

# GROWING A FOOD FOREST AS A SUSTAINABLE BUSINESS; SOME PRACTICAL REFLECTIONS ON THE BASIS OF *FOOD FOREST EEMVALLEI ZUID*

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## Abstract

In this article we present some practical reflections on the ambition to develop a sustainable business strategy for the design, planting, operation and maintenance of a large-scale food forest. On the basis of our experience with the development of the public *Food Forest Eemvallei Zuid* (30 ha.) in the Netherlands, we discuss a number of strategic options to limit the costs and to optimize the benefits of a food forest that is set up as a professional 'business'. Besides some practical options like a restrained forest management and processing of harvested products before sales, an important strategic option appears to be: co-creation of new arrangements on the analogy of *Community Supported Agriculture* in close cooperation with residents and entrepreneurs from the region. Such arrangements are vital to prevent the evaporation of the added values of a food forest into the bulk mountains of the highly competitive, anonymous world food markets.

**Keywords:** food forest; sustainable development; business strategy; community supported agriculture

## Introduction

Food forests provide many alluring perspectives in the strive for sustainability within our food system. As multi-layered polycultures (see Figure 1), they not only offer the irresistible opportunity to enrich our daily menus with a wide variety of healthy and tasty forest products. Mimicking the development of natural forests, they also provide ecosystem services such as carbon sequestration and biodiversity. While doing that food forests offer great opportunities to reconnect people to the natural world and to broaden and strengthen the social and economic base of local communities. Utilizing the full, versatile potential of a food forest requires a sustainable business strategy. In this article, we share some practical reflections on this ambition on the basis of our experience with the development of a large food forest in the Netherlands.

### What is a food forest? A definition ...

*A food forest is a multi-layered, perennial ecosystem that is designed on the analogy of a natural forest with the objective to produce food. Distinctive characteristics of a food forest are: a canopy of tall trees, at least three other layers of vegetation, rich forest soil and a robust size. To provide for a vigorous, self-sufficient food forest, a 'robust size' equals at least 0.5 hectare in a rich natural environment and at least 20 hectares in an ecological impoverished environment. A food forest provides a habitat to a rich and fast-growing biodiversity.*



Figure 1: Nine layers of a food forest

1. Canopy layer
2. Sub-canopy layer
3. Shrub layer
4. Herbaceous layer
5. Ground cover layer
6. Underground layer
7. Climber layer
8. Aquatic/wetland layer
9. Mycelial/fungal layer

### Food Forest *Eemvallei Zuid*

On the 5th of July 2017 six parties signed the contract for the realisation of *Eemvallei Zuid* (Figure 2), a public natural area of 50 hectares in Oosterwold, the latest suburb of Almere which is a new town in the Netherlands. Since a food forest of 30 hectares will be an integral part of this new natural area in the province of Flevoland, the occasion was also the kick-off of the biggest food forest in Europe thus far. As originator of the project idea, Stichting Voedselbosbouw Nederland is responsible for the design, development, management and economic operation of this food forest.

The festive signing of the contract was the culmination of a complex and prolonged process of consultations and negotiations between on the one hand the province of Flevoland and the municipality of Almere and on the other hand, the initiators: Staatsbosbeheer, Stichting Speelwildernis, Stadsboerderij Almere and Stichting Voedselbosbouw Nederland. Now that this innovative cooperation has been ratified and the accompanying transfer of the landownership to Staatsbosbeheer implemented, the plan is to start planting towards the end of 2018 on the basis of a detailed ecological design for the whole area of *Eemvallei Zuid*. After the planting, the currently bare fields for agriculture will gradually transform into a varied natural area with a large food forest.



Figure 2: The provisional design of *Eemvallei Zuid*, a public natural area of 50 hectares in Almere Oosterwold including a food forest of 30 hectares (the bottle-green parts in the drawing). The lay-out of the area is roughly based on the archaeological traces of the ancient river The Eem, which flew through prehistoric Flevoland.

### Business challenges for a large-scale food forest

As part of *Eemvallei Zuid* the food forest will be designed, planted and 'operated' as a recreational forest that is open to the public (see Figure 2). Although there are a number of particulars attached to this case, a sustainable operation of *Food Forest Eemvallei Zuid* poses two big economic challenges that are typical for any food forest that is set up as a professional 'business'. First, there is the challenge to cover the costs of the design, planting and

maintenance during the pioneering phase of the food forest, when there is not much to harvest while the trees and shrubs are taking root and maturing. The second economic challenge is to generate sufficient (sources of) income, at least to cover the costs of operation and maintenance, including the biggest head of expenditure in any food forest: the labour-intensive harvesting. In view of the public and recreational character of *Eemvallei Zuid* this challenge also entails the task of safeguarding a substantial part of the forest produce (a/o nuts, fruits and edible leaves) to be sold on the market.

With regard to the first challenge, an explorative analysis of the potential costs and benefits provides ample room for confidence that the management and operation of *Food Forest Eemvallei Zuid* will be economically profitable from 2026 onwards (Stichting 2017). A limited budget for planting material and nature management will be provided by the province of Flevoland. According to the business case of Voedselbosbouw Nederland this budget will be just enough to cover the basic costs during the first eight years after planting.

With regard to the second challenge, there is good reason to be optimistic about the economic sustainability of *Food Forest Eemvallei*. This is mainly because food forests provide a broad spectrum of options to limit the costs and to optimize the sustainable benefits and *Food Forest Eemvallei Zuid* is no exception to that general rule. Below we discuss a number of strategic options for an entrepreneur – in this case: Voedselbosbouw Nederland – to promote a sustainable operation of a food forest.

#### **Strategic options to promote a sustainable operation and maintenance of a food forest**

- While designing a food forest **the selection of species and varieties and spatial planning** can be utilized to optimize the profitability. Important factors like growth rate, access to harvestable products, edible parts, taste, options for processing and product prices; all need to be accounted for in this process. Worth knowing in this context is that a food forest is well adapted for the growing of profitable niche products like Japanese wineberry, heartseed walnut, Asian pear, sea kale and wild ginger. To safeguard a substantial part of the harvestable produce that can be sold on the market, it is important to be able to fence off certain parts of the food forest during harvesting periods. This can also be done with natural barriers like hawthorn and blackthorn. Another strategy to safeguard sufficient harvests from the food forest is to select plant species in such a way that there are flowering plants throughout the largest part of the year. This strategy is not only valuable to prevent losses due to extreme weather events that can cause crop failures (e.g. late frosts); it also contributes to the aesthetic value of the food forest and to the life support of insects that are critical to the pollination of the forest.
- A **restrained management** is critical to advance the natural succession of a food forest as well as to keep the operational costs within manageable limits. With a view to a smooth succession of the forest system, we plant and welcome pioneering species like poplar, willow, alders, thistles, nettles and sorrel. Common activities in conventional forestry and horticulture like mowing, logging and pruning will therefore be rare in the *Food Forest Eemvallei*. To prevent high harvesting costs the entrepreneur can always keep in mind the option of not-harvesting, especially of low-priced products that are difficult to harvest.
- When market prices of fresh produce are low, the food forest entrepreneur can also choose to **process the harvested products before selling them**. Processed products like marmalades, jams, chutneys, smoothies, ready meals, wines and beers can add a high value to fresh produce from a food forest. This can also be done by, or in cooperation with, an entrepreneur from the local area to whom the food forest entrepreneur sells fresh products or exclusive harvesting rights.
- Besides edible products a 'food forester' can also **produce and sell other useful products like wood, herbs, seeds and planting materials**. To stimulate the natural succession in the *Food Forest Eemvallei* we will plant fast growing pioneers like poplar, willow and alder trees. When these pioneers start to hinder the growth of the slow-growing, edible species such as chestnuts and walnuts, they can be harvested and sold on the (local) wood

markets. Likewise, the breeding of (rare) seeds and planting material in a food forest can generate additional income or make expensive purchases from professional breeders redundant.

- **Various educational and recreational services associated with a food forest** can generate additional income besides the selling of food and non-food products. The experience with existing food forests in the Netherlands teaches us that the (potential) demand for such services is high while the supply is limited, to put it mildly. There is a huge appetite, among specialists as well as among the general public, for expert knowledge and serious skills in the fields of (edible) nature, ecology, permaculture, agroforestry and food forests. These days it doesn't take long before an organized tour, workshop, course or master class is fully booked.
- **Innovative arrangements around the production and consumption of food forest products and associated services** can contribute a lot to secure the sale at reasonable prices and conditions. Specially interesting are arrangements on the analogy of *Community Supported Agriculture* in which the food forest entrepreneur delivers produce and provides services like education and recreation to neighbours, local schools, offices, nursing homes and business restaurants in exchange for assistance to planting, harvesting and monitoring activities. New and innovative business arrangements with small and medium sized food enterprises in the region are also worthwhile to explore in depth. Interesting examples in case are exclusive 'harvesting rights' for local brewers, beekeepers, restaurateurs and catering companies in exchange for labour support and/or services like good meals, pollination and the catering of meetings and festivities. There are numerous possibilities to construct such arrangements and these possibilities must and can be explored thoroughly during the first pioneering years of an evolving food forest, when there is not much to harvest yet. These arrangements can also be very helpful to **construct and secure short supply chains in which the total marginal costs of food products and services are being limited** by the restricted number of parties involved and also by the application of rewards in kind.
- While food forests are designed on the analogy of natural forests they are also well equipped to **deliver the associated ecosystem services**. Just like deciduous natural forests, food forests deliver important services in the fields of biodiversity, water management and climate adaptation and mitigation. Nowadays there are slowly increasing opportunities to acquire rewards for specific ecosystem services. Such rewards vary from financial compensations for measures that improve the water retention capacity of the land (e.g. a wetland zone in or near the food forest) to remunerations for carbon sequestration in the biomass and soil of the food forest.

The discussion of the various options above demonstrates clearly that effective economics often require a smart and innovative social organization of the business activities surrounding a food forest. First of all, it appears that an optimal utilization of the versatile business potential of a food forest demands a multidisciplinary approach. An ideal food forest entrepreneur seems to embrace a wide range of professional capacities varying from a high level of ecological know how to various social skills in such distinctive fields as education, networking and hard-core business negotiations. Considered in this way, the most likely candidate for the title 'ideal food forest entrepreneur' may well be a multidisciplinary team rather than a single person or even a couple.

Secondly, in order to prevent the evaporation of the added values of a food forest – such as local, organic produce, various healthy *primary* products, nature conservation – into the bulk mountains of the highly competitive, anonymous world food markets, it is vital that the food forest entrepreneur creates short supply chains to reliable local consuming markets for *special* food forest products and services. Thirdly, processing of fresh food forest produce, in cooperation with local entrepreneurs, can be conditional to capitalize fully on the potential added value of food forest harvests. Lastly, payments in kind and quid pro quo services to 'volunteers' – e.g. free baskets of forest produce, free training and tours, etc. – in exchange for their practical support can be an effective strategy to keep the harvesting costs within manageable limits as well as to connect the food forest to a pool of loyal and satisfied consumers. Especially the last three preconditions add up to the conclusion that every food

forest entrepreneur has a high interest in the creation of new social and economic arrangements around the production and consumption of food forest products and associated services, preferably in close cooperation with residents and entrepreneurs from the region.

## References

- Staatsbosbeheer is the former state forestry service; currently, it is the leading owner and manager of forest land and natural areas in the Netherlands.
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