buy land, and you decide together what land to buy to grow but entirely nature friendly. It is a grassroot organization. People want a change in agriculture, and get together to do so, they buy land and have farmers working on that land but in a nature inclusive way.”

“The general idea for this type of initiative, is that they are in a way an investment fund, without the goal of making money, instead just changing the way to use the land. They can sell their land back, but that is not the goal, unlike natuur monumenten, it is not an organization where you give money and they use your money, in this one you give the money so all can do something together with the money. These grassroots initiatives are very interesting because you are one of the people taking action rather than someone else doing it for you.”

“IVN is the one that is most [...] their goal is the educational part, for them food forestry is the means for people to reconnect to nature.

NIVON is an org that are quite local, have a group of volunteers who do things in natuur education, probably in all provinces, certainly in Gelderland.

Another org with a very different approach is [...] In Gelderland there are a lot of old estates, who usually had/have as a goal to maintain old traditional orchards, woodlands, fields, they have a collective organization, they join forces in an overarching organization. Dirk needs to remember what the org is called.”

“If one wants to have best practice, it can help to go with traditional stakeholders, the landschaps, etc. But it might also be interested to do projects with organizations that on would not directly think of, for example, the part of NL between the great rivers, used to be the place for old orchards, much of the traditional agriculture was based around orchards, those older trees have almost all disappeared because they now grow them on short stem trees. Many organizations locally want to at least establish some of this old grandeur back, one of the possibilities to do that is through ecotourism, getting people from cities like Rotterdam to go there and pick fruits, have social projects there, etc. You can easily make it into a social project, with people from the cities or poor communities within the cities, to connect people with nature, etc. That could be a very different approach, there are funds to get money from this, but needs partners with land and trees available, because the goals might work together, having FF and having old orchards back, and making it into a social aspect can bring in funds.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“It's still in the beginning quite difficult to make a carbon credit system, which is also certified [...]”

“The New Forest plan is "called bos plan province". We want to plant 40 million new trees. My colleague Will Poelmans can give you some background information.”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“You recognize that you can reach people in their heart, people understand and think: "Oh, well, that's really interesting. You're doing something completely different" and then there are two possibilities: either they think we are completely mad, and they do not do anything, or they support you. That depends on the stakeholder mindset. In any organization you must find the people who feel the connection and to understand that you are interested in working with the real Integrity to do something new.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel De gouw | N. Brabant Province | 2020 |

“Wessel is not sure yet how much needs to be specified (in terms of variety in forests). They have spoken a lot with [Josko Zijdse] who is the owner of a company called the climate neutral group, but also set up the green deal, he knows a lot of how the system is set up in the Netherlands because there are a lot of potential systems to compensate co2. You can put it in forests, in trees, etc. They are trying to work on grassland and organic matter, compost, bokashi... Compensating through this.”

“Trees4all is a company that is doing this. They connect local projects with businesses who want to plant trees. They find a strip of land for you and then you can plant it there, so the company has planted trees. They measure 15 trees for a ton of co2 (needs to check this).”

“There is an initiative for the methodology of carbon credits for forests, and they are also conserving something about individual trees and agroforestry, but it is not yet ready. Maybe they will split it up

on side projects, but he is not sure yet as they are still working on it. They are called the Bosgroepen, they are non-governmental, they work with orgs like staatsbosbeheer.”

Valuation

Banks and investors

| Interviewee | Organization | Date |
|----------------------|--------------|------|
| Benjamin van Leeuwen | Rabobank | 2020 |

“Although horticultural companies have much lower solvency, but its known they will not go bankrupt in the first 4 years, just producing enough income to be above water, so the bank finance it. For example, fruit production is difficult. Analyzing the export market was a good tool to forecast how the market going to change but nowadays it is difficult. Because the organic market is growing fast in Germany (2005 0,8 - 2020 10% in, market disruption), making it risky to finance it. So even if the bank would know food forests will be popular, they cannot finance it because its short and not stable supply chain make it difficult to estimate its value. (and you cannot go to and distribution center and say, you have 10 kg of this and 3 kg of that etc.). Including the details of this supply chain or market analysis in the report for the bank, but still the business plan is leading with the decision. Although, the best, most realistic business plan is still only containing "soft" values (estimations, forecast etc.). It always has risks. Banking always looking backwards on "hard" values cash flow etc. Hybrid capital, crowd funding, business angels, new forms of getting finance.”

Farmers

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Schijndel is also already sold to VITAM. The community food forest of 1 ha, the trees of that are paid by vitam. there is not a signed contract.”

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“He is together with colleague but then he saw that food forests young people. But very large group of farmers in Brabant who has interest to change in sustainable agriculture, but they have to earn money. Their capital is in the soil. If a ha in soil is 80 000 if you change in food forest, then the price goes to 15 000 euro. They lose 65 000 euros in value per ha.”

| Interviewee | Organization | Date |
|----------------------|---------------------|------|
| Ghislaine Bromberger | N. Brabant province | 2020 |

“She bought the land herself, through a bosmakelaar (woods estate agent). The denomination of the land is bos natuur (woods nature), these types of land are advantageous because you pay less tax on them, you pay only for waterschap.”

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn Heijs | St. Voedselbosbouw | 2020 |

“This is not a risk for the landowners to rent out to someone planting trees because the value of the land is higher since it is a ff in full production, so you have the value of the land, plus the value of the whole system in place, or the value of each tree, etc. Furthermore, even if it is after three years, it is still worth more because you have the value of having three years less to wait for production. (on top of this in this case it is province owned land anyways). Buying a walnut tree that is one year old,

selling it after two years of growth will generate a profit. So a renter would be wise to put in the contract that if they return the land, they should return the land with what has been planted in it, so as a food forest.”

“A ff is nothing more or less than an agricultural food system. The land will not change denomination. What there is that there is a program in NL to enhance nature, if you look at the valuation of nature [...] Back to the question of value of land, nature land is often valued at a low rate, what you now see is that in all the processes where for example green development funds of Brabant want to develop nature, so you rent it and are not allowed to use fertilizers or pesticides, so it is nature inclusive agri, and out of that they are agreeing that it will not change back into agricultural land anymore, so farmers do that but then ask for a down payment on the whole part, that is part of what the green development fund is doing. They do it with FF because it is such a system which complies to the rules and is part of nature. So, the separation of nature and agriculture is removed.”

Sector

Institutions

Banks and investors

Farmers

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“money is very cheap; little pay for rent. in a bank account you have to pay. Province has a lot of money and want to invest 100 million into land because it keeps its value. its purpose is to make nature inclusive agriculture which is a policy. when they have ground, they can choose the rules for it. Ask farmers who rent the land to be nature inclusive. influence the landscape.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“As a province we contribute financially to a nature inclusive agriculture.”

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“one plan is milieu federatie, they have to plant 1 million trees, province of Brabant wants to plant 14 million. big plan from the Hague to plant 100 000 ha of forest, Brabant has to plant 30 000 ha of forest. 30% agroforestry, and 3-4 000 ha of food forest. there is no place, strategy, funding, only paper and policy.”

“Schijndel [...] the grounds and trees are from the province”

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“Funding not very developed yet. Gov wants to stimulate 25 000 ha of agroforestry in 2030 and 1000 ha of food forests. This will be most development of knowledge and programs. He doubts they are

going to invest a lot. Next year agroforestry is one of the headlines in European policy and cap in the (from 2-3 years they will subsidize about 200-300 euros per ha). Every province has a program because national program pays a half and the rest is paid by them (masterplan). Still it will be mostly programming and planting.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“The municipality is looking at ways to broaden the definition of nature so that a food forest can be planted in a nature area.”

Sector

| Interviewee | Organization | Date |
|--------------|------------------|------|
| Dirk Hilbers | Crossbill Guides | 2020 |

“There is a law in the Netherlands for private land owners, where they get subsidized for maintaining their land, only if some of it is made publicly available, with trails laid out, open to the public. Even though they are private estates, they have part of their land open and get funds to maintain these areas in exchange. This could be interesting because they might be able to do something with FF.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“As a province we invest and we will invest in food production in combination with the production of nature because nature in our province are in a bad condition, especially in agricultural areas. We hardly have any biodiversity left in our agricultural areas. We only we protect nature.”

“The waterschap has paid a contribution and land to the to agroforestry den food bosch.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“[Greenchoice] are trying to make it a carbon credit system but it will take some time because you have to make a clear baseline, show that it is additional to the current policy in NL. So in order to have it fit for the green deal, you have to make some steps and some choices, and you have to do measurements, and if you just give subsidies, you are giving money to a farmer and he pays a bit extra to put organic matter on the soil, but if you want to have a carbon credit system you have to make some choices and create a system, the green deal is set up to make a system, and they have to follow that system.”

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

“The green deal is for 4 years and is almost finalised. There is a new round that should start next year but is postponed one year so they will keep the current one one year longer because they are still negotiating the terms.”

Practices

Banks and investors

| Interviewee | Organization | Date |
|----------------------|--------------|------|
| Benjamin van Leeuwen | Rabobank | 2020 |

“The main purpose of a bank is to secure the funds that they are holding. The bank has no investors in that sense, only people who want to save their money at the bank. This does not have big amounts per accounts and this money have to be accessible instantly. Therefore investing in risky models is a no-go for a bank. If somebody wants to invest then they go for a broker or investor

specialist. So bank is about securing the funds. That is why banks like to invest in common practice, its proven it works. Rabo currently has a market share in dairy farming around 95%, it is not investing, it is technically pumping money around, it is safe.”

“Real estate is financed or 20 years, good land for 15, inventory 4 years. Therefore in the business plan one has to state how the loan will be spent and on what due the difference in the interest rate and duration. The interest rate is based on the annual report handed in from the last two or three years from the company (with risk profiling).”

“The situation is difficult in the NL since the land price is extremely high 60.000 euro per hectare. Most of the farmers only making enough money to sustain the company and to pay the bank loans. Crops do not yield a lot. They apply for subsidies or having an open day. They earn the "real money "when they sell their land. (since they bought it for 20.000). It is their pension. In the NL there are a lot of dairy farm. Therefore, there are a lot of information what a certain farm worth. It is easier to estimate its value. If the farmers go bankrupt the bank sell the farm and get the money back.”

“When a new legislation is prepared a research group is formed to tackle a problem(phosphate excess, etc.) the bank is present in this group, but has no influence. They just get direct information faster this way before the legislation gets out. Banking is bound to a strict official permit, it limits what a bank can a cannot do. For example, they can tell to an entrepreneur if they are doing good and will get the finance, or if they cannot provide the finance. But the bank cannot function as a advisor and tell what the farmer should do.”

“desired numbers from ratios for Rabo:

solvency: 35% for diary, 15-20% for horticulture, other sector its specific, but around 35%.

liquidity: positive

current ratio: 1,5 depends on production”

“AVG legislation, bounds the banks when it comes to getting financial information from a new client. Only with specific reason, and only the needed information can be accessed by the bank.”

“Matrix for sustainability, based on certificates, and on animal wellbeing. Results: A,B desirable for funding, C is not really, D the farmer has to prove it will move to C or above, E no. Duursame haits matrix? Not for long term, but only the next 2-3 years. In the future the interest rate will be based on this matrix.”

"Sustainability from banking perspective is broad: social environmental, individual etc.. Still Rabo tends to focus on scope 1 emission. If you have low emission then you consider sustainable.”

Farmers

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“There is a new policy. Brabant is going to change from pigs to vegetable protein production, groeneontwikkel. For organic farmers they can finance Ministry started “actieplan bos en hout” (forestry program (10 pilots to stimulate planting of trees, 8 are purely forest, 2 agrof (1 with chicken, 1 is his project) they don’t want to continue because they are waiting for the wischaaplndbaubleit, common lang (GLB) In last 2 years he was coordinating the program, every winter he could pay 30 ha of trees.”

“Combination of nature (nature is the most successful way of gathering money).
Can change denomination to nature only when farm is close to nature (extension) 2000 ha of
development nature (business nature).”

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

“The main actor concerned was an ex pig farmer, but the agricultural area around him became nature, so he had to adapt to these surroundings. By law in the Netherlands pigs cannot be in the forest, so they are looking at how to change this or work with it at least.”

“The space in Brabant is more limiting than the market for development of these farming models, but this is more to do with pigs, maybe the situation is different with food forests.”

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

“What they see a lot with their projects is that a lot of existing farmers, especially in ruminant farming, they have the problem that they have not been making money for years, the bigger ones are growing and the smaller ones are being pushed out of the market.”

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|----------------------|--------------|------|
| Benjamin van Leeuwen | Rabobank | 2020 |

“In agriculture there is no startups. You cannot get a loan for annual production if you want a ff.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Agroforestry is easier for the farmer to implement. Closer step because he can still use its machinery, cattle, easier. Sometimes big farmers go to agroforestry want to implement 1-2 ha which cannot be used by big machines.”

“Wilco de Zeeuw has 25 ha, cows agroforestry and food forest. In Brabant, with Shef van Dongen, Rows of nuts, 4000 honingbes. Aronia, 1100 pawpaw.”

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“Ff because of harvesting are going to have more simple systems (schijndel) agrof is developing towards complexity.”

“ZLTO had 20 000 euros, used 15 000 on hours (communication) and 5 000 for farmers. Didn't find farmer, asked him. This farmer received 4 000 from ZLTO and 4 000 from Piet and planted 4 ha. Piet used 10 000 euros for 30 ha. ZLTO spend a lot of time on discussion because they need to keep consensus among members. Quantity of money invested in programs is not important, it is about how it is invested.”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“We are more social orientated. We started in 2009. And first we had to look for a location because of the law and structures in Holland is really difficult due to the price locations of land.”

“We paid by our activities because no one gets paid for labor. We only get a small amount of money for the basic things but it's much more what we invest. It's twenty Thirty fifty thousand a year more what we invest in our labour and our the things we need.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| Vita Sligter | GvhK | 2020 |

“Locality is crucial. A lot of the grandparents find Limburg too far for example (a lot happens in the Hague). The media does like talking about it though, so they had a spot on the radio and on television talking about their project. Local things work well spreading with local media. Finding networks by these channels works well. There are a lot of food forests, so it works best to try reach people that are close and can have a connection with the food forest or want to support their local farmer.”

“Mark is doing 5 hectares out of 20, so it is being transitioned gradually to see how it goes, so he is seeing how to integrate the other parts of the land, some will be for cows, but it will be a sustainable amount of cows per hectare, etc.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“Agroforestry is totally different to forestry or meadows, so you have to create a completely different carbon credit system, another methodology. An agroforestry has less co2 compensation than a normal forest, and more than a meadow. Some goes in the tree, some in the soil, so you have to measure that differently than for other systems, it is the same steps but different results. They are starting with meadows and organic matter atm, and later on there are programs within the province who are more busy with agroforestry and forestry, and they can create the same methodology, so the farmer can choose between for example meadows or agroforestry project for the carbon credits. Atm there is not any other organization busy with agroforestry methodology.”

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

“Some ff are made by farmers, some others, like Roosendaal who is made by Brabant water who wants to shift their rented land to farmers into nature inclusive farming. A lot are ruminant farmers that are transitioning.”

“In Schijndel they are getting about 350 euros per ha a year. They apply to it, and because they pay the GOB a nature inclusive rental fee of around 421 euros per ha a year, so 80% of their renting costs is played by the CAP.”

“With Schijndel which has 80 diff species, every year a couple won’t produce well because of the climate, but you will have another 20/30 that give extra production, so risk profile will be substantially lower. You have a stable income here whereas with monoculture you have a peak in income during harvests.”

“If you say I have 5 ha of land and you use 2.5 in annuals and 2.5 in ff then it’s a good system. But you should not mix the two, because perennials need fungi, whereas annuals need microbial soil. Same with ruminants, you can combine it but keep them separate. Once the trees are big enough you could have grazing around, but at first you need to let the development happen.”

Sector

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“green energy companies like green choice, SFNL are funded by greenchoice and by Stichting doen <https://www.doen.nl/>

they have co2 compensated money. customers pay for compensation. before they were buying land in Africa to do regeneration projects, throwing away local farmers. Now they do regeneration in the Netherlands. they give money to foundation. they pay for license man-hours. arrangement, design. farmers get 2-3 000 euros to buy the trees.”

“Of 500 ha from gob only 13-15 ha were suitable for food forest because of regulations.”

“If you plant poplars it is seen as agricultural tree so you can plant more than 100-150 trees. this changes from gemente to gemente.”

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

“There is a long discussion on the price of carbon sequestration, they want at least 50 euros per ton, this has been said for years, there are initiatives in the Netherlands but it was concerning the industries and not farmers, and following the model of Austria, they thought to move it to farmers too.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| Dirk Hilbers | Crossbill | 2020 |

“Funding for nature projects depends on the owner. The big difference is whether the project is led by the site owner or not. This is because the site owners sometimes get subsidies for maintaining biodiversity for example, and they can quite easily (for example natuur monumenten) grow old varieties of trees in places where they always had these varieties. They maintain those sites for that reason and receive money for it. They receive money from the state but also through member donations. That is one traditional way of going about.”

| Interviewee | Organization | Date |
|-----------------------|---------------------|------|
| Ghislaine Brombergers | N. Brabant province | 2020 |

“When buying nature land, you have to guarantee that you will keep it nature for at least ten years.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“Certain parts of our Province the debate nature areas, but because we have focused only on a nature areas, we have we didn't invest in nature of agricultural areas. So, we hardly have any meadow birds left the insects population is declining. Now we are aware that a good biodiversity in the nature areas also depends of the biodiversity quality in the agricultural area. So, we want to improve the biodiversity in the agricultural area and agroforestry is a way to do that.”

“Of course, we have as a province we have quite a lot of subsidy programs for improving the nature quality, but they are only available for sure the parts of the province. For special areas there are special subsidy programs. If you are a farmer and you have your farm just outside those areas, you cannot use those subsidy programs (for instance nature Network or close to Nature area) That's that's actually that's pity.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

They have a nature program within the province, the carbon credit system has a methodology created for a certain project (meadow etc.) also the geographical area, then everyone in Brabant can start a project, using that methodology to get credits for it.

Discourses

Banks and investors

| Interviewee | Organization | Date |
|----------------------|--------------|------|
| Benjamin van Leeuwen | Rabobank | 2020 |

“For example, with Neovision vision farmers, from on 2022 it will be illegal to nurse these animals for their fur. So probably most of these farmers (and loans) will be gone. For Benji it is apparent the bank is not a political institution they just facilitate, therefore they had no impact on this legislation (no lobbyist etc.).”

“Triodos has no proof to supporting organic farmers.”

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“Talking about investment in ff some talk about 40 000 per ha, some talk about 6 000 per ha”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“Different movements tell organizations like Rabobank that their activities give as a result a damage to all sort of values. They say that if they keep the farmers working on the same level, then they should pay for water pollution, air pollution, animal health problems, etc. By investing money they are destroying biodiversity. They don’t consider the real costs that are much higher than their profits and there is the need to change that system.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“The goals of companies are getting closer to those of governments, because they see climate change coming, inequality in the world, and they want to have an image that faces this, so they want to invest in this as well.”

Farmers

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“it is hard to throw away conventional farmers who are not willing to change their system because they are used to it. they could sell their land only if they get a big offer maybe.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“It is possible that an agroforestry farmer could receive a subsidy for honeybees, but he is not sure because the subsidy is meant for farmers who make a part of their land a regional grassland. He is also not sure if it is allowed because normally you cannot make a combination of two kinds of subsidies for the same area. he thinks this is a general rule. He thinks that there is a maximum roof for subsidies for farmers, they could have problem for income from EU commission.”

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Everyone wants to plant trees, but they don’t think them where to plant them, how to plant them and can you plant them.

nobody wants to have trees cause it cost money to put on the ground and they cause danger. cables, water, gas pipes.”

“there is enough money. it is about to find the ground to put the forest. in Brabant there is (150 ha of food forest?) already. In 2-3 years, we will have 1000 ha of food forest. From farmers, citizens, province, local governments.”

“Example of farmers who have both food forest and agroforestry. usually they are coming from organic farming.”

“most farmers and newcomers want to start a new food forest for the environment, they see the shift of land towards monoculture, and want to change things and increase biodiversity. they don't see the profitability because the models are limited. Wouter says he earns 3-4 000 euro per ha, shaf van Dongen says to earn a regular salary on 1 ha after 8-9 years. only stories so it is very uncertain.”

“2.7 million people in Brabant. if 10% of them buys food forest products, you can feed 18-11 people with an ha of food forest. with 1 ha of grass you can feed 1.2 people. 270 people divided by 11. Brabant should feed Brabant; north Holland should feed Amsterdam. we don't have to feed the world.

moving food forest to regime cannot be done quickly. now we have 150 ha in Brabant (biggest food forest province), if Brabant has 100 000 ha of land, food forests are not even 1%, Within 3 years we will climb up to 1 000 ha of food forest, within 10 years we will end up with 10 000 (which would be still 10%.”

| Interviewee | Organization | Date |
|---------------|--------------|------|
| Piet Rombouts | Advisor | 2020 |

“Made some studies of water economics and climate. There are a lot of system however ff are a kind of agroforestry. He thinks that circular economy will develop, and government accepted agrof as one of strategic main lines in forestry and agriculture side.”

“If development is going as fast as now then 25 000 ha will be found just in Brabant. It is going exponentially fast.”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“We communicate that the values in the food Forest are much more than only money so that the real values must be seen and must be supported and that's the basic point we stress in every conversation because we must make clear that the real values in a food Forest on a such a high level that people should give us as much money as we need.”

“Because of conventional agriculture over the past 35 years, trees are dying because of waterlogging or pollution from pesticides residue

We try to study and try to find out why this happens, but we also try to be creative and plant new trees and choose different varieties.”

“Purchasing new trees and do extra measurements are problems with our budget. We are also directly connected to the financial situation of the province because when they have problems then they cannot subsidize us.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| Vita Sligter | GvhK | 2020 |

“The current food forest they are funding they have 26% which is not a lot, so they have to see how this year goes, but the plan is to help more food forests. The involvement is very important to change the agricultural landscape, to have more people realize that this is a way to change things, that farmers are willing to change but need help to get started.”

| Interviewee | Organization | Date |
|--------------|--------------------|------|
| Stijn heijts | St. Voedselbosbouw | 2020 |

“If the cap changes business model basing it on organic matter content for example, this would be very interesting for ff. If the amount given jumps from 350 per ha to 450, then at Schijndel they would earn money, because the rent would be lower than what the EU would give them per ha.”

“There is nothing in place atm that he knows of that pays for implementing nature in NL. He sees that almost all people working with ff are talking about education, workshops, etc. He has advised projects not to do it, because before they are ready and their ff is working they will find educational

ff everywhere already, so it is not a business model anymore because no one wants this education anymore.”

“[...] no one today who does not have a family farm, can afford to buy land in NL and make money, it is impossible. So renting land for a ff is a good idea, however you put a lot of investment in the land so you want to be able to buy it at some point, but if you have a good business plan and model, you should find sufficient people wanting to invest in such a project.”

“A ff, if the system is running, it is building organic matter in the soil, and with that is building water retention capacity. Ketelbroek, less than 10 years old, so still a baby, they went from 4.5 to 7.3%, martin Crawford grew from 7% to 13.6% in 18 years’ time.”

“FF creates jobs, this is not a disadvantage that they need a lot of labor. Gov try to create jobs, ff can do this.”

Sector

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“A lot of people want to buy piece of land and put a tiny house next to it (2 calls per week) impossible to do because that would require very expensive ground.”

“Netherlands is planning to have the industry has to pay 20 euros per ton of carbon. not a lot, in Sweden they pay 60 euros per ton. A food forest stores 10 tons per year per ha so if you have 20 euros, that is 200 euros per year, in Sweden it is 600.

conserving the water "koepel plan" when you go from 2.5 % organic matter in the top 30 cm of maize to 15% in 2 m of food forest. you can store 30 000 cubic meters of water.

if waterschaap wants to store 1 cubic meter has to big a big pool that costs 70 euros.”

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

“[...] the minister of agriculture wanted to move towards circular farming in 2018, natural inclusive farming being one category of this.”

| Interviewee | Organization | Date |
|--------------|------------------|------|
| Dirk Hilbers | Crossbill Guides | 2020 |

“People have different ways of growing, pruning, harvesting trees for example. All these different ways of living are disappearing, to connect with these landscapes is to connect with a land use, with the goal to connect with nature, this is a budding trend – locality.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“We want to stimulate. I think it was about 10,000 ha (I think) of New Forest in in our Province. With those 10,000 hectares of new forests, we also can make CO2 carbon dioxide improvements, but I'm not sure how we can pay this. Yeah, this new first. This is the important interesting part for me actually.”

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

“So, price for a location around 60,000 euro is quite normal. Well, then at this moment you don't have anything done, but you need to start. So, the basic Point the big problem is starting a food Forest.”

“The basic problem is our financial system. Your study is also really interesting because the financial system itself creates the problems we have so we basically only talking about the system problem. There is enough money and Holland is one of the richest countries in the world but still we have

between one and two million people living in poverty and we have also a lot of other problems. So, it's a problem with mindset into the problem about the way we organize our financial system values."

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

"Suggestions of other provinces that are ahead in these themes: for carbon credit and meadows and soil, which is a part of agroforestry, they are probably the only ones thinking about that. The European agricultural policy (CAP) will change to focus more on ecosystems, so in the future there will probably be support through this for farmers protecting the environment."

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

"Now the organic part of the market is 5%, in ten years' time it will be 8 to 10%, so the first doubling of that is not an issue, and he convinced that maybe 30 years on, it won't be a niche anymore but production costs and development are there to make it a much lower cost price. On the other hand, if the impact on the climate and the biodiversity was really calculated into existing cost price of the existing farming methods, price would already be at the level of existing food forest cost prices."

"Multi strata systems have a higher level of co2 sequestration than monoculture systems. There is huge potential to do much more carbon sequestration via systems with perennials, but then you have 1 to 2 tons per ha per year, whereas multi strata systems like ff can have 40 tons, so that means 150 tons per ha."

Risks/Mitigation of risks

Banks and investors

| Interviewee | Organization | Date |
|----------------------|--------------|------|
| Benjamin van Leeuwen | Rabobank | 2020 |

"The report is about the yearly revenue, balance sheet. So, after the company is up and running it is not hard to get financing from a bank. But as a startup it is almost impossible. In that case angel investors/business angels are more suitable."

"Bank has a database, what contains all information from previous and current clients with loans. With this tool they can assess the probability of default (they cannot pay anymore) for clients. In this way they can see what triggers bankruptcy way before it happens. It also can indicate what % of the loans will default. It is a meta-analysis."

"Climate risk is getting more incorporated into Rabo's risk model. For example, if a farmer does not have any irrigation for his plants, it is risk now due to the climate change. Additionally, the bank also assesses the entrepreneur personally, but it is not really leading in forming the interest rate. The leading information is the company's Solvency, Liquidity, Current ratio, it is also providing small but important signals to assess the risk. In general stability is key for the bank, seasonal fluctuations are okay, but rather not have them too much."

"About food forests: a third-year report would be fine for the bank to start the finance, but ffs do not produce much then. Other option would be growing annuals in the beginning, but then that is not their real long-term business model. Plus, annuals is way more cost intensive."

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Banks do not like when farmers plant trees into their land because they lose their collateral (the value of the agricultural land).”

“Banks want a Return of Investment of 2-3 years, not even Triodos.”

“rich families and estates like bindijck may be good investors.

Brabant landschaps is an enemy of food forest because of invasiveness fear.
some investors find security in land, instead of keeping money in the bank.”

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

“She financed it herself and with the bank, as a private investment, not as a company, to make it easier to get a loan (mortgage) from the bank and to take advantage of the low interest rates.”

“Another interesting aspect is profit sharing; the organization must wait for a profit to get returns though which is the barrier. The national green fund for example could be willing to do this.”

| Interviewee | Organization | Date |
|-----------------|--------------|------------|
| Marijtje Mulder | Land Van ons | 12/05.2020 |

“It is essential to cut out middlemen like the banks that try to benefit from things. So, because we know we cannot depend on corporations or the government because they are so intertwined in the Netherlands, we cannot trust them to revalue land and return the land to the people. They keep using speculation to value the land and they will continue like that as long as it is political people are in charge, so we try do it ourselves as people of this country

| Interviewee | Organization | Date |
|--------------|--------------|------|
| Vita Sligter | GvhK | 2020 |

“They chose not to use a platform for the crowdfunding, because they liked the idea of people going on their website, also platforms take a fee (5 or 6%).”

Farmers

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Farmer have to invest a lot but don't know if they will earn anything back in 10 years. very difficult step. Kattenbroek Piet took 8 years to transform his regular farm into a food forest. Unless they are confident about their business models it is difficult to convince investors (banks especially). the movement is new, lack of farmers doing this for 50 years.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Herrie Vissers | N. Brabant Province | 2020 |

“We can subsidize agroforestry when it will be part of the nature Network. Normally farmers have agricultural lands, which will be transformed into nature and they lose money. the price of agricultural land in our Province is 80 000 euros but only in Brabant, in special in parts of the nation Network, if they want to change the agricultural land into nature-agriculture land in the nature network they get 50% 40,000 euros per hectare. The farmer produces nature so he receive 50% of the value of the land cash. with this money he can make agroforestry. He said that he thinks that this is not a subsidy but a payment for the soil in value. Schijndel is also arranged within the nature Network. So, I think also the farmer has received. This 40,000 Euros for every hectare.”

| Interviewee | Organization | Date |
|-------------|--------------|------|
|-------------|--------------|------|

| | | |
|--------------|------|------|
| Vita Sligter | GvhK | 2020 |
|--------------|------|------|

“A colleague of Vita who works for [...] had the idea to make a food forest, improving agriculture. They started talking to farmers, one was very enthusiastic so they went there to have a meeting, but during the process the farmer changed his mind because the return on investment took too long, and the farmer did not know what his children would do with his land.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“Soil – the gov. has parcels of land, a lot of municipalities have soil and ground which farmers can use every year, they have about 3000 ha of land, that can be used, as lease. (costs about 600/700). A lot of farmers who have a lot of manure and need land to store that manure, so leasing is very interesting, lease can go up to 26 years (contract), so you have 26 years of extra soil. To start a ff there would be a problem though as the trees would stay longer and it has a different besteming (changing owners, building roads, etc.) The government would probably not lease it to someone who wants to plant trees, therefore.”

Food forest and agroforestry entrepreneurs

| Interviewee | Organization | Date |
|----------------------|--------------|------|
| Benjamin van Leeuwen | Rabobank | 2020 |

“Land is really expensive, the rest of the cost from the ff can be carried by crowdfunding or business angels. In agriculture there is no startups. You cannot get a loan for annual production if you want a ff. Agroforestry is easier to finance. The farmer can get financed for his primary(conventional) production, and that fund can be used for trees and machines to transition towards agroforestry.”

“The government pays funds for entrepreneurs if they provide jobs and housing for people with special needs. This can be a way to fund a ff, but it should not become a social project instead of production. A ff is a nice extension for an already existing profitable company.”

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Wouter is only paying for the design. Lots of volunteers. Wouter investment is low and risk is low. in the first 5 years they don't have to pay the rent.”

“pension funds will invest into it Cora van Oorschot is an accountant, member of investment committee of GOB. when you have a plan the investment committee will look into the financial plan. He noticed that the long-term business plan are very well suited for pension funds. low risk because the land is getting better, woods get more valuable, 50 years in mind”

“There are many regulations of why ff cannot be done. archeological value in the ground, roots may ruin old buildings. some landscapes have to be open, for examples river need to be open landscape around because if woods water does not infiltrate fast and water may accumulate and get over the dikes. some birds need to have open landscapes because trees close to endangered birds may host predator birds.”

“Cost a lot of money to change regulations, licenses for example: not allowed to to plant in a food forest in nature because it is a company. in John opinion denomination should not change because ff is still agriculture, just different.

when food forest is from community, that is not agriculture, so not allowed in agriculture land. there are about 20 licenses to be taken care of. If a farmer put more than 100-150 trees on his land, it will become denomination forest and you are not allowed to cut trees in the forest denominated land. If you want to change it back in 20 years it is not allowed, unless you get a special denomination

(costly change of regulations) change the national law (takes lot of time. It is possible in specific areas to sign food forest land as "new nature denomination" (then you are allowed to cut down trees. some local government allow that.)

"Took about 60 hours from john, 20 hours from Wouter van Eck, Pim de Boere 50 hour. 2-300 hours for 3 ha. it can be faster if you plant a food forest in his private land, no mortgage involved."

"Definition of ff: it has to produce food

but most value is coming from other functions, he sees combination with recreation, care, cosmetics, herbs, real nature, golf (near breda golf place 60 ha want to have food forest)."

"farmers have not enough income even though they are big. need a side job or additional income from wife. even primary agriculture system you cannot earn a full family income anymore. a food forest also cannot earn a full income, it need another income, like conventional agriculture. other jobs of food forest entrepreneurs are meditation, design, consultants, excursion, bnb. he think that this cannot change in the future. It is always important to differentiate income."

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

"Using annual crops for fast return is also to be considered. This winter, a group of private people buying land together for nature got together, Ursula can send us who this was as well. This is a way of reducing costs for land, a community is also stronger to be able to get land from the government or funds, etc.

Ursula is buying plant material, what happens a lot is that you can exchange seeds, or small plants with other people, so people starting food forests can exchange materials with each other, and with food forests growing, there will be more of this occurring."

| Interviewee | Organization | Date |
|-------------|--------------|------|
| Syne Fonk | Ecovrede | 2020 |

"We orientated in a large range of possibilities in the last seven eight years it became clear for us that it's nearly impossible to buy it not only because of the prices but also because of restrictions that made it very difficult to start. You have rules about open landscape for example or about protection of specific animals or plants and so on.

So, we found out that the easiest possibility to start a food Forest into Park Lingezegeen organized by the province Guelderland,

The province was the initiator into the construction of Park Lingezegeen. And so, we have a small part in it and the idea was to do something in the first place with fruit trees, and after that we came in discussion and then it became the food forest.

So we had some help for the land from the park So it makes it easier to start and that we get a small amount of money because we do this work for the public because people can come in for free and look around. We need to serve the people and that's why we can get this money."

"So we said to all our participants that we do this for free and the only thing we ask is doing something back in any form: help, support, if you are in the possibility give any form of donation or do something or like us on social media."

"we have organized a lot of planting material from all different parts where we could get it for free or very cheap. We get some small donations and that's where we can drive our car and buy the things basically need to like gasoline and miscellaneous."

“We convinced the province to join and donate by showing what we have done in the past years. They know our way of working. We are certified as non-profit organization. We show them that we have a common goal, that we support a lot of people without any kind of money in the social isolated situations and that we give them a new opportunity to restart a [...]”

“looking into subsidies from the government you can apply but it is difficult because you need someone with only free time to make it work and besides most of the time you are losing a lot of time in bureaucracy and certifications of the results of your project
You must make clear what you have done in so many aspects that it takes such a lot of time that it is hard to fulfil the needs of the system itself.”

“In the first 10-15 years of a food forest there is a lot of investing and a lot of time and research to understand what is going on. In this location for example we have mixed soils and it takes time to understand how plant behave. Combining the different products is also time consuming.

The design was not outsourced to an expert but done together with a lot of people, some of the people who helped designing were given a small contribution for travel costs.

we stopped receiving subsidies because we recognized it was not profitable. (people with problems). It was complicated. they got certifications and they tried to reach the level for 1.5 years. Investments to achieve that subsidy were too high. we have 25 certifications but they are not enough to be able to deal with different types of people

It rides we had a special possibility that we get people who work and we give them any form of say that people with mental or like yeah, and then you give some work and also accommodation though. They need a we're looking into that as a way of financing, but it's really hard to find accommodation you have to

Receive money every month from two municipalities (Hoverbetu (?) and Ahrnem) and province Gelderland. we have small donations, and everybody is working for free.”

| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“He believes the municipality of Den Bosch has some ideas over agroforestry, he will ask a colleague, there has been an agroforestry project in Boekel he believes, which also was used with carbon credits, but there is no methodology so they trusted companies to pay, every project right now is based on trust between two companies. You can create agroforestry project if there are companies who want to pay for the forest.”

| Interviewee | Organization | Date |
|-------------|--------------------|------|
| Stijn heijs | St. Voedselbosbouw | 2020 |

“There is a cash gap problem with ff in their starting phase, which is normal with a lot of other businesses, for example fruit companies, you have the same issue, only the time is shorter.”

Sector

| Interviewee | Organization | Date |
|--------------|--------------|------|
| John Vermeer | Advisor | 2020 |

“Shares have 25% loss since 1 of February. that will never happen in farmland. pension funds have to invest in low risk and sustainable things.”

| Interviewee | Organization | Date |
|--------------------|--------------|------|
| Ursula Kirchholtes | HAS | 2020 |

“The limitations of the green deal are also very political, for example, pigs, you want to be able to implement these models but if the public sees having pigs in a food producing area as a bad thing, maybe removing them makes it more acceptable to the public.”

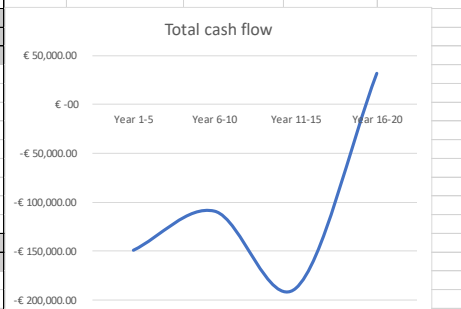
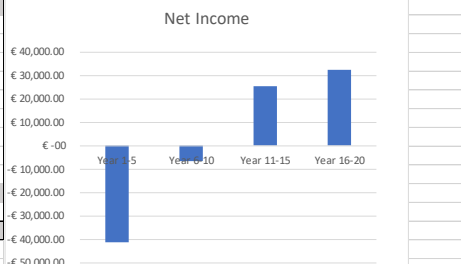
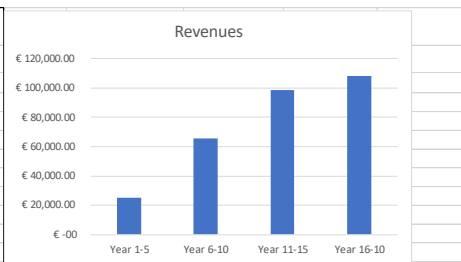
| Interviewee | Organization | Date |
|----------------|---------------------|------|
| Wessel de Gouw | N. Brabant Province | 2020 |

“He does not work with the land cooperation, but he knows that they have a sort of credit system for land. They have a certificate, can be found on the website, of 2.5 thousand euros per hectare, so if you pay this you own a part of the land of the cooperation. They also receive other financial – they get payed to maintain the landscape etc., they have different incomes. He can see a place for this type of land cooperation for food forests. There is also another initiative in Boxtel, and in other parts of the Netherlands where you can own a farm with other inhabitants – the herenboeren, which is also a way to investigate.”

“The carbon credit system – you have to go towards a system like the herenboeren, like the land cooperative, like the carbon credit system in which not only the gov pays the farmer but also other actors within, e.g. the biodiversiteit monitor – a system worked out right now with 50 farmers in the loodse en drunse duinen, it’s a system in which the farmer (dairy) shows his data to the bank and other stakeholders, he shows his progress in sustainability within his farm. If he scores well and improves, he pays less tax on his loan. This is with Rabobank. The farmer is getting payed from multiple stakeholders, not only for carbon credit or loan or a higher milk price, but for everything at the same time because he scores on KPIs.”

Appendix 3: Financial calculations for the scenarios

| SCENARIO 1 | | | | |
|--|----------------------|----------------------|----------------------|----------------------|
| NET INCOME | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | YEAR 16-20 |
| Revenues | | | | |
| Timber from land preparation | € 4,520.00 | € -00 | € -00 | € -00 |
| Sales from harvest | € 3,260.00 | € 45,000.00 | € 76,344.00 | € 86,210.00 |
| Rent for day events | € 5,574.00 | € 6,000.00 | € 6,000.00 | € 6,000.00 |
| Tea house | € 2,290.00 | € 3,143.00 | € 3,143.00 | € 3,143.00 |
| Camping | € 3,260.00 | € 4,600.00 | € 4,600.00 | € 4,600.00 |
| Yoga and meditation | € 1,500.00 | € 2,000.00 | € 2,000.00 | € 2,000.00 |
| Bird sighting membership | € 1,800.00 | € 2,000.00 | € 2,000.00 | € 2,000.00 |
| Land interest (1% per year) | € 3,000.00 | € 3,000.00 | € 4,500.00 | € 4,500.00 |
| Total revenues | € 25,204.00 | € 65,743.00 | € 98,587.00 | € 108,453.00 |
| Costs | | | | |
| Land preparation | € 22,000.00 | € -00 | € -00 | € -00 |
| Planting materials | € 8,000.00 | € 1,000.00 | € 1,000.00 | € 1,000.00 |
| Labour | € 30,000.00 | € 61,270.00 | € 59,760.00 | € 57,260.00 |
| Administration costs | € 1,006.00 | € 1,500.00 | € 1,500.00 | € 1,500.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Depreciation of infrastructures (5% per phase) | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total costs | € 66,506.00 | € 72,270.00 | € 73,260.00 | € 73,260.00 |
| NET INCOME | -€ 41,302.00 | -€ 6,527.00 | € 25,327.00 | € 35,193.00 |
| CASH FLOW | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | Year 16-20 |
| Cash position at the start | € 150,000.00 | € 604.00 | -€ 108,782.00 | -€ 297,188.00 |
| Operational cash flow | | | | |
| Inflow | | | | |
| Net income | | -€ 41,302.00 | -€ 6,527.00 | € 25,327.00 |
| Timber from land preparation | € 4,520.00 | € -00 | € -00 | € -00 |
| Sales from harvest | € 3,260.00 | € 45,000.00 | € 76,344.00 | € 86,210.00 |
| Rent for day events | € 5,574.00 | € 6,000.00 | € 6,000.00 | € 6,000.00 |
| Tea house | € 2,290.00 | € 3,143.00 | € 3,143.00 | € 3,143.00 |
| Camping | € 3,260.00 | € 4,600.00 | € 4,600.00 | € 4,600.00 |
| Yoga and meditation | € 1,500.00 | € 2,000.00 | € 2,000.00 | € 2,000.00 |
| Bird sighting membership | € 1,800.00 | € 2,000.00 | € 2,000.00 | € 2,000.00 |
| Land interest (1%) | € 400.00 | € 800.00 | € 4,500.00 | € 4,500.00 |
| Total operating inflow | € 22,604.00 | € 22,241.00 | € 92,060.00 | € 133,780.00 |
| Outflow | | | | |
| Labour | € 30,000.00 | € 61,270.00 | € 59,760.00 | € 57,260.00 |
| Administration costs | € 5,000.00 | € 5,000.00 | € 5,000.00 | € 5,000.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Depreciation of infrastructures (5% per phase) | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total operating outflow | € 40,500.00 | € 74,770.00 | € 75,760.00 | € 75,760.00 |
| Net cash from operating activities | -€ 17,896.00 | -€ 52,529.00 | € 16,300.00 | € 58,020.00 |
| Investment cash flow | | | | |
| Inflow | € -00 | € -00 | € -00 | € -00 |
| Outflow | | | | |
| Land | € 60,000.00 | € -00 | € 30,000.00 | € -00 |
| Land preparation | € 22,000.00 | € -00 | € 12,000.00 | € -00 |
| Planting materials | € 8,000.00 | € 1,000.00 | € 5,000.00 | € -00 |
| Nursery | | € 20,000.00 | € 10,000.00 | € -00 |
| Infrastructures | € 50,000.00 | € 10,000.00 | € 20,000.00 | € -00 |
| Van | | € 20,000.00 | | € -00 |
| Electronics | | € 5,857.00 | € 2,686.00 | € -00 |
| Equipment | | € 8,500.00 | | € -00 |
| Machinery | | | € 135,000.00 | € -00 |
| Total out flow | € 140,000.00 | € 65,357.00 | € 214,686.00 | € -00 |
| Net cash from investment activities | -€ 140,000.00 | -€ 65,357.00 | € 214,686.00 | € -00 |
| Cash position before external finance | -€ 157,896.00 | -€ 117,886.00 | -€ 201,156.00 | € 58,020.00 |
| Financial cash flow | | | | |
| Inflow | | | | |
| CAP | € 8,500.00 | € 8,500.00 | € 12,750.00 | € 12,750.00 |
| Total in | € 8,500.00 | € 8,500.00 | € 12,750.00 | € 12,750.00 |
| Out flow | | | | |
| Field research and combination experiments | | | | € 39,136.00 |
| Total out | € -00 | € -00 | € -00 | € 39,136.00 |
| Net cash from financing activities | € 8,500.00 | € 8,500.00 | € 12,750.00 | -€ 26,386.00 |
| TOTAL CASH FLOW | -€ 149,396.00 | -€ 109,386.00 | -€ 188,406.00 | € 31,634.00 |
| CASH POSITION AT THE END | € 604.00 | -€ 108,782.00 | -€ 297,188.00 | -€ 265,554.00 |

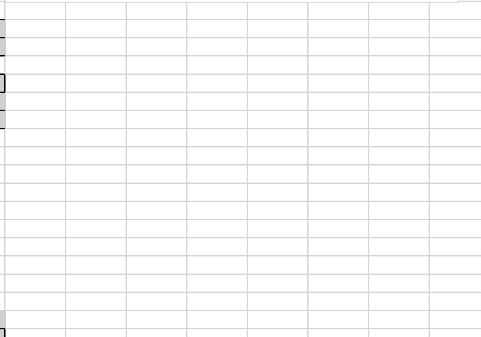
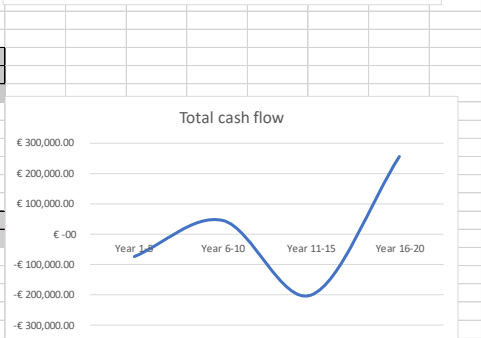
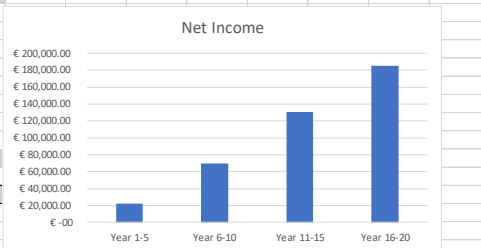
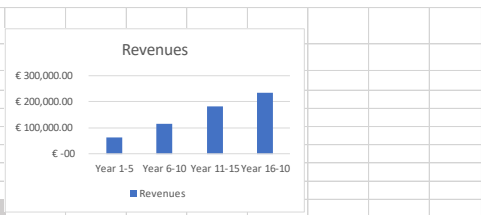


| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|-------------------|---------------------|--------------------|--------------------|--------------------|
| Net Income | -€ 41,302.00 | -€ 6,527.00 | € 25,327.00 | € 32,293.00 |

| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|------------------------|----------------------|----------------------|----------------------|--------------------|
| Total cash flow | -€ 149,396.00 | -€ 109,386.00 | -€ 188,406.00 | € 31,634.00 |

| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|---------------------------------|----------|---------------|---------------|---------------|
| Cash position at the end | € 604.00 | -€ 108,782.00 | -€ 297,188.00 | -€ 265,554.00 |

| SCENARIO 2 | | | | |
|--|---------------------|---------------------|----------------------|----------------------|
| NET INCOME | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | YEAR 16-20 |
| Revenues | | | | |
| Timber from land preparation | € 4,520.00 | € -0.00 | € -0.00 | € -0.00 |
| Harvest sales | € -0.00 | € 5,784.00 | € 22,176.00 | € 24,000.00 |
| CSA membership subscr | € 50,000.00 | € 100,000.00 | € 150,000.00 | € 200,000.00 |
| Land interest (5%) | € 1,500.00 | € 1,500.00 | € 2,250.00 | € 2,250.00 |
| Events(7 times a year) | € 7,000.00 | € 7,000.00 | € 7,000.00 | € 7,000.00 |
| Total revenues | € 63,020.00 | € 114,284.00 | € 181,426.00 | € 233,250.00 |
| Costs | | | | |
| Land preparation | € 11,000.00 | € -0.00 | € 3,200.00 | € -0.00 |
| Planting materials | € 4,000.00 | € 500.00 | € 2,000.00 | € 500.00 |
| Labour | € 15,000.00 | € 30,635.00 | € 29,880.00 | € 28,630.00 |
| Administration costs | € 5,000.00 | € 5,000.00 | € 5,000.00 | € 5,000.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Depreciation of infrastructures (5% per phase) | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total costs | € 40,500.00 | € 44,635.00 | € 51,080.00 | € 47,630.00 |
| NET INCOME | € 22,520.00 | € 69,649.00 | € 130,346.00 | € 185,620.00 |
| | | | | |
| CASH FLOW | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | YEAR 16-20 |
| Cash position at the start | € 50,000.00 | -€ 23,736.00 | € 21,298.00 | -€ 179,008.00 |
| Operational cash flow | | | | |
| Inflow | | | | |
| Net income | | € 22,520.00 | € 69,649.00 | € 130,346.00 |
| Timber from land preparation | € 4,520.00 | € -0.00 | € -0.00 | € -0.00 |
| Harvest sales | € -0.00 | € 5,784.00 | € 22,176.00 | € 24,000.00 |
| CSA membership subscription | € 50,000.00 | € 100,000.00 | € 150,000.00 | € 200,000.00 |
| Land interest (1% per year) | € 1,000.00 | € 2,000.00 | € 7,500.00 | € 7,500.00 |
| Events(7 times a year) | € 7,000.00 | € 7,000.00 | € 7,000.00 | € 7,000.00 |
| Total operating inflow | € 62,520.00 | € 137,304.00 | € 256,325.00 | € 368,846.00 |
| Outflow | | | | |
| Land preparation | € 11,000.00 | € -0.00 | € 3,200.00 | € -0.00 |
| Labour | € 30,000.00 | € 61,270.00 | € 59,760.00 | € 57,260.00 |
| Administration costs | € 1,006.00 | € 1,500.00 | € 1,500.00 | € 1,500.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Depreciation of infrastructures (5% per phase) | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total operating outflow | € 47,506.00 | € 71,270.00 | € 75,460.00 | € 72,260.00 |
| Net cash from operating activities | € 15,014.00 | € 66,034.00 | € 180,865.00 | € 296,586.00 |
| Investment cash flow | | | | |
| Inflow | € -0.00 | € -0.00 | € -0.00 | € -0.00 |
| Outflow | | | | |
| Land | € 30,000.00 | € -0.00 | € 15,000.00 | € -0.00 |
| Planting materials | € 4,000.00 | € 500.00 | € 5,000.00 | € 500.00 |
| Nursery | | | € 10,000.00 | € -0.00 |
| Infrastructures | € 50,000.00 | € 5,000.00 | € 10,000.00 | € -0.00 |
| Housing facility for the disabled | | | € 500,000.00 | |
| Van | | € 20,000.00 | | € -0.00 |
| Insect hotels | € 1,000.00 | | | € 1,000.00 |
| Electronics | | € 2,000.00 | € -0.00 | € -0.00 |
| Farming tools | € 8,000.00 | € 2,000.00 | € 5,000.00 | € 1,000.00 |
| Machinery | | | € 50,000.00 | € -0.00 |
| Total out flow | € 93,000.00 | € 29,500.00 | € 595,000.00 | € 1,500.00 |
| Net cash from investment activities | -€ 93,000.00 | -€ 29,500.00 | -€ 595,000.00 | -€ 1,500.00 |
| Cash position before external finance | -€ 77,986.00 | € 36,534.00 | -€ 414,135.00 | € 295,086.00 |
| Financial cash flow | | | | |
| Inflow | | | | |
| CAP | € 4,250.00 | € 4,250.00 | € 8,500.00 | € 8,500.00 |
| UWV labour comensation (50% of the wages) | € 4,000.00 | € 4,000.00 | € 4,000.00 | € 4,000.00 |
| LEADER Subsidy | € 20,000.00 | € -0.00 | € -0.00 | € -0.00 |
| VBNL | € 11,000.00 | € -0.00 | € -0.00 | € -0.00 |
| Total in | € 39,250.00 | € 8,250.00 | € 12,500.00 | € 8,500.00 |
| Out flow | | | | |
| Field research and combination experiments | | | | € 50,000.00 |
| Total out | € -0.00 | € -0.00 | € -0.00 | € 50,000.00 |
| Net cash from financing activities | € 8,500.00 | € 8,500.00 | € 8,500.00 | -€ 41,500.00 |
| TOTAL CASH FLOW | -€ 73,736.00 | € 45,034.00 | -€ 200,306.00 | € 255,086.00 |
| CASH POSITION AT THE END | -€ 23,736.00 | € 21,298.00 | -€ 179,008.00 | € 76,078.00 |

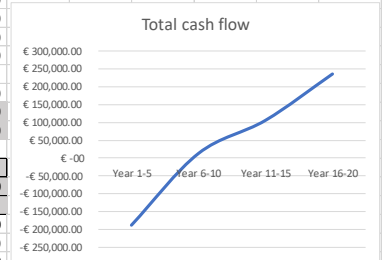
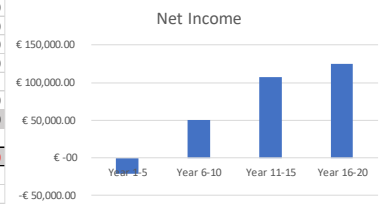
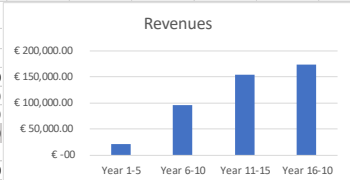


| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|-----------------|-------------|--------------|--------------|--------------|
| Revenues | € 63,020.00 | € 114,284.00 | € 181,426.00 | € 233,250.00 |

| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|-------------------|-------------|-------------|--------------|--------------|
| Net Income | € 22,520.00 | € 69,649.00 | € 130,346.00 | € 185,620.00 |

| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|------------------------|---------------------|--------------------|----------------------|---------------------|
| Total cash flow | -€ 73,736.00 | € 45,034.00 | -€ 200,306.00 | € 255,086.00 |

| SCENARIO 3 | | | | |
|--|----------------------|----------------------|---------------------|---------------------|
| NET INCOME | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | YEAR 16-20 |
| Revenues | | | | |
| Timber from land preparation | € 4,900.00 | € -00 | € -00 | € -00 |
| Sales on farm (fresh and dried products) | € 11,424.00 | € 89,639.00 | € 147,610.00 | € 167,227.20 |
| Land interest (1%) | € 4,800.00 | € 6,000.00 | € 6,000.00 | € 6,000.00 |
| Total revenues | € 21,124.00 | € 95,639.00 | € 153,610.00 | € 173,227.20 |
| Costs | | | | |
| Land preparation | € 4,800.00 | € -00 | € -00 | € -00 |
| Planting materials | € 10,000.00 | € 1,000.00 | € 1,000.00 | € 1,000.00 |
| Labour | € 15,000.00 | € 30,635.00 | € 29,880.00 | € 28,630.00 |
| Administration costs | € 4,800.00 | € 4,800.00 | € 4,800.00 | € 4,800.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Bank loan interest (5%) | € 1,600.00 | € -00 | € -00 | € -00 |
| Depreciation of infrastructures (5% per phase) | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total costs | € 41,700.00 | € 44,935.00 | € 46,680.00 | € 47,930.00 |
| NET INCOME | -€ 20,576.00 | € 50,704.00 | € 106,930.00 | € 125,297.20 |
| CASH FLOW | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | YEAR 16-20 |
| Cash position at the start | € 50,000.00 | -€ 137,588.50 | € 124,773.00 | -€ 19,451.50 |
| Operational cash flow | | | | |
| Inflow | | | | |
| Net income | | -€ 20,576.00 | € 50,704.00 | € 106,930.00 |
| Timber from land preparation | € 4,900.00 | € -00 | € -00 | € -00 |
| Sales on farm (fresh and dried products) | € 11,424.00 | € 89,639.00 | € 147,610.00 | € 167,227.20 |
| Land interest (1%) | € 4,800.00 | € 6,000.00 | € 6,000.00 | € 6,000.00 |
| Total operating inflow | € 21,124.00 | € 75,063.00 | € 204,314.00 | € 280,157.20 |
| Outflow | | | | |
| Labour | € 15,000.00 | € 30,635.00 | € 29,880.00 | € 28,630.00 |
| Administration costs | € 4,800.00 | € 4,800.00 | € 4,800.00 | € 4,800.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Bank loan interest (5%) | € 1,600.00 | € -00 | € -00 | € -00 |
| Depreciation of infrastructures (5% per phase) | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total out flow | € 26,900.00 | € 43,935.00 | € 45,680.00 | € 46,930.00 |
| Net cash from operating activities | -€ 5,776.00 | € 31,128.00 | € 158,634.00 | € 233,227.20 |
| Investment cash flow | | | | |
| Inflow | € -00 | € -00 | € -00 | € -00 |
| Outflow | | | | |
| Land | € 120,000.00 | € -00 | € -00 | € -00 |
| Planting materials | € 10,000.00 | € 500.00 | € 500.00 | € 500.00 |
| Infrastructures | € 50,000.00 | € -00 | € 5,000.00 | € -00 |
| Van | € -00 | € 20,000.00 | € -00 | € -00 |
| Farming tools | € 5,000.00 | € 1,000.00 | € 1,000.00 | € 1,000.00 |
| Processing machinery | € -00 | € -00 | € 50,000.00 | € -00 |
| Total out flow | € 185,000.00 | € 21,500.00 | € 56,500.00 | € 1,500.00 |
| Net cash from investment activities | -€ 185,000.00 | -€ 21,500.00 | -€ 56,500.00 | -€ 1,500.00 |
| Cash position before external finance | -€ 190,776.00 | € 9,628.00 | € 102,134.00 | € 231,727.20 |
| Financial cash flow | | | | |
| Inflow | | | | |
| CAP | € 3,187.50 | € 3,187.50 | € 3,187.50 | € 3,187.50 |
| Bank loan | € 32,000.00 | € -00 | € -00 | € -00 |
| GOB | € 20,000.00 | € -00 | € -00 | € -00 |
| Total in | € 55,187.50 | € 3,187.50 | € 3,187.50 | € 3,187.50 |
| Out flow | | | | |
| Total out | € -00 | € -00 | € -00 | € -00 |
| Net cash from financing activities | € 55,187.50 | € 3,187.50 | € 3,187.50 | € 3,187.50 |
| TOTAL CASH FLOW | -€ 187,588.50 | € 12,815.50 | € 105,321.50 | € 234,914.70 |
| CASH POSITION AT THE END | -€ 137,588.50 | -€ 124,773.00 | -€ 19,451.50 | € 215,463.20 |

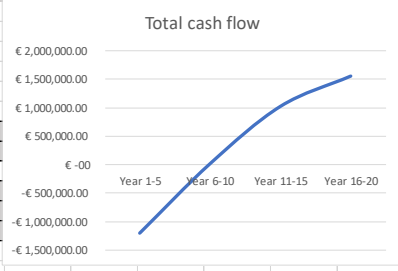
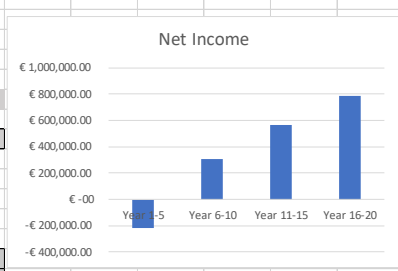
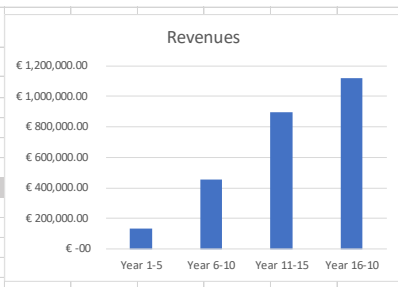


| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-10 |
|-----------------|-------------|-------------|--------------|--------------|
| Revenues | € 21,124.00 | € 95,639.00 | € 153,610.00 | € 173,227.20 |

| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|-------------------|--------------|-------------|--------------|--------------|
| Net Income | -€ 20,576.00 | € 50,704.00 | € 106,930.00 | € 125,297.20 |

| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|------------------------|---------------|-------------|--------------|--------------|
| Total cash flow | -€ 187,588.50 | € 12,815.50 | € 105,321.50 | € 234,914.70 |

| SCENARIO 4 | | | | |
|--|------------------------|------------------------|------------------------|-----------------------|
| NET INCOME | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | YEAR 16-20 |
| Revenues | | | | |
| Walnuts | € 2,976.00 | € 22,908.00 | € 36,336.00 | € 49,764.00 |
| Berries | € 122,014.00 | € 411,892.00 | € 962,070.00 | € 1,030,428.00 |
| Land interest (5%) | € 9,600.00 | € 19,200.00 | € 28,800.00 | € 38,400.00 |
| Total revenues | € 134,590.00 | € 454,000.00 | € 896,934.00 | € 1,118,592.00 |
| Costs | | | | |
| Land preparation | € 30,000.00 | € -0.00 | € -0.00 | € -0.00 |
| Planting materials (Walnuts) | € 120,000.00 | € -0.00 | € -0.00 | € -0.00 |
| Planting materials (Berries) | € 10,000.00 | | | |
| Labour | € 135,000.00 | € 135,000.00 | € 270,000.00 | € 270,000.00 |
| kal Biologic certification | | | | |
| Administration costs | € 50,000.00 | € 5,000.00 | € 50,000.00 | € 50,000.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Depreciation of infrastructures (5% per phas | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total costs | € 350,500.00 | € 148,500.00 | € 331,000.00 | € 333,500.00 |
| NET INCOME | -€ 215,910.00 | € 305,500.00 | € 565,934.00 | € 785,092.00 |
| CASH FLOW | | | | |
| | YEAR 1-5 | YEAR 6-10 | YEAR 11-15 | Year 16-20 |
| Cash position at the start | € 150,000.00 | -€ 1,047,410.00 | -€ 1,027,820.00 | -€ 3,364.00 |
| Operational cash flow | | | | |
| Inflow | | | | |
| Net income | € -0.00 | -€ 215,910.00 | € 305,500.00 | € 785,092.00 |
| Walnuts | € 2,976.00 | € 22,908.00 | € 36,336.00 | € 49,764.00 |
| Berries | € 122,014.00 | € 411,892.00 | € 962,070.00 | € 1,030,428.00 |
| Land interest (5%) | € 9,600.00 | € 19,200.00 | € 28,800.00 | € 38,400.00 |
| Total operating inflow | € 134,590.00 | € 238,090.00 | € 1,332,706.00 | € 1,903,684.00 |
| Outflow | | | | |
| Land preparation | € 30,000.00 | € -0.00 | € -0.00 | € -0.00 |
| Labour | € 135,000.00 | € 135,000.00 | € 270,000.00 | € 270,000.00 |
| Administration costs | € 50,000.00 | € 5,000.00 | € 50,000.00 | € 50,000.00 |
| Marketing and sales | € 3,000.00 | € 3,000.00 | € 3,000.00 | € 3,000.00 |
| Hidden (Unforeseen) costs | € 500.00 | € 500.00 | € 500.00 | € 500.00 |
| Depreciation of infrastructures (5% per phas | € 2,000.00 | € 5,000.00 | € 7,500.00 | € 10,000.00 |
| Total operating outflow | € 220,500.00 | € 148,500.00 | € 331,000.00 | € 333,500.00 |
| Net cash from operating activities | -€ 85,910.00 | € 89,590.00 | € 1,001,706.00 | € 1,570,184.00 |
| Investment cash flow | | | | |
| Inflow | € -0.00 | € -0.00 | € -0.00 | € -0.00 |
| Outflow | | | | |
| Land | € 960,000.00 | € -0.00 | € -0.00 | € -0.00 |
| Land preparation | € 30,000.00 | € -0.00 | € -0.00 | € -0.00 |
| Planting materials (Walnuts) | € 120,000.00 | | | |
| Planting materials (Berries) | € 10,000.00 | | | |
| Nursery | | € 20,000.00 | € 10,000.00 | € -0.00 |
| Infrastructures | | € 50,000.00 | € -0.00 | € -0.00 |
| Equipment | | € 8,500.00 | | € -0.00 |
| Total out flow | € 1,120,000.00 | € 78,500.00 | € 10,000.00 | € -0.00 |
| Net cash from investment activities | -€ 1,120,000.00 | -€ 78,500.00 | € 10,000.00 | € -0.00 |
| Cash position before external finance | -€ 1,205,910.00 | € 11,090.00 | € 1,011,706.00 | € 1,570,184.00 |
| Financial cash flow | | | | |
| Inflow | | | | |
| CAP | € 25,500.00 | € 25,500.00 | € 25,500.00 | € 25,500.00 |
| Total in | € 8,500.00 | € 8,500.00 | € 12,750.00 | € 12,750.00 |
| Out flow | | | | |
| Field research and combination experiments | | | | € 40,000.00 |
| Total out | € -0.00 | € -0.00 | € -0.00 | € 40,000.00 |
| Net cash from financing activities | € 8,500.00 | € 8,500.00 | € 12,750.00 | -€ 14,500.00 |
| TOTAL CASH FLOW | -€ 1,197,410.00 | € 19,590.00 | € 1,024,456.00 | € 1,555,684.00 |
| CASH POSITION AT THE END | -€ 1,047,410.00 | -€ 1,027,820.00 | -€ 3,364.00 | € 1,552,320.00 |



| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
|-----------------------------|-----------------|-----------------|----------------|----------------|
| Net Income | -€ 215,910.00 | € 305,500.00 | € 565,934.00 | € 785,092.00 |
| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
| Total cash flow | -€ 1,197,410.00 | € 19,590.00 | € 1,024,456.00 | € 1,555,684.00 |
| | Year 1-5 | Year 6-10 | Year 11-15 | Year 16-20 |
| Cash position at the | -€ 1,047,410.00 | -€ 1,027,820.00 | -€ 3,364.00 | € 1,552,320.00 |

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