

## Worldwide challenges



1  
Climate change  
& Sustainability



2  
Growing  
World population



4  
Rising demand  
for Fresh Food



3  
Rapid urbanisation /  
Metropolitan Agriculture



5  
Greater need for sustainable  
production systems  
& food safety

### Local for local

It is becoming increasingly popular to produce and consume food products close to their source. There are various reasons for this: from wanting to reduce the dependency on imports to saving logistics costs. AVAG members are experienced in providing adapted solutions – both mid-tech and high-tech systems – that are aligned with the local climate and economy.

### Feeding Mega Cities

The world faces several major challenges. How can we ensure that the inhabitants of mega cities continue to have access to sufficient fresh food in the future? By developing new, sustainable technology for the production of fresh food in high-tech greenhouses today, AVAG members are helping to provide solutions to the challenges of tomorrow.

### Knowledge sharing

The Netherlands exports total solutions for greenhouse concepts to many countries around the world. Although it is important to have constant access to the technology for maintenance and business continuity purposes, this is not always possible everywhere. The solution is to share knowledge and expertise and support the training and further development of local partners.

### Vertical Farming

In vertical farming, food crops are cultivated in vertically stacked layers in a controlled and automated environment. This saves not only space but also energy; water and other resources are optimally utilised. A vertical farm solution can be very effective, depending on the costs and the local wants and needs.



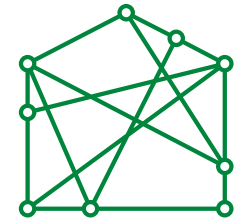
The primary organisation where Dutch companies collaborate on integrated growing systems, components and associated services. AVAG supports its members in the aspects of quality, innovation and internationalisation. Affiliation with AVAG is a guarantee of high quality, aligned with the market and the climate.



Innovation is the source of progress in the Dutch horticultural sector. It is Hortivation's mission to work closely with companies and knowledge institutes to make strategic innovations quickly available to the sector as a whole. In this context, in addition to existing systems such as CASTA, Hortivation is working in partnership with knowledge institutes such as TNO and other companies involved develop the SIOM calculation model, which allows greenhouse designs to be adapted to local conditions. Besides that, Hortivation is conducting studies into how big data and IT can help suppliers to the horticultural sector to export their greenhouse technology.



The HortiQ certificate is an independent and objective quality system for greenhouse manufacturers, installation companies and other suppliers of equipment to the greenhouse sector. In order to be allowed to use the certificate, the suppliers' products as well as their internal organisation, including their quality policy, must meet predefined criteria.



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# Greenhouse Technology Center

Within the AVAG Greenhouse Technology Center, Dutch companies collaborate on integrated growing systems, components and associated services. All our companies provide a comprehensive offering of knowledge and technology for high-quality greenhouses, cultivation systems, logistics, E-grow, energy efficiency and water efficiency. AVAG supports these companies in the aspects of quality, innovation and internationalisation.

## Dutch solutions

The scale and complexity of horticultural projects continues to increase all over the world, creating a rising demand for innovative tailor-made solutions. Dutch suppliers of greenhouse technology are capable of providing such solutions. This has resulted in a globally unique concentration of specialised companies in the Netherlands. The Dutch horticultural cluster has a long tradition of close collaboration, from seed through to retail, dating back more than a century. This means that the technology sector has amassed a huge amount of knowledge, experience and expertise enabling the accomplishment of high yields per square metre.

## Collaboration is in the genes

The Dutch horticultural cluster not only works together closely, but also shares knowledge and expertise. In this context, the so-called 'Green Fingers' approach forms part of each project. This adds extra value and helps the Dutch greenhouse technology sector to maintain its world-leading position.

## Disciplines

### Artificial Growth Systems

The term 'artificial growth systems' covers a range of resources that support optimal crop development, such as substrates and LED lighting. A substrate provides plants with the ideal balance of nutrients tailored to the particular crop. LED lighting creates the optimal climate for growing many crops, and once again each crop requires a different 'recipe'. By definition, vertical farming is also a type of artificial growth system.

### Greenhouse Construction

90% of all the world's glasshouses originate in the Netherlands. The modern, high-tech Dutch greenhouses form the perfect foundation for a healthy, profitable business anywhere in the world. AVAG members use the CASTA/Kassenbouw calculation tool to help them design and construct extremely efficient greenhouses. Besides that, the greenhouse structures comply with various national and international quality standards, including NEN 3859, HortiQ and EN 13031-1:2018. This assures you, the customer, of a top-quality greenhouse.

### Water & Energy

AVAG members are keenly aware of the importance of minimising the use of natural resources such as water and energy. Doing business sustainably while maximising profit is the number one desire for companies all over the world. Designing and installing an efficient irrigation system and energy-saving solutions requires a customised approach taking account of the country and the climate. Systems are connected to the grid wherever possible; potential solutions include solar energy, natural gas, geothermal energy and wind energy. We always work with the very latest, most sustainable innovations related to water and energy – while also safeguarding economically viable production of top-quality crops, of course – and your project will be no exception.

### Digitalisation & Automation

Digitalisation and automation are important tools for the optimal production of high-quality vegetables, flowers or plants. We also refer to this as 'E-grow'. E-grow enables us to gather the right data for a grower from various crop production management systems. Plant monitoring technology and automated climate control are making it increasingly easy for growers to cultivate their crops as optimally and efficiently as possible, resulting in maximum yield and profit.

### Handling, Logistics & Control

In the fresh produce industry, it is important to optimise both the internal logistics and the transport after harvesting as much as possible. Smart modular customised solutions, such as plant research and phenotyping, help us to respond to your needs and improve the quality of your harvesting, packing, sorting and storage activities.

## Innovation & Quality

Dutch integrated growing systems are suitable for any market, any crop and any climate thanks to:

- Knowledge of your market, your climate, your crop
- High quality standards
- Continuous focus on further innovation
- Collaboration with you and the best partners for each project
- Exchange of knowledge between companies, knowledge institutes and government bodies