



Course

Vertical Farming

There is a shared enthusiasm that vertical farming can provide the world with safe, nutritious and sustainable greens. But most claims lack robust scientific backing. In this mixed classroom course Wageningen University & Research's world's leading academics in the field bring together business, academia, and students. Come share in the latest insights on opportunities and challenges of vertical farming and learn what actually 'works'.

Target group

This course is designed for growers, tech developers, breeders and others associated with the vertical farming industry. Professionals should be acquainted with the field of plant production. A BSc level by working experience or study is recommended. You will follow this course in parallel with university students who will help you to research the central challenges of vertical farming and provide you with scientific insight on applied problems.

Results

After successful completion of this course, you have learned how environment and technology affect crop growth. Also, you have learned how to interpret the latest scientific and industry insights to improve sustainability, profitability, and product quality of vertical farms.

Date	6 - 31 January 2025
Location	Blended
Duration	4 weeks 60 hours in total

Course leader Prof.dr ir. LFM (Leo) Marcelis, Horticulture & Product Physiology group, WUR

Outline and topics

By bringing together professionals and university students in this mixed classroom we aim to stimulate the cross-pollination between theory and practice. Receiving the latest knowledge on vertical farming (VF) you will be able to give input relevant to the specific hurdles and challenges you face. Students will deep dive into problem-based case studies, guided by academic experts, and present their solutions. You are welcome to submit practical challenges in your company for the students to dive into.

With a strong focus on the plant physiology aspects, you will:

- Apply concepts from plant physiology, technology, business, and sustainability.
- Become familiar with innovations such as novel substrates, state of the art LED lighting recipes, precision environmental control, and advanced sensing.
- Evaluate vertical farming strategies in terms of sustainability, profitability and product quality.

Programme

The 4-weeks programme offers 4 modules. For all professionals the first **three weeks** are **online** and week 4 (module 4) is **2 days in-person** in Wageningen. The 60 hours of dedicated study time is spread over the total period, with fixed interaction moments each week.*

Professionals follow modules 1, 2 and 3 online, with 6-10 online live sessions each week consisting of lectures, workshops, discussions, and student presentations. On Monday's, 14-17h and Friday's, 10-13h CET there are mandatory online interaction moments for professionals and students to work together. For other sessions, you can join online or watch the recordings. In module 4 a **mini-conference on VF at Wageningen Campus on 30 and 31 January** wraps up the course.

*Alternatively, upon request, you can choose to only view the online content of modules 1-3 without interaction with students or teachers and no access to the mini-conference.

Module 1 | online

- Overview VF systems and challenges in VF.
- Crops & Yields in VF versus greenhouses.
- Light & photobiology; light(spectrum) effects on growth, costs, and light use efficiency.
- Environmental effects on product quality; effects of light(spectrum), nutrients and temperature on product quality.
- Discuss product quality.

Module 2 | online

- Micro-climate; Effect of micro-climate and homogeneity on the plant.
- Roots & nutrients; effect of systems, growth media, and nutrients on the plant.
- Temperature & CO₂; effects on plant and possibilities for high temperature cultivation.

Module 3 | online

- Overview on technology and automation in VF
- Oversight latest research in VF.
- Sensing current state and future of plant sensing.
- Autonomous farm; how to automate crop production.
- Business strategy & supply chain.

Module 4 | in-person participant mini-conference

- Guest talks incl. WUR research projects, breeding & cultivars, business strategy, ethics & consumer acceptance, classification schemes.
- Tours of HPP climate chambers and growing facilities.
- Poster sessions featuring course work completed by students with solutions to practical problems in VF and real problems input by professionals.

Practical information



€ 1.900,- per person* covering tuition, the conference and 1 year access to the online course content. Travel and accommodation are not included.

*'view-only' is € 950,- per person with no access to the conference.



Between 100 and 150 participants, with a maximum of 50 professionals. No maximum for viewers.



Based on your (online) participation a certificate is issued.

Registration

Enrollment is possible until 8 December 2024 or if the maximum number of participants is reached. Enrollment is based on "first come, first served".

Register via wur.eu/academy.

Register

Wageningen Academy

We develop and organise courses for professionals, based on Wageningen University & Research expertise.

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