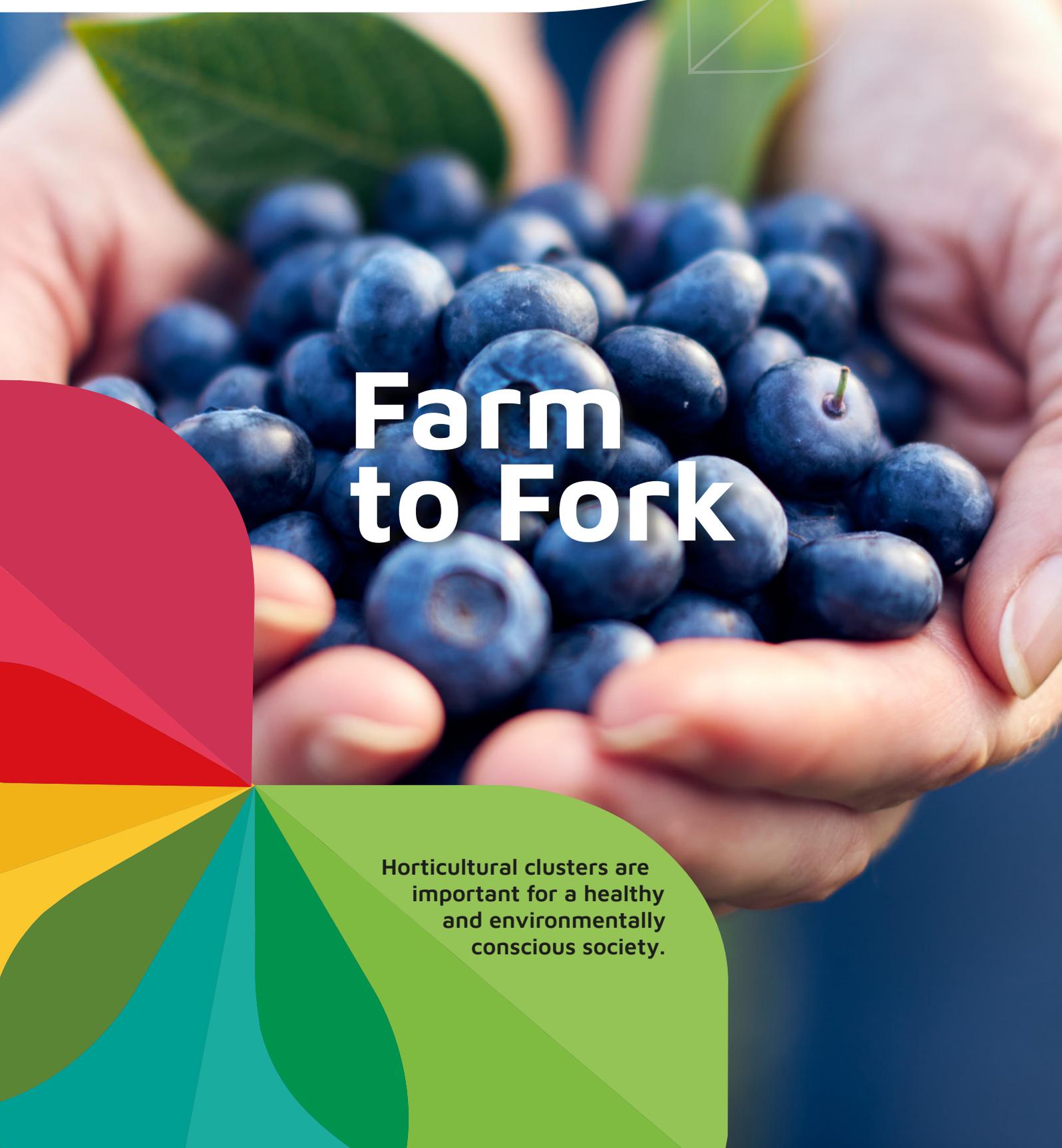




**GREENPORTS**  
NEDERLAND



# Farm to Fork

Horticultural clusters are  
important for a healthy  
and environmentally  
conscious society.



## A horticultural cluster offers solutions

European horticultural businesses and horticultural areas provide innovative solutions needed for healthy societies across the world. Food horticulture supplies fruit and vegetables needed to sustain a healthy diet. In this way, the horticultural cluster contributes to the prevention of diseases such as obesity, cardiovascular diseases, and malnutrition caused by an unbalanced diet, also the proposed protein transition offers opportunities for horticulture.<sup>1</sup> Ornamental horticulture supplies plants, flowers, bulbs, and trees for a sustainable and colourful living environment.

Greenery – both inside and outside – contributes to healthier ecosystems and people’s well-being, for example by preventing depressions, improving air quality, capturing CO<sub>2</sub>, contributing to water drainage, and reducing heat stress in urban areas. Given the effects of climate change (including more heat, more drought and more downpours), the development of urban green spaces is highly urgent. Investments are needed in concrete green projects for built-up areas within the EU.

Dutch horticulture forms a strong and cohesive economic, logistical, and innovative cluster. Greenhouse horticulture production is virtually circular and an example of energy transition towards a climate-neutral society, although there are still many challenges that lie ahead. In order to become a climate-neutral society, substantial investments are needed in new energy sources, heating networks, and CO<sub>2</sub> availability as a growth medium. The Netherlands can lead the way and be an example to other EU member states.<sup>2</sup>

## Horticulture, especially Dutch horticulture playing a leading role

Through innovative solutions, the high-quality and extremely efficient horticultural sector (especially the Dutch horticultural sector) can play a leading role in achieving Europe’s sustainability goals. The horticultural sector largely contributes towards achieving the objectives set out by the European Green Deal, The Farm to Fork Strategy, and the EU’s biodiversity strategy for 2030.<sup>3</sup> The Dutch horticultural sector is expressly looking to partner with horticultural areas and horticultural cluster in other EU Member States. The Farm to Fork Strategy is instrumental in the joint efforts being made to accelerate sustainable food systems.

### **The horticultural cluster is understood to mean:**

All plant-based branches of the horticultural complex (ornamental horticulture, fruit and vegetable production and its propagation materials) and the companies involved in processing, supply, trade, and distribution. Horticulture is a broad production sector with sub-sectors ranging from vegetables, fruit, mushrooms, and trees, to flowers and bulbs. The propagation materials sector includes seed-potatoes, young plants, and seeds.

**The Dutch horticultural cluster is aiming for the following future developments:**

### High-tech production

Cultivation, under glass or other cover against the influences of weather, leads to higher production and lower emissions, while simultaneously requiring less land use. The aim is to have a greenhouse be its own ecosystem with the lowest possible harmful input and output. Biodiverse buffer strips will be created around the greenhouse. This will positively contribute toward efforts to increase biodiversity. Multifunctional land use, such as growing under solar panels, is an option in this regard.

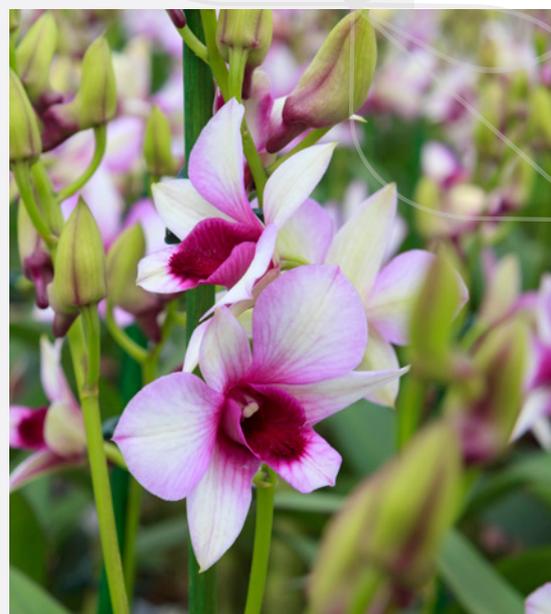
### Circular horticulture

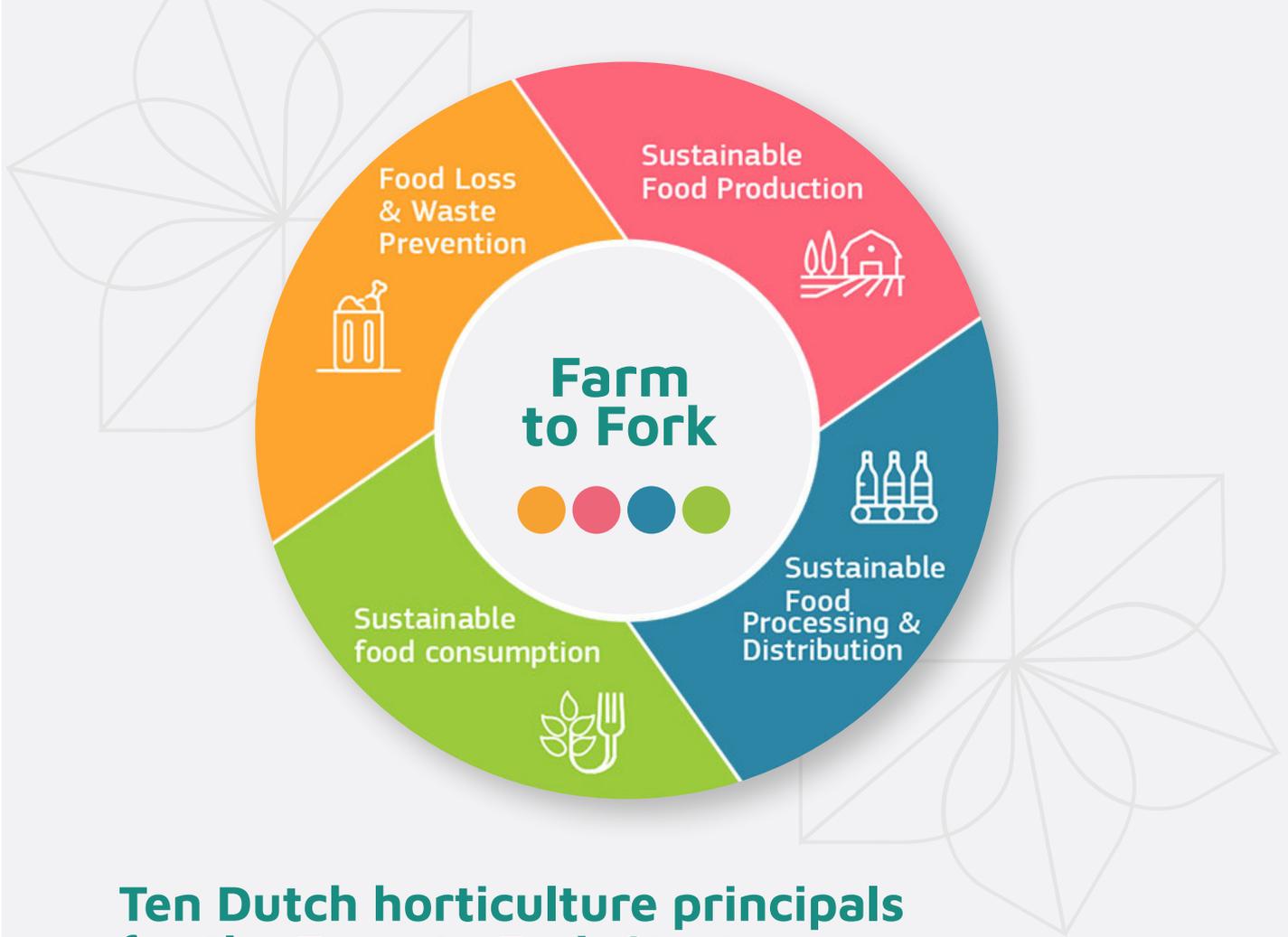
Many of the horticultural cluster's initiatives fit in with recycling concepts from circular economy. The horticultural cluster's goal in creating a circular chain focuses on the optimal value of biomass and waste flows into circular bio-based products on one hand, and a circular and regenerative use of soil and nutrients on the other. Reducing food waste, a transition to more plant-based proteins, and 'feeding and greening megacities' are also important Dutch revenue models.

### Agroecology

Agroecology involves developing resilient systems in open-field cultivation that are more adaptable to changes in the long and short term, but doing so requires a twofold transition. The first transition: minimal tillage and the use of soil organic matter (SOM) management, green manures, and organic stimulants to increase natural PH buffering. The second transition: more mixed-tilling, strip-tilling, agroforestry, smart technology, mechanization, and robotics to make the entire cultivation system more resilient. Natural crop protection agents are very successful at suppressing diseases and pests in these resilient systems. This means that the systems become minimally dependent on chemical crop protection agents. They also form the basis for the optimal integration of ecological principles in these cultivation systems. Managing these agents will become more complex for the employer, therefore the development of management and decision support tools is essential.

The Dutch horticultural sector calls for more investments from the European Green Deal in order to stimulate these future developments.





## Ten Dutch horticulture principals for the Farm to Fork Strategy

Horticulture is a strong sector that puts lots of work into the European Farm to Fork Strategy (F2F). The abovementioned ambitions and future developments have been translated into the following ten principles:

### 1. CLIMATE NEUTRAL ● ● ● ●

EU agricultural and horticultural supply chains play a crucial role in the adaptation and mitigation of climate change.<sup>4</sup>

### 2. CIRCULAR ● ●

Circular production is the ultimate sustainable system. That's why F2F should have a broader focus than just organic farming which only accounts for 25% of the sector. Organic farming is a means to achieve sustainability, but not an end in itself. We argue that all agro-ecological and high-tech methods that contribute to sustainable and circular production are encouraged and eligible for incentives including financial incentives.

### 3. HEALTHY LIFESTYLE ● ●

A healthy lifestyle contributes to climate goals as well as better public health. Dutch horticultural products are produced in a climate-friendly manner. They form an important building block for a healthy diet and lifestyle. The Dutch seed industry contributes to the development of crops that contain health-supporting components. We advocate for educational and supported programs to make people (especially young people) aware of the importance of healthy food and a healthy green environment.

### 4. HIGH-TECH PRODUCTION ●

Smart and intensive horticultural production on a small scale is very sustainable. High-tech horticulture has the ability to achieve the same yield from a smaller area through smart and efficient solutions.

## 5. SUSTAINABILITY ●●●●

Adjust the measurement, sustainability assessment, and environmental pressure at a European level without distinguishing production methods.<sup>5</sup> Horticulture can do this using a scientifically substantiated environmental impact assessment, namely, the HortiFootprint method. This forms the basis for further developing PEFCR standards for the EU's entire horticulture sector (currently being elaborated for the ornamental horticulture sector).

## 6. SMART LOGISTICS ●●

Promote smart supply chains and more sustainable transport and logistics by focusing on multimodal transport, in order to continue excelling in this area. Minimal waste and minimal food waste are only possible with a high-quality and efficient logistics and fresh produce logistics system. The Netherlands is a logistics hub for horticultural products in the global supply chain with essential import flows from dozens of countries within and outside the EU. Fresh produce logistics from Dutch horticulture is already highly sustainable. The majority of production is unprocessed and sold to Europeans at a short distance of 800 km or less. This is how the horticulture sector demonstrates that it acts sustainably and that European food independence is guaranteed.

## 7. RESILIENT CROPS ●

Use a systematic circular approach to the objective of reducing the use and risk from chemical crop protection agents and fertilizers. Good examples are integrated pest management (IPM), innovative technological cultivation practices, and innovative and circular greenhouse horticulture.

Some of the conditions for this include:

- the authorization of new breeding techniques to make crops resilient
- investments in the transition process and R&D in more sustainable cultivation
- the accelerated authorization of green, low-risk agents
- the availability of precision tools for smaller crop groups in horticulture.

## 8. PLANT HEALTH ●

Guaranteed access is necessary for innovative plant breeding and genetic resources. Availability of sufficiently diverse seed and plant propagation material for plant varieties that can withstand changing climate conditions – or that become resistant through the addition of biological aids.

## 9. OPEN INNOVATION ●

Ensure an open innovation system for plant breeding. This can be done by protecting plant breeders' rights, or by using patents to guard against conglomerations and monopolies in the breeding sector.

## 10. ORNAMENTAL HORTICULTURE ●

More attention should be paid to the ornamental horticulture sector as an important part of the Biodiversity strategy (Greening the Cities/forest strategy). This sector is also affected by the F2F strategy. This is still insufficiently explained, as the title and content of the strategies mainly refer to food crops.



# THE HORTI-CULTURAL CLUSTER

## A WORTHY LEADING SECTOR OF THE DUTCH ECONOMY

The horticultural cluster in its entirety consists of production, trade and processing, ornamental horticulture, fruit & vegetables, propagation material, related technology and services, education, and knowledge institutions. Horticulture & Propagation Materials is one of the Leading Sectors. The cluster has the following characteristics:

## Key economic figures from the Dutch horticultural cluster



**MORE THAN 20,000 COMPANIES**

**EMPLOYMENT (2018)**  
300,000 jobs (254,000 FTE)



**PRODUCTION AREAL**  
Over 100,000 ha



**WAGE SUM**  
2 billion euros per year



**IMPORT VALUE (2019)**  
11.5 billion euros



**PRODUCTION VALUE (2018)**  
27.9 billion euros

**ADDED VALUE (2018)**  
Direct 11.8 billion euros; entire complex 21.1 billion euros

**EXPORT VALUE (2019)**  
24.5 billion euros  
(¾ domestic product; ¼ foreign product)



### STRONG INTERNATIONAL ORIENTATION AND POSITION

- **Export reach**  
over 150 countries; home market of Europe is by far the largest sales area
- **Sourcing imports**  
more than 130 countries
- As an international hub of horticultural products crucial for other countries
- As a supplier of knowledge contributing to the development of regions and countries

**CONTRIBUTION TO THE DUTCH ECONOMY**  
2.7% of GDP (gross domestic product)



**SHARE IN DUTCH R&D EXPENDITURE (2017)**  
4.5%



This document has been compiled by the horticultural industry in consultation with the provinces and the Topsector Horticulture and Starting Materials. All involved in Greenports Netherland. The document is explicitly intended as a background document to strengthen the Dutch horticultural sector and support the lobby in relation to the European climate and sustainability ambitions.

## Sources

### General

- ✔ [Agrimation: sustainability performance in greenhouse horticulture](#)
- ✔ [Use of agents for fruit cultivation](#)
- ✔ [Greenhouse horticulture CO2 energy monitor](#)
- ✔ [Towards delivering on the sustainable development goals in greenhouse production systems](#)
- ✔ [Topsector Horticulture & Starting Materials SDG's](#)

### Specific, in line with the Farm to Fork target

- 1 [Article Groenten & Fruit \(dutch\) – The secret of healthy vegetables](#)
- 2 [Kas als Energiebron - prognoses CO2 emission horticulture 2030 \(dutch\)](#)
- 3 [Switch2Green](#) with specific effects FTF and Biodiversity for [Biodiversity strategy](#)
- 4 [IOP Science - Environmental Research Letters](#)
- 5 [Wageningen UR - Towards delivering on the sustainable development goals in greenhouse production systems](#)

Zoetermeer, june 2021



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