

# Food Forests: An upcoming phenomenon in the Netherlands

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**Food forests are a relatively new phenomenon in the Netherlands, but there is increased interest. As there is yet limited knowledge of Dutch food forests, we conducted an exploratory study using a literature study, interviews with three initiators of food forests, and an online questionnaire amongst people interested in consuming from food forests. The last was distributed via Facebook and had 41 respondents. In this paper we share our most important results.**

## What are food forests?

Food forests imitate natural ecosystems by combining trees, crops and (sometimes) livestock. Where a monoculture uses only one layer for food production, a food forest is a polyculture with many layers (see figure 1). The top layer is the canopy or tall tree layer with trees around nine meters high, mostly nut and fruit trees or nitrogen-fixing trees. The second layer is the low tree layer, with trees between three and five meters in height, mostly fruit trees. Layer three contains shrubs, between the small trees. These are mainly berries, fruit, nut and currant shrubs, but can also be medicinal and flowering shrubs. In the herbaceous layer underneath, one finds perennial plants without woody stems, such as medicinal herbs and bee-forage plants. The fifth layer is the rhizosphere, consisting of root crops like potatoes or carrots. The soil surface, which fills the remaining space on the ground, protects the soil and prevents weeds from growing. The final layer is vertical, consisting of vines and plants that climb trees, such as grapes, berries or beans. It is possible to add layers, such as a wetland layer or fungal layer.

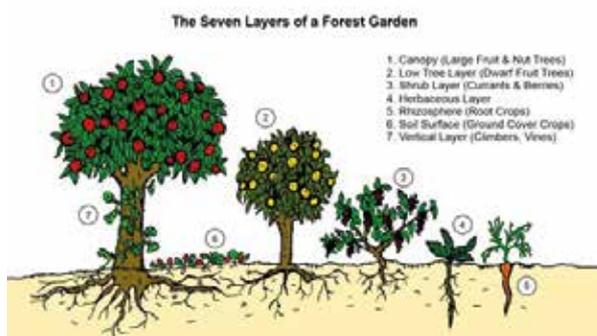


Figure 1: The seven layers of a forest garden (Eliades, 2011)

Food forests are a form of agroforestry, the umbrella term for land-use systems involving trees, crops and/or animals on the same unit of land. There are three main types of agroforestry: 1) agrisilviculture (crops + trees); 2) silvopastoral (grassland/ animals + trees), and 3) agrosilvopastoral (crops + grassland/ animals + trees). An agroforestry system can contain two or three plants, or more than forty different types. The more different species, the more the system is following a natural pattern. Food forestry takes this principle the furthest.

Permaculture, closely related to food forests and agroforestry, is a design philosophy that approaches agriculture from the viewpoint of self-sufficiency. It is an agricultural principle that uses the patterns and features observed in natural ecosystems and works with nature rather than against it. Permaculture looks at all the functions of plants and animals, not treating any as a single product. It has ethical principles like taking care of the earth and sharing the output of the land. Agroforestry is one of its many forms.

Similarly, food forests can also be seen as a form of agroecology, which concerns the application of ecological processes and principles to agriculture. It mimics structural and functional relationships of natural ecosystems, and beneficial interactions that preserve and restore ecosystem services.

## Food forests in the Netherlands

A map created by Van Akker naar Bos ('from Field to Forest': [akkermaarbos.nl/voedselbossenkaart/](http://akkermaarbos.nl/voedselbossenkaart/)) shows there are currently 54 food forests in the Netherlands, nearly 103 hectares, with another 13 planned. However, this number is likely overestimated since Van Akker naar Bos uses an unclear concept and includes initiatives that others would not consider food forests. Initiators can add their own projects so it is not always clear whether these are established or planned. Despite this shortcoming, figure 2 shows clearly that the interest in food forest is growing rapidly.

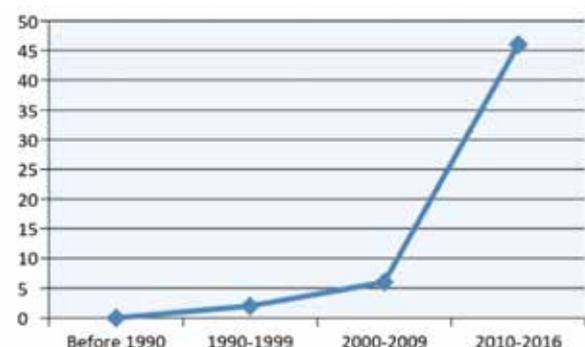


Figure 2: Growth of the number of food forests in the Netherlands

## Motivations to start food forests

We asked three food forest initiators for their motives: Xavier San Giorgi from Food Forestry Development - one of their established projects is food forest *Makeblijde* -, Jan Degenaar and Maarten Schrama - who are in the start-up phase with their *Voedselbos Lekkerlandgoed* - and Hans van der Velde from *Stichting BuitenZinnig*, whose food forest is in the planning phase. Interestingly, none of them has a farming background.

### Food Forest Eemvallei offers good economic perspectives

Marc Buijter, Stichting Voedselbosbouw Nederland

*On 5 July 2017 six parties were contracted for the realisation of Eemvallei Zuid, a public nature area of 50 hectares in Oosterwold, a suburb of Almere in the province of Flevoland. The occasion was also the kick-off of the biggest food forest in Europe thus far (30 hectares) that will be an integral part of the area. Stichting Voedselbosbouw Nederland is responsible for its design, development, management and economic operation.*

*The festive signing of the contract was the culmination of a complex and prolonged process of consultation and negotiations between the province of Flevoland, the municipality of Almere and the initiators: Staatsbosbeheer, Stichting Speelwildernis, Stadsboerderij Almere and Stichting Voedselbosbouw Nederland. Staatsbosbeheer is the former state forestry service. Now economically independent, it is the leading owner and manager of forest land and natural areas in the Netherlands. In the coming months, the provisional design will be elaborated into a detailed, definitive design for the whole natural area of Eemvallei Zuid. The planting of edible and otherwise functional trees and shrubs will start in 2018.*

*The Food Forest Eemvallei will be a recreational food forest open to the public. An exploratory analysis of costs and benefits indicates economic profitability starting 2026. A limited budget for planting and landscape management will be provided by the province of Flevoland, just enough for the basic management and harvesting for the first eight years.*

*Nevertheless, there is reason to be optimistic about the economic potential of Food Forest Eemvallei as it provides opportunities for additional sources of income. Besides the selling of fresh forest produce like nuts, fruits, herbs and vegetables, income can be derived from the manufacturing and sale of other processed forest products. Ciders, marmalades, smoothies and chutneys can complement recreational services like forest tours and leisure activities. Training and education in food forestry and forest ecology can complement ecosystem services like carbon sequestration and enhanced biodiversity.*



Photo by Voedselbos Vlaardingen

Rather, they were inspired by the food forest concept and wanted to bring it into practice. However, they have different aims, such as research, production, or enhancing social contacts. Food forest education moved all three interviewees.

### Motivations to consume from food forests

It usually takes five to ten years for a forest to be fully productive. Most food forests in the Netherlands are being planned or just beginning. There are hardly any 'consumers' yet to buy or pick food from them. The main interest of our respondents, prospective consumers, was the concept itself and its perceived environmental benefits. Seventy-one percent mentioned a more diverse ecosystem, and 23% no use of chemicals or fertilisers. While most people may not want to visit food forests only to buy products, 63% of our respondents would visit food forests for recreation purposes like forest hikes or picnics. Clearly, food forests can serve multiple functions.

### A future for food forests in the Netherlands?

We wondered if people's diets could consist of food forests products alone and whether producers could make a living from the forests' output. Most food forests produce nuts, fruit, vegetables, herbs and sometimes meat. A good design would enable much to be grown or raised in a food forest. But living completely off the harvest of food forests would require changing to a diet with little to no grains, meat and fish.

The food forest initiators we spoke to claim it is possible to make a living from food forests. They argue that forests can generate a large output per hectare due to the different layers. Moreover, food forests often cultivate special species that can be sold as niche products for higher prices. In practice, there are currently hardly any food forests with a viable business model. Perhaps this can be promoted through care or educational activities.

### Future steps

Managing a food forest is hard; it requires a lot of knowledge and takes a long time to generate outputs. Most food forest farmers will need financial support for the first few years. Some are transitioning to food forests gradually. Farmers are currently participating in various projects and research; a study is currently investigating integration of food forests in the metropolitan region of Rotterdam and The Hague (see box).

## Food forestry in the delta landscape: strategies for research and realisation

Paul de Graaf, Rotterdam Forest Garden Network

Forest gardening or food forestry is seen as a promising form of agroecology. But it is not ready for application in West European agriculture because of a lack of practical localised experience. The main function of the first generation of food forests from the viewpoint of sustainable agriculture is learning, gaining experience and gathering reliable data on investments in time, labour and capital.

However, food forests serve many other functions of more immediate value, such as recreation or increased biodiversity. Because of this diversity of policy goals, many food forests get public financial support or private investments of money and time. A challenge at this stage is finding permanent locations for food forests, especially near the city.

Rotterdam Forest Garden Network (RFGN) aims to realise a diversity of food forests, to learn from and inspire, in and around Rotterdam. For each location a unique model is developed that balances available social, spatial and financial resources. So far, they have established an inner-city park, a former educational garden and a collective garden of a school and a retirement home. Stichting Voedselbos Vlaardingen was realised in 2015 in a recreational area at the edge of the city of Vlaardingen. On this one hectare, RFGN will test the concept in the low-lying peat landscape common in the west of the Netherlands. They want to increase biodiversity, enhance recreational value and experiment with food forest business models.

The site is part of the regional recreational area administered by the Recreatieschap (which represents municipalities and the Province) and managed by Staatsbosbeheer. Stichting Voedselbos Vlaardingen (SVV) rents the land free of charge for 20 years, with the possibility of extension. Once the food forest becomes

profitable, SVV will start paying rent. The food forest is expected to become productive after four or five years reaching full production after 15 to 20 years, with some trees only reaching full production after 50 years. This timeframe and the reliance on volunteers and social entrepreneurs is a challenge. The food forest will consist of a publicly-accessible part and a semi-public part where products are harvested by SVV. The costs for realisation were covered by funding from the Province, the Innovation fund from the Recreatieschap and a local private fund. Running costs will mostly be the time and labour of four to eight hours a week for a coordinator and a group of five to ten volunteers. The intention is gradually to cover the professional hours; currently the coordinator, a member of the RFGN, works for free. A paid part-time job will help make the food forest less reliant on personal motivation. The site is too small for a full-time food forest farmer, but the knowledge gained will hopefully help future initiatives to set up professional food forests. For now, educational and recreational activities as well as the processing and sales of the first food forest products provide some income. RFGN considers itself part of a national group of frontrunners (including Stichting Voedselbosbouw NL, Rich Forests and Circle Ecology) that collaborate, exchange knowledge and initiate research on food forests. The research "Food forestry in the Deltalandscape" aims to identify and map physical, conceptual, legal, social and financial space for realisation of food forestry experiments in the Rotterdam region. It is an initiative of RFGN and Voord&Wij, supported by a grant from the Creative Industries Fund. It combines stakeholder dialogue with comprehensive mapping to identify real possibilities for interested farmers and others. It will develop a framework that embeds food forestry in public policy and private interest in the region. The intention is to start pilots that involve new coalitions of landowners, farmers, investors and citizens/consumers and take a next step towards a viable food forestry.

Food Forestry Netherlands used to function as a national umbrella organisation, this role is now taken up by Stichting Voedselbosbouw Nederland. However, until now most food forest initiatives remain unconnected. Some of the main players do exchange knowledge and experiences, but others are following their own course and form their own networks. More collaboration could improve awareness, knowledge and communication about food forests. Hence, better cooperation between food forest producers may be the start of a viable agroforestry community.

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