

# Hort Forum

## Vertical farming: a fair story versus a fairy tale

Thursday  
15<sup>th</sup> of January 2026,  
Hours: 17:00 – 19:00  
*Central European Time (CET)*

### Registration link:

[https://us02web.zoom.us/webinar/register/WN\\_i7XyjjBBTdO1hkyl2KlimA](https://us02web.zoom.us/webinar/register/WN_i7XyjjBBTdO1hkyl2KlimA)



The International Society for Horticultural Science invites you to the ninth episode of Hort Forum:

## **Vertical farming: a fair story versus a fairy tale**

**Speaker:** Leo Marcelis,  
*Chair of ISHS Working Group Vertical Farming,  
Horticulture and Product Physiology group,  
Wageningen University,  
The Netherlands,  
(Leo.Marcelis@wur.nl)*

### **Abstract**

Vertical farming allows production of fresh vegetables in a standardized way at any place including the most urbanised regions of the world or places with extreme climate (desert, arctic). The use of LED light and the full control of both the aboveground and belowground conditions in combination with the right cultivars, enables growers to produce products with extra added value, which appeal to the demand of consumers for safe, reliable, and tasty food. Vertical farming is extremely sustainable with respect to water, fertilizers, pesticides and land use, but has a high usage of electricity. After an initial hype with very large capital investment in vertical farms, in recent years many vertical farms went bankrupt. On the other hand some vertical farms are still expanding and new vertical farms are still starting up.

In this presentation I will first describe the rise and fall of vertical farming during the last 10 years and what the driving factors were. Then I will describe productivity and environmental performance of vertical farms. Subsequently I will discuss some physiological, developmental and morphological responses of crops to light (intensity, spectrum, position, photoperiod) and will provide a number of examples how to use different lighting strategies to control yield and quality of plants produced in vertical farms and to reduce the energy use.



### **Short Bio**

Prof Dr Leo Marcelis is head of the chair group Horticulture and Product Physiology at Wageningen University, The Netherlands. This group holds a strong position in research and education on vertical farming, greenhouse horticulture and post-harvest quality.

His research focuses on sustainable production of high quality products in vertical farms and greenhouses. Leo has a strong background in plant physiology, crop monitoring, computational modelling and experimentation. He has extensively studied the physiology, growth and development of plants in order to improve sustainability and quality of crop production in greenhouses and vertical farms. In particular fluxes of assimilates, water and nutrients in the plant, sink/source interactions and partitioning among plant organs in response to abiotic constraints are subject of study. LED lighting is a major theme in his research. At the moment he is leading large multidisciplinary research programmes on vertical farming, LED lighting and plant control in greenhouses and vertical farms in which universities and private companies cooperate.

*His publications can be found here:  
Leo F.M. Marcelis - Google Scholar*

*More info:  
<https://www.wageningenur.nl/en/Persons/Leo-Marcelis.htm>*

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