Organisation & Directions

Veranstaltungsort/Venue
Zentrales Hörsaalgebäude (ZHG)
Maximus-von-Imhof-Forum 6
85354 Freising-Weihenstephan
Deutschland

Veranstalter/Host
World Agricultural Systems Center
Hans Eisenmann-Forum für Agrarwissenschaften
der Technischen Universität München
Liesel-Beckmann-Straße 2
85354 Freising-Weihenstephan
Germany
Tel: +49 8161 71 3464
Fax: +49 8161 71 2899

Please register via E-Mail at
hans-eisenmann-forum@tum.de

and indicate whether you would like to attend
a) on-site or virtually
b) day 1, day 2 or both days.

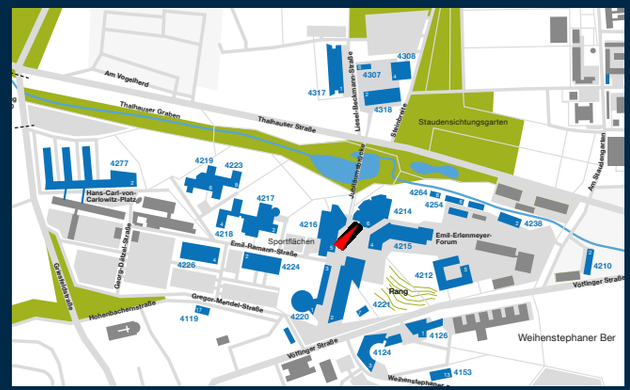
Day 1 in English
Tag 2 in German/Deutsch

Please note that the attendance on-site is limited.
Therefore, early registration is recommended.

The event is open to all interested parties
and is free of charge.

Redaktion
C.R. Luksch
Hans Eisenmann-Forum/TUM
Grafik: ediundsepp

Veranstaltungsort/Venue:



ZHG| Maximus-von-Imhof-Forum 6 | 85354 Freising

Arriving by public transport

From Munich airport: Take the bus 635 to Freising train station.

From Munich main station: Take the train or the S-Bahn (S1) to Freising train station.
From Freising train station busline 639 will take you to the campus.

Arriving by car:
From the autobahn A9 exit "Allershausen" or from the autobahn A92 exit "Freising Mitte" and follow the signs to Freising. In Freising, follow directions to Weihenstephan/ Universität.

Parking is available at Liesel-Beckmann-Straße.

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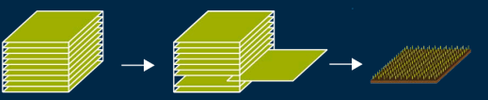
www.hef.tum.de

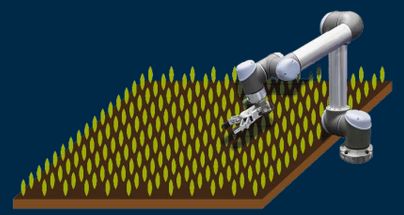
Hans Eisenmann-Forum

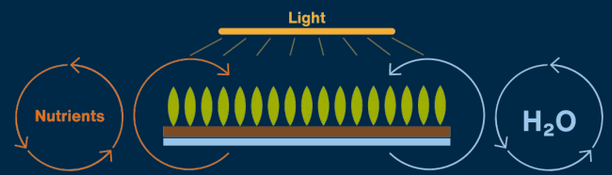
12. HEF Symposium

September 23 & 24, 2021

The Limits of Food Production - Vertical Farming







The Limits of Food Production - Vertical Farming

Program
September 23/24

While food demand continues to increase with a growing global population, climate change and soil degradation have made it already difficult to ensure food security in some regions. Hence, producing more food in a more sustainable way constitutes a central agricultural challenge.

An alternative for growing crops in the field has emerged in recent years with vertical farming. With LEDs becoming affordable and more efficient, the economics of indoor and vertical farming are redefined.
In vertical farms, all growth factors including light, temperature, humidity, CO_2 level, ventilation, water and nutrients can be controlled and optimized. Simultaneously, weeds, pests and diseases can be excluded, and the use of water and fertilizer can be drastically reduced.
The aim of this conference is to discuss the current state of science in controlled-environment crop growth and yield, and to determine the limits of food production in vertical farms.

DAY 1 - September 23 (in English)

09:00 - 09.10
Prof. Dr. Senthold Asseng & Claudia Luksch
Hans Eisenmann-Forum, Technical University Munich
Welcome, Organizational remarks

09:10 - 09:20
Prof. Dr. Thomas Hofmann
President Technical University of Munich
Opening Words

09:20 - 10:05
Prof. Dr. Leo Marcelis *Wageningen University*
Vertical Farming: The sky is the limit?

10:05 - 10:35
Prof. Dr. Tracy Lawson *University of Essex*
The effect of light quality and intensity on photosynthetic processes

DAY 1 - September 23 (cont., in English)

10:35 - 11:05
Prof. Dr. Erik Runkle *Michigan State University*
Light properties regulate yield and quality of plants grown in vertical farms.

11:05 - 11:35 Coffee break

11:35 - 12:05
Prof. Dr. Eva Rosenqvist *University of Copenhagen*
Temperature effects at different light levels and CO_2 concentrations

12:05 - 12:35
Prof. Dr. Hans Lambers *University of Western Australia*
Will increasing plant productivity make nutrient uptake the next limiting step?

12:35 - 13:05
Prof. Dr. Dean Kopsell *University of Florida*
Management of light quality to maximize specialty crop phytonutrient concentrations in vertical farms

13:05 - 14:05 Lunch break

14:05 - 14:35
Prof. Dr. Murat Kacira *University of Arizona*
Sensing and automation in vertical farms

14:35 - 15:05
Dr. Morgan Pattison *Solid State Lighting Services Inc.*
LED Technology for Vertical Farming

15:05 - 15:35
Prof. Dr. Francesco Orsini *University of Bologna*
Vertical Farms, are they sustainable? An insight into water, land, and energy use efficiency for reduced emissions in indoor farming systems

15:35 - 16:00 Coffee break

16:00 - 16:30
Prof. Dr. Kathy Steppe *Ghent University*
Visions for Vertical Farming: opportunites on land, water and beyond the sky

16:30 – 17:10
Panel discussion with all speakers

17:10 **Closing words, Networking with Beer & Snacks**

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DAY 2 - September 24 (in German)

9:00 **Begrüßung**

9:05 - 09:15
Prof. Dr. Thomas Becker
Dekan der TUM School of Life Sciences
Technische Universität München

9:15 - 09:30
Prof. Dr. Senthold Asseng & Claudia Luksch
Hans Eisenmann-Forum für Agrarwissenschaften
Technische Universität München
Zusammenfassung vom Vortag

09:30 - 10:15
Prof. Dr. Christian Ulrichs
Humboldt Universtität Berlin
Vertical Farming in Deutschland - ein Überblick

10:15- 10:45
Simon Vogel
Fraunhofer Institut IME
Vertical Farming 2.0 - neue Bausteine einer nachhaltigen Agrarproduktion

10:45- 11:05
Prof. Dr. Thomas Hamacher
Technische Universität München
Vertical Farming: Die Frage der Energie

11:05- 11:35 Coffee break

11:35 - 11:50
Christine Lössl-Zimmermann
Association Vertical Farming
Vernetzung der Akteure im Vertical Farming

11:50- 12:10
Prof. Dr. Heike Mempel
Hochschule Weihenstephan Triesdorf
Container Indoor Farming - Potentiale und Grenzen

12:10- 12:30
Jochen Haubner *Haubner Gemüse - SalaJoe*
Vertical Farming - aus der Sicht eines Gärtners

12:30 - 13:00
Dr. Daniel Schubert
Deutsches Zentrum für Luft- und Raumfahrt
Vom Südpol ins Weltall - Gemüseanbau in der Antarktis

13:00 - 13:20 **Diskussion**
13:20 - 15:00 **Vernetzung bei Bier & Snacks**