



Agricultural University
of Athens

1-4 July 2024
Athens-Greece

ageng2024.com

FINAL PROGRAM

We are changing
a lot to support
even more.



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AgEng 2024 OC Chair

On behalf of the Local Organizing Committee, I am honoured to welcome you to AgEng2024. It is a great pleasure to welcome you all in Athens.

It was back to 2014 in Zurich when we submitted our candidacy to undertake the organisation of the next available EurAgEng conference and that was AgEng2024! Now, ten years later, we are excited waiting for your participation in the conference. We have done our best to organise this physical conference at the Agricultural University of Athens, to which I owe my deepest gratitude for their incredible support and devotion in putting together this meeting.

AgEng2024 Athens supports a multitude of activities concerning the promotion of operational research and applied technologies on the agricultural field, yet equally important is that we get the opportunity to gather and to meet up with old friends, to establish our network, to shake hands, to build connections, to encounter new people, or to simply chat with people in the same research domain. Fortunately, there is a lot besides. Two keynote presentations, five parallel sessions for two days, two poster sessions and a field trip on the outskirts of Athens, all of these can be better done with the physical presence to this conference. This year's theme, "Agricultural Engineering challenges in existing and new agroecosystems", stresses the need to study and understand local conditions in order to synthesise the knowledge and make a difference not only for the industry but for our planet as well. The scientific program includes a diversity of topics associated with crop and livestock production, represents several multi-disciplinary approaches and links directly to decision making.

To make this conference possible, a great amount of work has been done with ups and downs, twists and turns, but finally the conference is taking place at the historical city of Athens. I would like to thank EurAgEng, the members of our local Organising Committee, as well as the Steering and Scientific Committees along with PCO CONVIN for the great help with the organisation. Moreover, I would like to thank our keynote speakers, presenters, participants, session chairs for their important contributions to the program, and, of course, our hosting venue of the Agricultural University of Athens.

The city of Athens, where a civilisation developed 2,500 years ago became a global legacy, will form the background for fostering the Conference theme. And there is no better way to begin our conference by referring to the ancient myth saying that the goddess Athena won the naming bid against the god Poseidon by offering the city nothing but an olive branch. So as Athena once said, we are here to exclaim our own modern "Bloom with us!"

In such a context, we have worked towards making our conference greener. The local experience is based on the traditional culture, including the Mediterranean cuisine emphasising on local delicacies with locally produced goods and wine.

We are looking forward to having a scientifically stimulating conference and really hope that you will enjoy both the conference and the Athens culture, life and spirit!

Prof. Dr. Nikos Katsoulas
University of Thessaly



President of EurAgEng

I would like to warmly welcome you all to the 2024 meeting of AgEng here in beautiful Athens.

I am delighted that the end of my Presidency of EurAgEng is marked by participating in this conference, which will bring together our members, whether agricultural engineers, technologists, researchers, or academics, in, again, a fully in-person event. This conference, entitled "Agricultural Engineering challenges in existing and new agroecosystems", features an exciting program that highlights the important work of our community and will bolster connections across our European network.

Our diligent organisers have ensured there is something for everyone - in addition to our keynote lectures and panels, there will be oral sessions and poster presentations. We are also excited to support our younger members with a slate of sessions organized by our Young Professionals Network (YPN). And of course, there is the EurAgEng and Biosystems Engineering Awards and our interesting technical visits, giving a great opportunity to get to know a bit of Attika, the region nurturing the city of Athens.

The Greek capital continues to fascinate and remains an eldorado for history and archaeology enthusiasts but also it has turned to a must for those who want to feel the beating heart of modern Greece. I would like to call all the participants who have had the opportunity to travel to Athens, to enjoy the city twice as much for those who could not make it this year, and to take a bit of the Greek spirit back in your luggage to share it with them. EurAgEng owes a huge debt of gratitude to the many people who generously volunteer their time, energy and enthusiasm to help organize our events, without them, and all their hard work behind the scenes, the AgEng conferences would not be the success stories that they are.

Similarly, without your participation, whether as presenters, moderators, listeners or discussants, events such as these would not be possible. So, thank you for your support and dedication, and I am looking forward to seeing what the next few days will bring.

Prof. Dr. Barbara Sturm

Scientific Director of the Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB)



Organization – Committees

Local Organizing Committee

Nikolaos Katsoulas DR, PROFESSOR, UNIVERSITY OF THESSALY, GREECE

General Chair

Thomas Bartzanas DR, PROFESSOR, AGRICULTURAL UNIVERSITY OF ATHENS

Technical Chair

Spyros Fountas DR, PROFESSOR - AGRICULTURAL UNIVERSITY OF ATHENS

George Papadakis DR, PROFESSOR - AGRICULTURAL UNIVERSITY OF ATHENS

Thomas Kotsopoulos DR, PROFESSOR - ARISTOTLE UNIVERSITY OF THESSALONIKI

Pantazis Georgiou DR, PROFESSOR - ARISTOTLE UNIVERSITY OF THESSALONIKI

George Xanthopoulos DR, ASSOCIATE PROFESSOR - AGRICULTURAL UNIVERSITY OF ATHENS

Konstantinos Ferentinos DR, SENIOR RESEARCHER - HELLENIC AGRICULTURAL ORGANIZATION DIMITRA

Chryssoula Papaioannou DR, PROFESSOR - UNIVERSITY OF THESSALY, GREECE

Steering Committee

Fátima Baptista PROFESSOR, DEPARTMENT OF RURAL ENGINEERING, UNIVERSITY OF EVORA

Peter Groot Koerkamp (prof. dr. ir. P.W.G.) PROFESSOR IN BIOSYSTEMS ENGINEERING / AGROTECHNOLOGY - FARM TECHNOLOGY GROUP, WAGENINGEN UNIVERSITY

Scientific Committee

André Aarnink WAGENINGEN UNIVERSITY AND RESEARCH, NETHERLANDS

Victor Alchanatis AGRICULTURAL RESEARCH ORGANISATION, ISRAEL

Yiannis Ampatzidis UNIVERSITY OF FLORIDA, UNITED STATES

Thomas Anken AGROSCOPE, SWITZERLAND

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Salvador Calvet POLYTECHNIC UNIVERSITY OF VALENCIA, SPAIN

Christos Cavalaris UNIVERSITY OF THESSALY, GREECE

António Comparetti UNIVERSITY OF PALERMO, ITALY

Bill Day BIOSYSTEMS ENGINEERING, UNITED KINGDOM

Daniele de Wrachien STATE UNIVERSITY OF MILAN, ITALY

Peter Demeyer ILVO, BELGIUM

Pierluigi Febo UNIVERSITÀ DEGLI STUDI DI PALERMO, ITALY

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Vassilios Fragos ARISTOTLE UNIVERSITY OF THESSALONIKI, GREECE

Longsheng Fu NORTHWEST A&F UNIVERSITY, CHINA

Pantazis Georgiou ARISTOTLE UNIVERSITY OF THESSALONIKI, GREECE

Anastasios Giannoulis AGRICULTURAL UNIVERSITY OF ATHENS, GREECE

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Melynda Hassouna INRAE, FRANCE

Silke Hemming WAGENINGEN GREENHOUSE HORTICULTURE, NETHERLANDS

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Ageliki Kavga UNIVERSITY OF PATRA, GREECE

Constantinos Kittas UNIVERSITY OF THESSALY, GREECE

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Martin Kremmer JOHN DEERE GMBH & CO. KG, GERMANY

In-Bok Lee SEOUL NATIONAL UNIVERSITY, KOREA

Minzan Li CHINA AGRICULTURE UNIVERSITY, CHINA

Raphael Linker TECHNION ISRAEL INSTITUTE OF TECHNOLOGY, ISRAEL

Edmund Lorencowicz UNIVERSITY OF LIFE SCIENCES IN LUBLIN, POLAND

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Tomas Norton UNIVERSITY OF LEUVEN, BELGIUM

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Xanthoula Eirini Pantazi ARISTOTLE UNIVERSITY OF THESSALONIKI, GREECE

George Papadakis AGRICULTURAL UNIVERSITY OF ATHENS, GREECE

Chryssoula Papaioannou UNIVERSITY OF THESSALY, GREECE

Steve Parkin BIOSYSTEMS ENGINEERING, UNITED KINGDOM

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Evelia Schettini UNIVERSITY OF BARI, ITALY

Sabine Schrade AGROSCOPE, SWITZERLAND

Nick Sigrimis AGRICULTURAL UNIVERSITY OF ATHENS, GREECE

José Rafael Silva UNIVERSIDADE DE ÉVORA, MED, PORTUGAL

Bart Sonck INSTITUTE FOR AGRICULTURAL AND FISHERIES RESEARCH (ILVO), BELGIUM

Claus Gron Sorensen ARHUS UNIVERSITY, DENMARK

Barbara Sturm LEIBNIZ-INSTITUT FÜR AGRARTECHNIK UND BIOÖKONOMIE (ATB), GERMANY

James Taylor INRAE, FRANCE

Meir Teitel AGRICULTURAL RESEARCH ORGANISATION, ISRAEL

Daniele Torreggiani UNIVERSITY OF BOLOGNA, ITALY

Eldert van Henten WAGENINGEN UNIVERSITY, NETHERLANDS

Stavros Vougioukas UNIVERSITY OF CALIFORNIA, DAVIS, USA

Dvoralai Wulfssohn BIOSYSTEMS ENGINEERING, CHILE

Supporting Organizations



AGRICULTURAL UNIVERSITY OF ATHENS
ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ

Under The Auspices of



HELLENIC REPUBLIC
Ministry of Rural Development
and Food



University of Thessaly



H.F.R.I.
Hellenic Foundation for
Research & Innovation

Hellenic Foundation
for Research & Innovation



Geotechnical Chamber of Greece



EurAgEng

Professional Congress Organizer



29 K. Varnali Str. 15233 Chalandri Athens, Greece
T: (+30) 210 6833600 | E: info@convin.gr | W: www.convin.gr



Invited Keynote Speakers



Dr. Peter Demeyer

ILVO-FLANDERS RESEARCH INSTITUTE FOR AGRICULTURE, FISHERIES AND FOOD, BELGIUM,
EDITOR-IN-CHIEF, BIOSYSTEMS ENGINEERING

Keynote Lecture 1: AgEngScience4IMPACT: the compelling case of livestock emissions in the EU

Short CV Peter Demeyer is senior expert in Livestock Emission Risk Assessment (LERA). He is based in the Agricultural Engineering Department at the Flanders Research Institute for Agriculture, Fisheries and Food in Melle (Belgium). He holds a PhD in Bioscience Engineering from Ghent University. His current activities focus on the characterisation of livestock emissions and related reduction technologies, including methodological approaches integrating measuring, monitoring and modelling. He is PI and co-PI on collaborative National and International projects funded by the Flemish government and EU. He is member of several national and international scientific/technical committees (Flemish Scientific Team, Dutch RAV-TAP, VERA, EU ETV) and boards (VERA, CIGR Section II).



Prof. Dr. Stavros Vougioukas

PROFESSOR AND VICE CHAIR DEPARTMENT OF BIOLOGICAL AND AGRICULTURAL ENGINEERING
UNIVERSITY OF CALIFORNIA, DAVIS

Keynote Lecture 2: Fruit-harvesting robots: How can we surpass current limitations?

Short CV Stavros G. Vougioukas is a professor of biological and agricultural engineering at the University of California, Davis, where he serves as vice chair and undergraduate faculty advisor in the Department of Biological and Agricultural Engineering. Vougioukas works in the area of mechanization and automation of specialty crops, focusing on the design, development and testing of actuators, sensors and control systems for optimal management of inputs and products. He holds a Robotics and Automation PhD in electrical, computers and systems engineering from the Rensselaer Polytechnic Institute. In 2012 he joined the biological and agricultural engineering department of UC Davis. He has published more than 140 journal and conference papers, most of them in agricultural robotics and automation. He is currently leading several research projects on agricultural robotics – focusing on labor-saving technologies – with funding from grower commodity boards, federal agencies and private industry.



The European Society of Agricultural Engineers pursues the following goal of international utility:

- ▶ Scientists and engineers working multidisciplinary and trans-disciplinary in the field of agricultural and biosystems engineering in Europe, applying to biological materials (food, feed and biomass), organisms (plant animals, microorganisms), agricultural and food systems and the environment;
- ▶ An agricultural sector with the necessary skills and access to scientific and technical information and equipment to create the environment and production objectives of the future;
- ▶ Academic and industrial researchers who make the best use of the joint scientific and technical potential, in the service of the competence and performance of the professions within agricultural and biosystem technology but also of the entire agricultural sector.
- ▶ Increasing the opportunities for the advancement of technical sciences, education and practice in agriculture, horticulture, forestry, recreation and landscape, aquaculture and the processing of fresh food.
- ▶ The optimal exchange and promotion of scientific and technical performance and of educational programs adapted to the needs of the sector;
- ▶ Promoting a progressive attitude on the role of agricultural and biosystems engineers in the relevant industries, as well as in related social and economic sectors;
- ▶ Encourage communication and multinational cooperation between agricultural engineers engaged in production, trade, research, education and information;
- ▶ To develop mutual understanding and cooperation relationships between participating national associations and individual members in different countries;
- ▶ Encourage individual members to develop and exchange their professional knowledge and skills;
- ▶ To gain professional recognition for engineers in agriculture, rural and related industries;
- ▶ To help affiliated associations and affiliated organizations promote their professional activities.

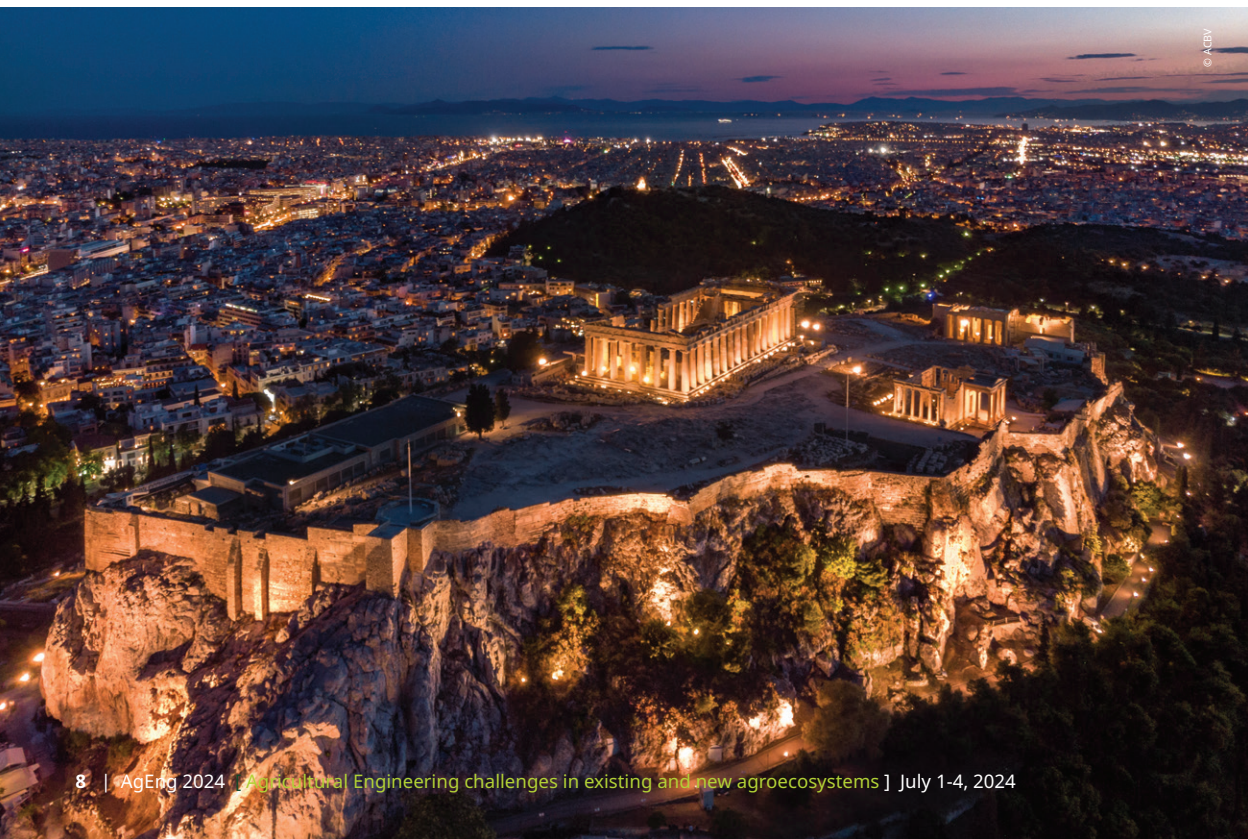
EurAgEng's President: Professor Dr. Barbara Sturm



About Athens

A bustling, cosmopolitan metropolis, yet the cradle of democracy and civilization, Athens is central to economic, financial, industrial, political and cultural life of Greece. Standing at the crossroads of three continents, Greece's capital has been, due its geographical position, a melting pot of different cultures, which have come together throughout its long history and still do so today. It's the land of hospitality, known since ancient times, where Greek people give a warm welcome to every visitor traveling to Athens to catch up memories to a unique destination.

Athens is a modern European city with an old-town feel; ancient monuments fuse with a trendy, cosmopolitan scene. Masterpieces of significant architectural values stand tall today in a harmonious coexistence with impressive modern buildings. But, also, is an ideal congress destination, combining state-of-the-art infrastructure, excellent congress facilities and easy access from all over the world with world-class cultural attractions, modern amenities and diverse entertainment.



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AGRICULTURAL UNIVERSITY OF ATHENS

75, Iera Odos str., Athens 118 55, Greece

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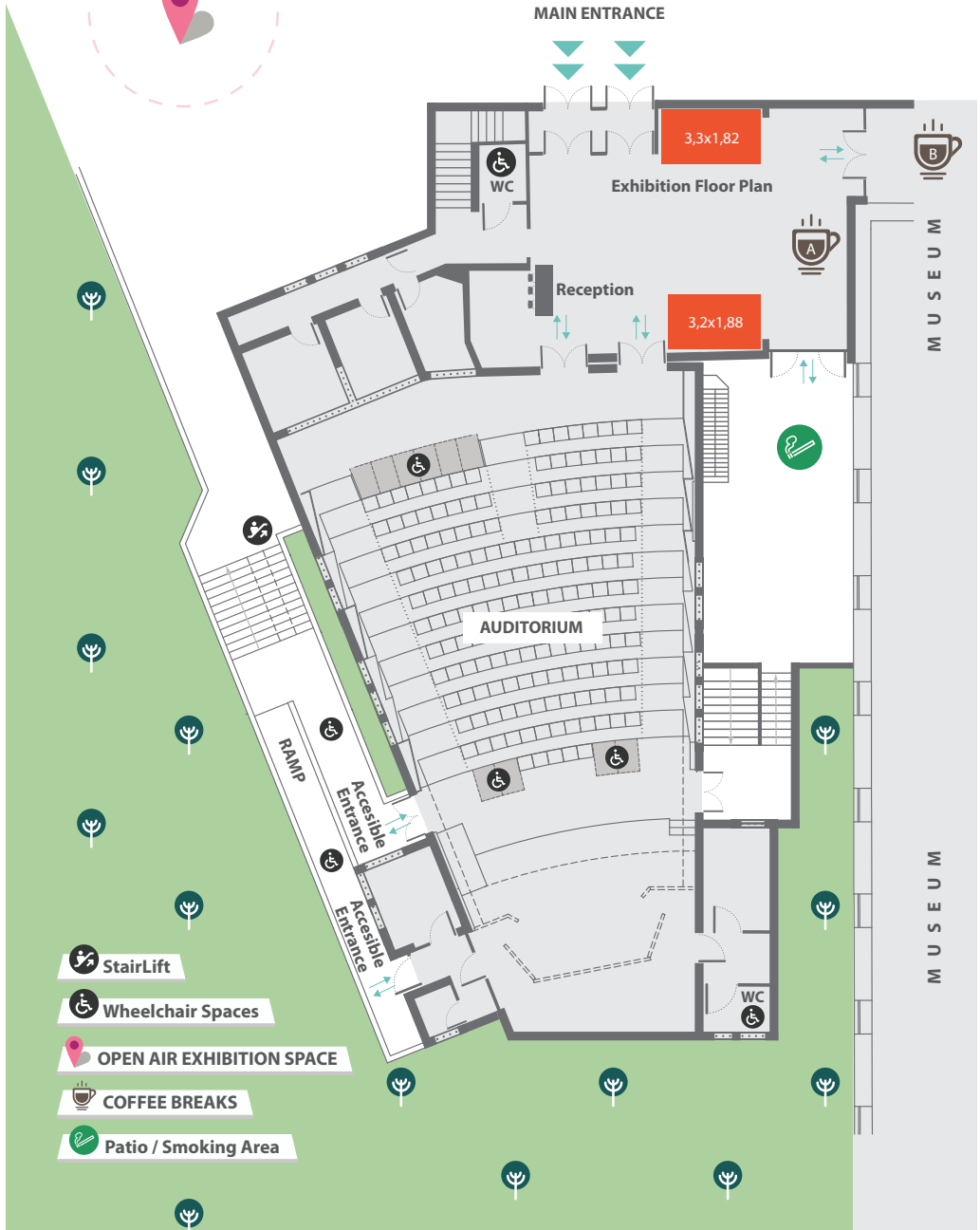
ABOUT AGRICULTURAL UNIVERSITY OF ATHENS

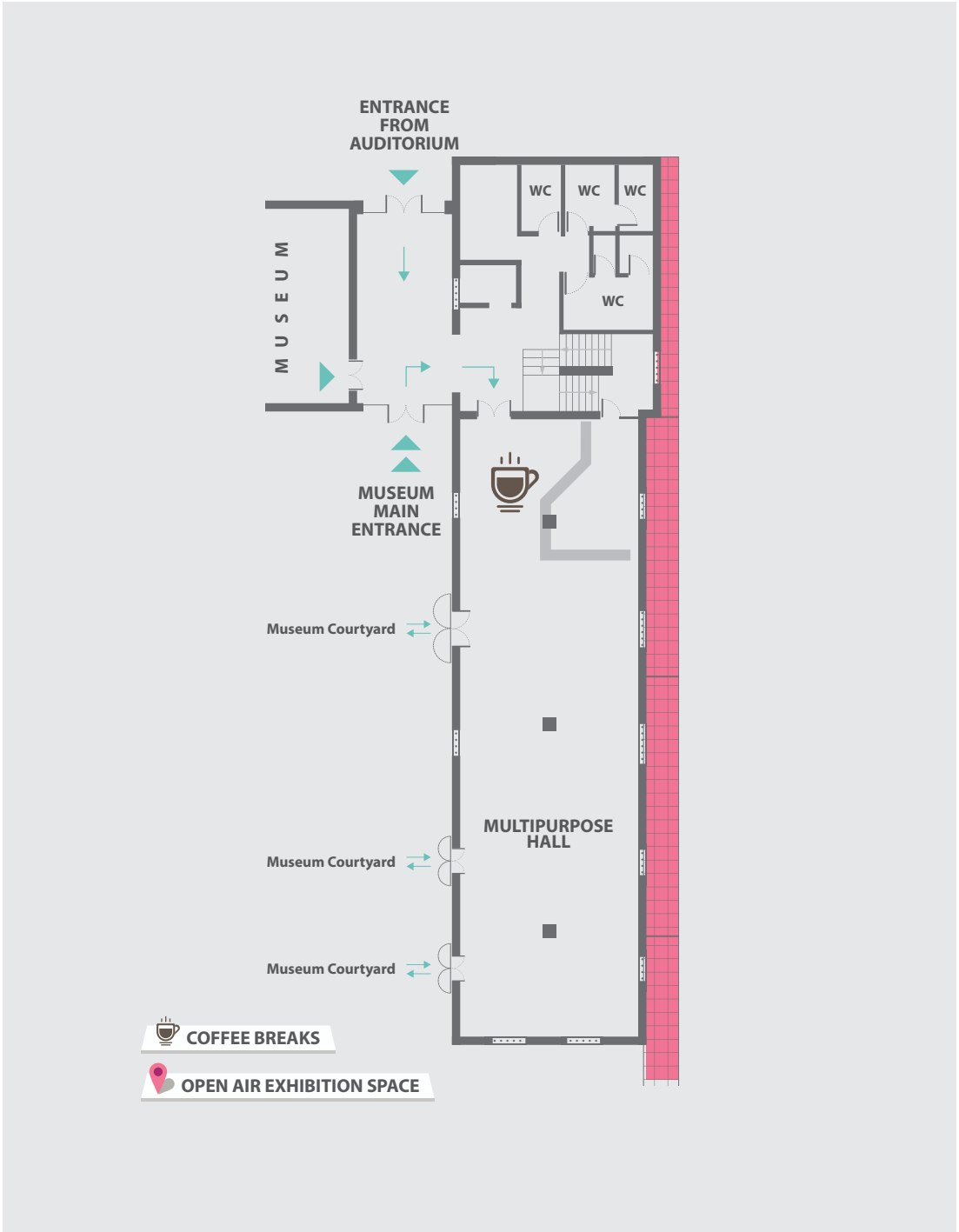
AgEng 2024 will be hosted at the premises of the Agricultural University of Athens.

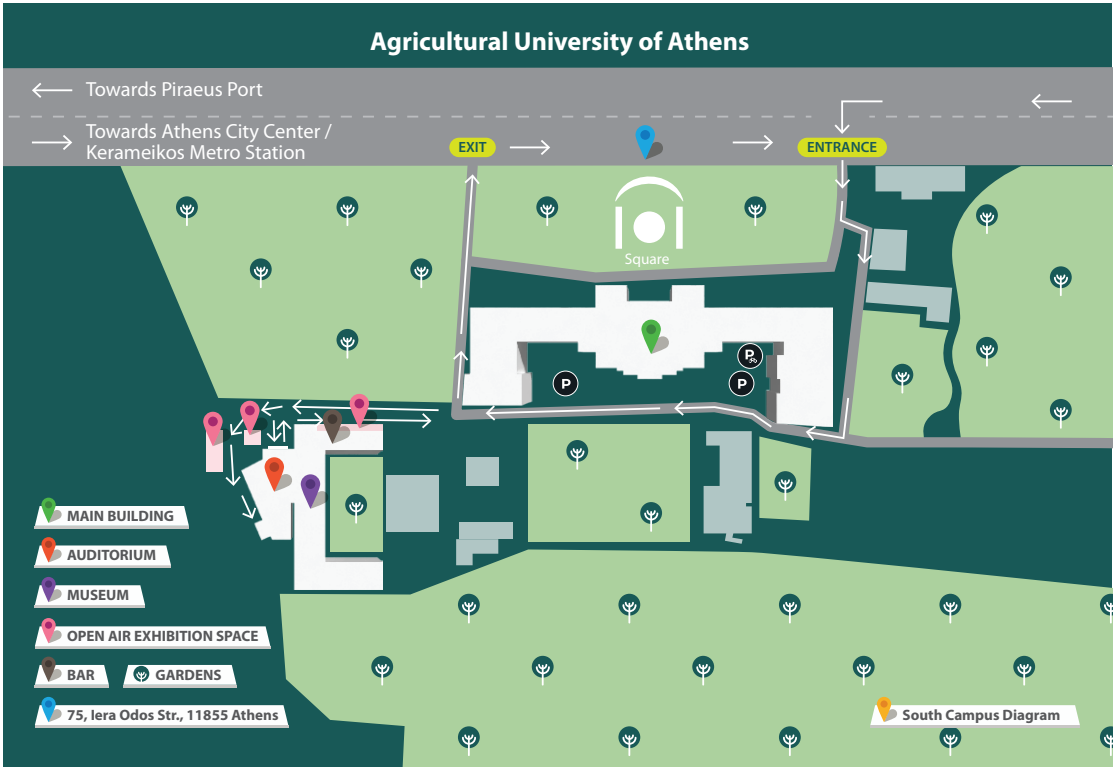
Established originally in 1920, the Agricultural University of Athens (AUA) is the third oldest university in Greece, after the University of Athens and the National Technical University of Athens. The Conference Center of the University offers a modern facility to hold local and international congresses and symposia. Attached to the Agricultural Museum, the Auditorium is fully accessible and it has a capacity of approximately 200 attendants, as well as adequate Exhibition Space, both indoors and outdoors. The venue benefits from natural light and the museum's catering facilities.



AUA CAMPUS







Metro

The Agricultural University of Athens is conveniently situated up on the route of the Metro Blue Line, connecting the Athens International Airport with the Piraeus Port, the main transportation hub towards the Aegean islands. To reach AUA using the Blue Line, you alight at Kerameikos Station taking the "Konstantinoupoleos" exit. Heading to the Campus via the Iera Odos Str., it will take you only 15' on foot to reach the Conference Center.

Public bus lines

OASA, the local public company operating bus lines within the city, offers an extensive network and a modern telematic system with a remarkable accuracy. You can download the OASA App to your mobile device for free and help yourself navigating around.

Bus lines to/from the Agriculture University of Athens:

A15 from Metaxourgeio Metro Station (Red Line)

856 from Syntagma – Panepistimio – Omonia Metro Stations

Bus Stop No: 060324

Bus Stop Name: Agriculture University of Athens

TAXI / Private car:

If you decide to use a private car an Uber or a taxi, please note the full address: 75, Iera Odos Str., 118 55, Athens

A

Abstract Book

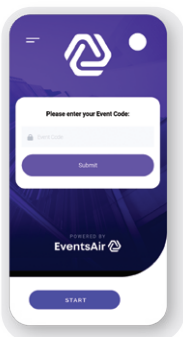
Abstracts presented during the AgEng 2024 Athens have been published in an electronic format and are available through the website and Meeting App.

APP

Android devices

Search for The Event App by EventsAIR on **PlayStore**.

When you are prompted for a code upon launching the App, insert **ageng24**



iOS devices

Search for The Event App by EventsAIR on **AppStore**.

When you are prompted for a code upon launching the App, insert **ageng24**



C

Cash Bar

There is no Cash Bar at the venue.

Cash Points

A National Bank of Greece ATM is located inside the Deanery Building.

Childcare

No childcare service will be available during the Conference.

Cloakroom

No Cloakroom will be operating during the Conference.

Congress Dates

Monday, July 1 2024 to Thursday, July 4 2024.

Congress Venue

Agricultural University of Athens Conference Centre Address: 75, Iera Odos Str. 118 55 Athens.

Corporate Social Responsibility & Sustainability

AgEng 2024 Athens is dedicated to fostering social responsibility by undertaking and supporting actions and initiatives that align to our identity and commitment to local society and its people. Key sustainability measures include:

- ▶ Selecting local suppliers to minimize long-distance transportation of goods and personnel
- ▶ Minimizing printing and striving for a nearly paperless office environment
- ▶ Providing contactless check-in for delegates and visitors
- ▶ Reducing energy consumption through the use of LED lighting and screens
- ▶ Limiting the number and variety of amenities
- ▶ Choosing catering partners with compost food and waste programs

Currency / Exchange

The Greek currency is euro (EUR). Exchange offices are located all around the city center (exchange offices and banks).

E

Electricity

The electrical power supply voltage in Greece is 220-240 Volts (US/Canada: 110-120 Volts).



General Information A-Z

Emergency Contacts

Police: 100
Fire department: 199
Medical emergency (ambulance): 166
European emergency contact number (all the above): 112

Environmental Policy

AgEng 2024 is observing an environmentally friendly policy. In this context, every effort has been made from preparation to realization of the Conference, to minimize our impact on the environment. Venue selection has taken into account easy access through a variety of public transportation environmentally friendly choices, thus minimizing carbon footprint.

Exhibition Operating Hours

Exhibitors are listed in the Program Book. The exhibition will run during the Conference dates at the designated area, during official breaks.

TUESDAY	July 2	08:00-19:00
WEDNESDAY	July 3	08:00-19:00



Facilities For Persons with Impaired Mobility

AUA Conference Center and premises have been specifically designed to support the needs of persons with impaired mobility. All Conference areas are equipped with facilities that allow easy access, whilst specially designed restrooms and ramps are available in all levels.

Food & Beverages

Coffee and refreshments during official Coffee breaks are included in the delegate registration fee and will be served in designated catering stations next to the Auditorium.



Internet

Free WiFi access will be available in all Conference areas throughout the duration of AgEng 2024.



Language

English is the official language of AgEng 2024. No simultaneous interpretation is provided.

Liability and Insurance

Registration fees do not include participants' insurance against personal accidents, sickness and cancellations by any party, theft, loss or damage to personal possessions. Participants are requested to make their own arrangements with respect to health and travel insurance. AgEng 2024 Organizing Committee and PCO Convin SA will accept no liability with this respect.

Lost & Found

A lost and found service is available at the Registrations Desk.



Parking

The Conference venue offers parking spaces for free within the AUA Campus.

Photos

Photos of sessions and Conference areas will be taken during AgEng 2024. Attendees are advised to contact the Registrations Desk, for any issue or objection with this respect.

S

Self-Check-In Stations

There will be no Self Check-in service.

T

Taxi Services

Delegates can hire online using apps such as Freenow or UBER (for taxis).

Time

Athens follows Eastern European Summer Time (UTC/GMT +3 hours) from mid-spring to mid-Autumn.

Tipping

In restaurants, hotels, taxis or other services, tipping is optional, and customized per case, depending on whether you are pleased with the service. Approximately 5% of the check is a good guideline.

W

Weather

The weather in July is bright and sunny with blue skies shining overhead. It's so sunny and warm, in fact, that the temperatures—which average about 81°F (27°C)—can sometimes feel sweltering. (July is actually the hottest month of the year).





Registration

Badges

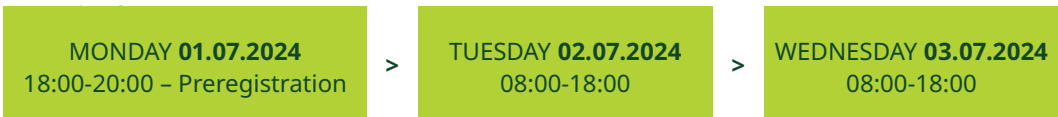
Registration badges will be used during the AgEng 2024. Participants will receive their badges upon check-in at the Registrations Desk. For identification purposes and admission to scientific sessions, participants are requested to wear their badges at all times. Admission to Conference areas will not be allowed without badge identification.

Certificates of Attendance

A Certificate of Attendance will be sent to all registered participants after the Conference via email.

Registration & Hospitality Desk

The Registration Desk is located next to the Auditorium entrance.



Registration Fees

Category	Onsite Fee
Delegate Member	630,00 €
Delegate Non-Member	680,00 €
Student*	180,00 €
LMIC Delegate**	400,00 €
Daily Pass	300,00 €
Accompanying Person	200,00 €

Registration Documentation

For Student Registration, a Valid Student ID (with reference to current valid enrollment), needs to be provided through the online registration process.

LMIC (Low- and Middle-Income Countries as defined by the World Bank). Should you choose the LMIC Registration Category, please be informed that a copy of your passport AND a confirmation of current employment needs to be provided.

Entitlements

Registration Fee Entitlements

- ▶ Attendance to all Sessions & Welcome Reception ▶ Conference Material & Abstract Documentation (link)
- ▶ Coffee and Lunch during Official Breaks ▶ Certificate of Attendance

Daily Pass Registration Fee Entitlements

- ▶ Attendance to all Sessions of the day ▶ Conference Material & Abstract Documentation (link) ▶ Coffee and Lunch during Official Breaks ▶ Certificate of Attendance

Accompanying Person Registration Fee Entitlements

- ▶ Accompanying Person Registration Fee Entitlements ▶ Attendance to all exhibition areas & Welcome Reception ▶ A 4h Parthenon tour & Acropolis Museum visit free of charge

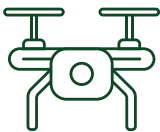
Oral Presentations

Each oral presentation is allocated a total of 15 minutes (12 minutes for the presentation, plus 3 minutes of discussion/Q&A). Presenters are kindly requested to prepare their presentation accordingly, to ensure the smooth running of the conference program. The session chairs will make sure that each presenter is provided the same amount of time. The language of the conference is English and no simultaneous translation services will be provided.

No Speakers Preview Desk will be available during the Conference. Presentation files, in MS PowerPoint format, should be delivered by all speakers into the designated session rooms, where accredited staff will test all files. Staff will be located at rear part of each session room and they will be there, to make any adjustments to the files if needed. Speakers will not be able to use their own computers to present; they are also requested to be present at the session hall at least fifteen minutes before the scheduled opening time, to meet the chairs and converse on the session flow. There is no specific template for the PowerPoint file, as long as it's in landscape (16:9) orientation.

Poster Presentations

Posters should be mounted on the designated poster board in the poster area at the designated day & time, which will be sent to you. Maximum size of the poster is size A0 in portrait format (84.1 cm width x 118.9 cm height). Presenters are reminded to bring their printed posters to the conference venue. No printing service will be provided on site. The conference staff will provide materials for fixing posters to boards. Poster presenters are expected to be present during the Poster Sessions in which they are designated, to discuss their work with other attendees.



Welcome Reception

Join us in our Welcome Reception at the official inauguration of AgEng 2024 Athens.

When: Monday, July 1, 2024, at 20:00 - 22:00

Where: Multipurpose Hall / Agricultural Museum – Agricultural University of Athens

What: Opportunity to network with friends and familiarize to the venue at the very heart of the city.

Who: All registered attendees (included in registration fee)

Dress code: Smart casual

DURING THE WELCOME RECEPTION: There will be a modest gathering with finger food, butler style, and with a few sips of alcohol under the sounds of chill music.



Conference Dinner

Join us in our Conference Dinner in one of the most exquisite locations downtown Athens, overlooking the Parthenon under the glorious sunset skies.

When: Wednesday, July 3, 2024 at 20:00-23:30

Where: Skyfall Bar – Restaurant

What: Sited dinner with colleagues in a relaxing atmosphere with an Athenian Panorama for your eyes only.

Who: Registered attendees for the Conference Dinner.

Dress code: Cocktail attire

Cost: 100€

How to Purchase Tickets: Tickets can be purchased upon availability at the Registration Desk and will be displayed on the delegate badge.

Purchase deadline July 1, 2024.

How to Get There: You are free to select your preferred means of transportation to and from Skyfall Bar – Restaurant.



Half Day Trip

Join us in a half day trip in the outskirts of Athens. We will visit two of the best business units of the private sector in the field of agricultural production on the region.

When: Thursday, July 4, 2024 from 09:00-19:00

Where: Attika

- Low carbon footprint premier greenhouse with hydroponic cultivation.
- Bioclimatic winery, designed for saving of a 30% in energy consumption.

What: Technical visits with Q&A. There will be a wine tasting at the winery and a short drop off at the Athens International Airport.

Who: Registered attendees for the Field Trips.

Dress code: Summer wear (including sunglasses & sunscreen)

Cost: 60€

How to Purchase Tickets: Tickets can be purchased upon availability at the Registration Desk and will be displayed on the delegate badge.

Purchase deadline July 1, 2024.

Departure: Karaiskaki Sq. (Metro Red Line), 9am

Arrival: Karaiskaki Sq. (Metro Red Line), 7pm

How to Get There: You are free to select your preferred means of transportation to and from Karaiskaki Square.

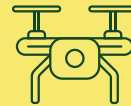




Program Overview

DAY 1 | Monday, July 1, 2024

	Conference Auditorium	Elections Hall	Senate Hall	Multipurpose Hall / Agricultural Museum
10:00 - 18:00		Young Professionals Network satellite event		
12:00 - 16:00			EurAgEng Council Meeting	
16:30 - 18:30			Biosystems Engineering Editorial Board meeting	
18:00 - 20:00	Pre - Registrations			
20:00 - 22:00				Welcome Reception



DAY 2 | Tuesday, July 2, 2024

	Conference Auditorium	Elections Hall	Multimedia Hall	Auditorium A	Auditorium B	Agricultural Museum
8:00 - 18:00	Registrations					
8:45 - 9:15	Conference Opening					
9:15 - 10:00	Keynote Lecture 1: AgEngScience4IMPACT: the compelling case of livestock emissions in the EU					
10:15 - 11:30	Session 01: Assessment and mitigation of gaseous emissions from livestock farms	Session 02: Sustainable production in Farm buildings	Session 03: AI applications in specialty crops	Session 04: Smart crop farming / Precision agriculture	Session 05: Post-harvest technologies and losses	
10:15 - 18:00						Poster Session 1
11:30 - 12:00	Coffee Break					
12:00 - 13:30	Session 06: Assessment and mitigation of gaseous emissions from livestock farms	Session 07: Sustainable production in Farm buildings	Session 08: AI applications in specialty crops	Session 09: Smart crop farming / Precision agriculture	Session 10: Post-harvest technologies and losses	
13:30 - 14:30	Lunch Break					
14:30 - 16:00	Session 11: Fossil-free livestock farming	Session 12: Energy and bioenergy	Session 13: Artificial Intelligence, data processing and management	Session 14: Smart crop farming / Precision agriculture	Session 15: Post-harvest technologies and losses	
16:00 - 16:30	Coffee Break					
16:30 - 18:00	Session 16: Integrated and sustainable Farming systems (livestock)	Session 17: Energy and bioenergy	Session 18: Artificial Intelligence, data processing and management	Session 19: Smart crop farming / Precision agriculture	Session 20: Smart farming / Remote sensing	
18:00 - 18:30	EurAgEng and Biosystems Engineering Awards					



DAY 3 | Wednesday, July 3, 2024

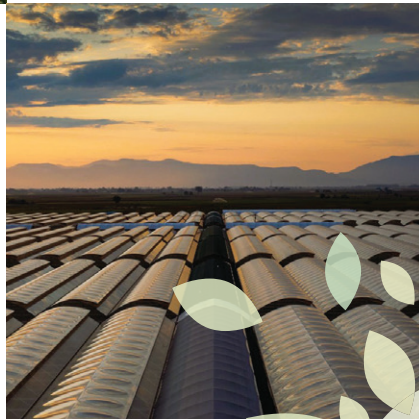
	Conference Auditorium	Elections Hall	Multimedia Hall	Auditorium A	Auditorium B	Agricultural Museum
8:00 - 18:00	Registrations					
9:00 - 9:45	Keynote Lecture 2: Fruit-harvesting robots: How can we surpass current limitations? Prof. Dr. Stavros Vougioukas					
10:00 - 11:30	Session 21: Automation, robotics and sensor technology	Session 22: Circular Economy	Session 23: New application technologies and mechanisation	Session 24: Smart farming / Precision agriculture (livestock)	Session 25: Education and Rural development	
10:15 - 18:00						Poster Session 2
11:30 - 12:00	Coffee Break					
12:00 - 13:30	Session 26: Automation, robotics and sensor technology	Session 27: Circular Economy	Session 28: New application technologies and mechanisation	Session 29: Smart farming / Precision agriculture (livestock)	Session 30: Education and Rural development	
13:30 - 14:30	Lunch Break					
14:30 - 16:00	Session 31: Automation, robotics and sensor technology	Session 32: Integrated and sustainable Farming systems	Session 33: New application technologies and mechanisation	Session 34: Artificial Intelligence, data processing and management	Session 35: Soil, land and water engineering	
16:00 - 16:30	Coffee Break					
16:30 - 18:00	Session 36: Automation and sensor technology	Session 37: Integrated and sustainable Farming systems	Session 38: New application technologies and mechanisation	Session 39: Automation and sensor technology	Session 40: Soil, land and water engineering	
18:15 - 18:45	Closing Remarks					
20:30 - 23:00	Conference Dinner Bar-Restaurant Skyfall					

DAY 4 | Thursday, July 4, 2024

Athens

9:00 - 19:00

Technical Visits






Scientific Program

DAY 1 | Monday, 1 July 2024

08:00 – 09:00 Registrations


Elections Hall

 10:00 - 18:00


Young Professionals Network satellite event

10:00	YPN Registration
10:30	Opening Ceremony Barbara Sturm, Andrew Newbold, Nikolas Katsoulas
11:00	Keynote Lecture Coral Ortiz Sánchez
11:30	Coffee Break
12:00-13:30	Panel Discussion - Expert talk on tools & trends in agriculture João Valente, Carmen L. Manuelian, John Classen, Spyros Fountas
13:30	Lunch
14:30	Industry Session
15:30	Coffee Break
16:00	Industry Session
17:00	Closing & Networking Session
18:00	Move to AgEng Conference 24

Senate Hall


 12:00 - 16:00

EurAgEng Council Meeting

 16:30 - 18:30


Biosystems Engineering Editorial Board meeting

Conference Auditorium

 18:00 - 20:00

Pre - Registrations

Multipurpose Hall / Agricultural Museum


 20:00 - 22:00

Welcome Reception

Finger food cocktail, battler style


08:00 – 09:00 Registrations

Conference Auditorium

 08:45 - 09:15

Conference Opening


Welcoming Address and Opening Remarks:
EurAgEng, HelAgEng, AUA

 09:15 - 10:00

Keynote Lecture 1

09:15 - 09:45 **Peter Demeyer** AgEngScience4IMPACT: the compelling case of livestock emissions in the EU

09:45 - 10:00 **Q & A**

 10:15 - 11:30

Session 01: Assessment and mitigation of gaseous emissions from livestock farms

Chair: **Tomas Norton**

10:15 - 10:30	Harsh Sahu	OP01-1	Mapping gas concentrations inside naturally ventilated dairy barns: Evaluating spatiotemporal dynamics and uncertainties
10:30 - 10:45	Peter Groot Koerkamp	OP01-2	Evaluation of the cubicle hood sampler for monitoring methane production of dairy cows under barn conditions
10:45 - 11:00	Marien Korevaar	OP01-3	Evaluation of intermittent sampling strategies for ammonia emissions from finishing pig houses
11:00 - 11:15	Nadine Guingand	OP01-4	Reducing ambient temperature to reduce NH ₃ , N ₂ O and CH ₄ emissions from a fattening piggery
11:15 - 11:30	Kobe Coorevits	OP01-5	Emission measurements at NV dairy barns: Assessing individual barn measurability with the direct air flow rate method



Scientific Program

DAY 2 | Tuesday, 2 July 2024

Elections Hall

Session 02: Sustainable production in Farm buildings

10:15 - 11:30

Chair: **Fatima Baptista**

10:15 - 10:30	Francisco Domingo Molina-Aiz	OP02-1	Analysis of the effect of reflective mulches on microclimate and production of a tomato crop in three multispan greenhouses with different natural ventilation capacities
10:30 - 10:45	Anastasios Giannoulis	OP02-2	Wind loads on two insect-proof tunnel nethouses: Full-scale and CFD analysis
10:45 - 11:00	Takahiro Asai	OP02-3	Evaluation of performances of the new vapour-permeable material as energy saving screens for greenhouse towards sustainable environmental controls
11:00 - 11:15	Helena Vitoshkin	OP02-4	The shading created by different configurations of organic photovoltaic modules in a tunnel-type greenhouse
11:15 - 11:30	Ana Grande Gutiérrez	OP02-5	Analysis of wall pressures and discharge rates in corrugated steel silos with centric and eccentric hoppers by discrete element models


Multimedia Hall

Session 03: AI applications in specialty crops

10:15 - 11:30

Chair: **James Taylor**


10:15 - 10:30	Yiannis Ampatzidis	OP03-1	Agroview: Enhance satellite imagery using super-resolution and generative ai for precision management in specialty crops
10:30 - 10:45	Ana María Codes Alcaraz	OP03-2	Artificial intelligence-based yield prediction in table grape production: A case study in the Vinalopó protected designation of origin
10:45 - 11:00	Priyanka Upadhyaya	OP03-3	Grape cluster and canopy volume estimation using smartphone-based 3D imaging in wine grapes
11:00 - 11:15	Shanghua Liu	OP03-4	Advancements in coffee authenticity: A spectroscopic feature compression approach using explainable AI and vision transformer
11:15 - 11:30	Matan Birenboim	OP03-5	Application of near-infrared spectroscopy for medicinal cannabis cultivar classification and cannabinoid and terpene concentration prediction

Auditorium A
 10:15 - 11:30

Session 04: Smart crop farming / Precision agriculture

 Chair: **Dvoralai Wulfsohn**

10:15 - 10:30	Maria Bempi	OP04-1	Assessing water and nitrogen stress in pepper plants (<i>Capsicum annuum</i> L.) using hyperspectral data: A comparative analysis of machine learning and vegetation indices
10:30 - 10:45	Myeongyong Kang	OP04-2	Early diagnosis of strawberry plants physiological responses to drought stress using chlorophyll fluorescence analysis
10:45 - 11:00	Ahmad Banakar	OP04-3	Detection of deficiency of iron, zinc and manganese in spinach plant under hydroponic cultivation conditions using digital image processing
11:00 - 11:15	Niraj Tamrakar	OP04-4	Lightweight improved algorithm: YOLOv5s with ghostnetwork and CBAM
11:15 - 11:30	George Spyrou	OP04-5	Training a new generation of farmers and agricultural entrepreneurs to implement the concept of circular economy in agriculture - the tango-circular Erasmus+ project

Auditorium B
 10:15 - 11:30

Session 05: Post-harvest technologies and losses

 Chair: **Wouter Saeyes**

10:15 - 10:30	Elisabeth Tobler	OP05-1	Unveiling citrus cargo temperature heterogeneity through digital twin simulations and field experiments
10:30 - 10:45	Sotirios Tasioulas	OP05-2	Visible and infrared spectroscopy as a tool to assess taste components in tomato fruit during postharvest shelf life
10:45 - 11:00	Tamar Holder	OP05-3	Enhancing post-harvest quality prediction models: A synergistic approach integrating temporal boosting for improved performance with new season's datasets
11:00 - 11:15	Rani Arielly	OP05-4	Transmission Raman spectroscopy for inner layers chemical analysis of fresh produce


DAY 2 | Tuesday, 2 July 2024

11:15 - 11:30 **Celine Verreydt**

OP05-5 Physics-based digital twin to monitor citrus fruit quality evolution during overseas transport in refrigerated containers

Agricultural Museum

Poster Session 1

 10:15 - 18:00

Mélynda Hassouna

PP01-001 Experimental facility to study climate-house-animal-manure interactions

Tomasz Wojciechowski

PP01-002 AI4PHENO - Digital phenology platform for precision agriculture and bioclimatology

Konstantinos Ferentinos

PP01-003 An integrated weed management system based on deep learning identification models and biodiversity indices: Initial system design and models

Alberto Barbaresi

PP01-004 Optimizing sustainable buildings: A two-step approach with genetic algorithms and computer simulations for energy efficiency and bio-based material selection

Dimitrios Tyrís

PP01-005 A dynamic energy model for investigating the integration of heat pumps and photovoltaic systems in poultry facilities

Peter Groot Koerkamp

PP01-006 Modelling enteric methane production of dairy cows: A hierarchical bayesian stochastic approach

Henrique Fonseca Elias De Oliveira

PP01-007 Vegetation indices generated by images captured with RPAS in the prediction of common bean biophysical parameters

Dafni Avgoustaki

PP01-008 Crop reflectance measurements for water deficiency detection in Valerianella locusta plants

Jiang Liu

PP01-009 Micro-Near-Infrared (Micro-NIR) sensor for predicting organic carbon and clay contents in agricultural soil

Chris Cavalaris

PP01-010 AgrOassis - Regenerative approaches for building climate change resilience into EU agricultural regions prone to desertification

Vasileios Anestis

PP01-011 Effect of installing organic photovoltaic panels on the environmental performance of greenhouse tomato in Greece

George Spyrou	PP01-012	Innovative hybrid dairy waste water system assisted by an intelligent information algorithm tool for quality prediction of the outlet water and support in decision making for sustainable practice
Marvin Barther	PP01-013	Evaluation of machine learning-driven sensor networks for observing separation processes in combine harvesters for estimating separation efficiency
Stefano Benni	PP01-014	Implementation of a smart monitoring system for data collection in dairy cattle farms
Elias Maritan	PP01-015	An economic analysis of bolus-sensor technology for precision dairy cattle management
Musliu Olushola Sunmonu	PP01-016	Effect of maltogenic-amylase and tamarind paste mixture on the nutritional composition of bread
Tito Arevalo-Ramirez	PP01-017	Assessment of instance segmentation methods for amodal apple detection in challenging environments
Raquel Martínez Peña	PP01-018	Impact of orientation and height on grain quality in pistachio cultivation: A multivariate analysis
Aristotelis C. Tagarakis	PP01-019	Advanced UAV edge computing ML solutions for livestock management
Luís Conceição	PP01-020	Optimizing maize crop productivity: A variable rate approach from over-density trials with different inter-row spacing and sowing densities
Javier Bueno Lema	PP01-021	Classification model using cluster analysis with corn silage yield maps
Pantazis Georgiou	PP01-022	Estimation of the water footprint using a life cycle assessment approach
Chao Zhang	PP01-023	An AI-based approach to animal welfare modelling
Heinz Bernhardt	PP01-024	Revolutionizing livestock management: synthesizing advanced sensor data with genAI for cattle behavior recognition
Stephane Godbout	PP01-025	Strategies for mitigating heat stress in pig farming: Safeguarding animal welfare in a warming climate



Scientific Program

DAY 2 | Tuesday, 2 July 2024

Henrique Fonseca Elias De Oliveira	PP01-026	Bacillus subtilis and Burkholderia seminalis in promoting the growth of Solanum lycopersicum I
Marjaneh Taghavi	PP01-027	Improving dairy cow feed intake monitoring: Insights from depth camera imaging
María Videgain	PP01-028	Implementation of a proximal Optical sensor for real-time characterization of extensive rainfed crops and targeted fertilizer applications
Bruno Bernardi	PP01-029	Developing a plant for processing PGI 'Cipolla Rossa di Tropea Calabria' onions using compressed air
Therese Malm	PP01-030	Improving energy-efficiency and indoor climate of livestock buildings for pigs through passive and active adaptation measures- a PhD-project
Ana María Codes Alcaraz	PP01-031	VApplications of artificial intelligence in the identification of objects for the analysis of waste in the Segura river
Annimari Hartikainen	PP01-032	Data model for digital twins in smart farming
Francisco Javier Martinez Cordero	PP01-033	Interaction of agroecosystems and aquaculture through engineering: Experiences with small-scale tilapia farms, aquaponics and agroecological systems in South Mexico
Mélynda Hassouna	PP01-034	QuantiAGREMI project: On farm quantification of ammonia and greenhouse gas emissions from livestock production
Lorenzo Guerrini	PP01-035	Improving 3D photogrammetry workflow for berry fruit quality assessment
Havva Uyar	PP01-036	Data-driven solutions for farmer empowerment in smart agriculture: Challenges and Opportunities
Daniele Torreggiani	PP01-037	YOLO-based computer vision technique for identification of individual dairy cows
Harsh Sahu	PP01-038	Exploring feasibility: Low-cost wireless approach for ammonia emissions measurement in German dairy farms
Jonas Payerl	PP01-039	Status of implementation of smart livestock farming tools on German pig farms
Vasileios Firfiris	PP01-040	Design of central fruit drying facilities with the exploitation of geothermal and solar energy towards the efficient process of fruits in Central Macedonia

Dafni Avgoustaki	PP01-041	Crop reflectance measurements for water deficiency detection in lettuce plants
Thomas Kotsopoulos	PP01-042	Online monitoring of crucial anaerobic digestion (AD) parameters
Ahmad Banakar	PP01-043	Detection of spectral signature and classification of <i>Alternaria alternata</i> and <i>Alternaria solani</i> diseases in tomato plant by analysis of hyperspectral images and support vector machine
Longsheng Fu	PP01-045	A novel rotating device system for improving radio frequency heating uniformity and controlling aspergillus in almond kernels
David Mostaza-colado	PP01-046	Prediction of nitrogen-fixing bacteria and phosphorus-solubilising bacteria in the soil using UAV multispectral images
Jernej Poteko	PP01-047	Expectations of machine-to-machine networking in dairy housing rise with experiences of farmers
Petros Samaras	PP01-048	Innovative technologies to eliminate ammonia inhibition in anaerobic digestion in order to enhance methane production: Energy recovery from microalgae production
Kai Yang	PP01-049	Detection of mushroom browning using hyperspectral imaging and novel machine learning techniques
Eleonora Buio	PP01-050	Preliminary results on the relationship between chemical parameters and gasses emission in a PEC (photo-electrocatalytic) recirculating aquaculture systems for rainbow trout
Anastasios Giannoulis	PP01-051	Microclimate conditions in two insect-proof tunnel nethouses with tomato cultivation: Full-scale and CFD analysis
Jurrian Doornbos	PP01-052	No such thing as free lunch? Four easy optimizations for UAV analytics optimization
Sara León-Ecay	PP01-053	On-site identification of Esca-affected vines using hyperspectral imaging
Silvia Coderoni	PP01-054	Towards a digitalised monitoring of environmental sustainability in arable farms
Marcio Mesquita	PP01-055	Effect of foliar application of silicon on the cultivation of mini watermelon CV. sugar baby in mitigating the effects of water deficit
Helena Vitoshkin	PP01-056	Simulation of solar radiation in multi-level hydroponic greenhouse



Scientific Program

DAY 2 | Tuesday, 2 July 2024

Barbara Sturm

PP01-057

Prediction of starch content in potato varieties using NIR-based deep neural networks

Marco Vieri

PP01-058

Precision crop protection in viticulture using a variable rate air blast sprayer: Challenges and issues



11:30 - 12:00

Coffee break

Conference Auditorium



12:00 - 13:30

Session 06: Assessment and mitigation of gaseous emissions from livestock farms

Chair: **Marco Bovo**

12:00 - 12:15

Sabine Schrade

OP06-1

Measuring NMVOC and ammonia emissions from a naturally ventilated dairy housing: Comparison of different diets

12:15 - 12:30

Evangelos Alexandropoulos

OP06-2

Development and deployment of a decision support tool for gas emissions at the dairy farm level: Analysis of two case studies for dairy farms

12:30 - 12:45

Kasidit Phanpa

OP06-3

Towards a computational fluid dynamics analysis of ammonia emission from a poultry litter bed in a small lab chamber

12:45 - 13:00

Shutong Dong

OP06-4

Effects of bedding material on performance, welfare and ammonia emissions of broiler chickens

13:00 - 13:15

An Verfaillie

OP06-5

Lab assessment of the suitability of low-cost ammonia sensors for emission monitoring systems in livestock housing


13:15 - 13:30

Fei Xie

OP06-6

An automatic pig toilet as solution for animal welfare and environmental friendly pig production

Elections Hall


 12:00 - 13:30

Session 07: Sustainable production in Farm buildings

 Chair: **Francisco Domingo Molina-Aiz**

12:00 - 12:15	Cary Rivard	OP07-1	Integrating agrivoltaics and other climate-smart technologies for diversified and urban farming systems in Kansas
12:15 - 12:30	Pablo Gonzalez-Planells	OP07-2	Effect of solar panels on fruit quality for agricultural photovoltaic greenhouses
12:30 - 12:45	Stavros Martinakos	OP07-3	Indoor cultivation of leafy greens under different led spectra powered by photovoltaics: A step towards sustainable vertical farming
12:45 - 13:00	Qichang Yang	OP07-4	Skyscraper crop factory: A potential solution to meet rising urban food demand and light up urban agriculture
13:00 - 13:15	Aikaterini Kouloumprouka Zacharaki	OP07-5	Behaviour of strawberry cultivars under artificial light as the sole source of lighting
13:15 - 13:30	Alberto Barbaresi	OP07-6	Enhancing alkaloid production in <i>Catharanthus roseus</i> through synergistic effects of LED lights and mycorrhizae-based biostimulant in a vertical farming system

Multimedia Hall

 12:00 - 13:30

Session 08: AI applications in specialty crops

 Chair: **Yiannis Ampatzidis**

12:00 - 12:15	Dimitrios Argyropoulos	OP08-1	Mush-track: An automatic mask R-CNN based tool for the annotation of oyster mushroom instances
12:15 - 12:30	Diego José Gallardo Romero	OP08-2	Computer vision-based early detection of <i>Phytophthora</i> spp. in orange grove
12:30 - 12:45	Wout Vierbergen	OP08-3	Synthetic spectral image generation of bruised 'conference' pears as additional training data for DL-systems for non-destructive bruise detection
12:45 - 13:00	Fernando Rojano	OP08-4	Physics informed neural networks applied to controlled environment agriculture




Scientific Program

DAY 2 | Tuesday, 2 July 2024

13:00 - 13:15	Bart Van Laatum	OP08-5	GreenLight-Gym: A reinforcement learning benchmark environment for greenhouse crop production control
13:15 - 13:30	Michael Odewole	OP08-6	Application of artificial neural network to identify the closest variety to ogbomoso mango fruits

Auditorium A

Session 09: Smart crop farming / Precision agriculture


 12:00 - 13:15

Chair: **Raphael Linker**

12:00 - 12:15	Björn Poss	OP09-2	Creation of an ISOBUS-compliant prescription map for variable rate spraying in vineyards based on canopy 3D reconstruction
12:15 - 12:30	Lorenzo Comba	OP09-3	Enhanced detection of vine diseases by 3D multispectral point clouds
12:30 - 12:45	Ainara López Maestresalas	OP09-4	Early detection of Esca disease in grapevines using in-field hyperspectral proximal sensing
12:45 - 13:00	Dvoralai Wulfsohn	OP09-5	Performance of the pronofrut system for crop growth and yield estimation in commercial fruit and wine orchards
13:00 - 13:15	Oliver Schmittmann	OP09-6	AI-based method for testing weeding quality in field as a potential standard

Auditorium B

Session 10: Post-harvest technologies and losses


 12:00 - 13:30

Chair: **Chryssoula Papaioannou**

12:00 - 12:15	Pavlos Tsouvaltzis	OP10-1	Comparison of non destructive techniques in assessing shelf life storage of tomato fruit
12:15 - 12:30	Coral Ortiz	OP10-2	Dragon fruit quality assessment using a grading machine prototype based on image analysis
12:30 - 12:45	Marina Lopez-Chulia	OP10-3	Study of physicochemical changes in loquat fruit during cold storage using non-destructive spectroscopy


12:45 - 13:00	Atsushi Hashimoto	OP10-4	Color image evaluation of fruits of grape in consideration of postharvest process
13:00 - 13:15	Wouter Saey	OP10-5	Laser spectroscopy for monitoring oxygen dynamics in pome fruit
13:15 - 13:30	Lorenzo Guerrini	OP10-6	Assessing grapevine bunch compactness with digital twin models

Lunch Break

 13:30 - 14:30

Conference Auditorium

Session 11: Fossil-free livestock farming

 14:30 - 16:00

Chair: **Mélynda Hassouna**

14:30 - 14:45	Dimitrios Tyrīs	OP11-1	RES4LIVE – Progress on pilot systems for energy smart livestock farming towards zero fossil fuel consumption
14:45 - 15:00	Guoxing Chen	OP11-2	Verifying the reliability of CFD domain decomposition technique on modelling the airflow field inside naturally ventilated cattle barn
15:00 - 15:15	Lukas Wannasek	OP11-3	Small scale bio-CNG farm filling fuel production from biogas: Hybrid compression and hollow fibre permeation for technically and economically feasible biofuel production
15:15 - 15:30	Stefano Benni	OP11-4	Renewable sources and energy retrofitting solutions for microclimatic control in pig barns
15:30 - 15:45	Michael Moraitis	OP11-5	Smart control strategies for optimal environmental conditions and minimum energy requirements in livestock facilities
15:45 - 16:00	Petros Demissie Tegenaw	OP11-6	Thermal and electrical performance evaluation of a hybrid solar system for a livestock farm in Belgium




Scientific Program

DAY 2 | Tuesday, 2 July 2024

Elections Hall

Session 12: Energy and bioenergy


 14:30 - 16:00

Chair: **George Papadakis**

14:30 - 14:45	Therese Malm	OP12-1	Energy use and indoor climate in livestock buildings for pigs in North America and Europe - a literature review
14:45 - 15:00	Majeed Safa	OP12-2	Modelling of energy usage on dairy farms using ANN "Case study in Canterbury province, New Zealand"
15:00 - 15:15	George Papadakis	OP12-3	Optimizing the performance of a seawater reverse osmosis membrane under variable operating conditions: A comprehensive experimental study
15:15 - 15:30	Carolina Fabbri	OP12-4	Wood vinegar: A renewable product for a sustainable agriculture
15:30 - 15:45	Niklas Bargaen-Herzog	OP12-5	Empirical determination of the compression behaviour of Miscanthus round bales
15:45 - 16:00	Styliani Konstantinidi	OP12-6	Assessing the environmental benefits of switching to renewable energy sources in cheese production: A case study from Western Macedonia, Greece

Multimedia Hall

Session 13: Artificial Intelligence, data processing and management


 14:30 - 16:00

Chair: **Ole Green**

14:30 - 14:45	Carlos Alejandro Perez Garcia	OP13-1	Prediction of the indoor temperature in vertical farm using neuralprophet model
14:45 - 15:00	Pierluigi Rossi	OP13-2	Deep learning algorithm based on RGB-D images for obstacle avoidance systems in agricultural environments
15:00 - 15:15	Luís Silva	OP13-3	Data-driven approach to classifying the nitrogen nutritional status of ryegrass-based forages
15:15 - 15:30	Laura Carolina Martinez Esmeral	OP13-4	Automated insect monitoring: A comparative analysis of deep learning strategies

15:30 - 15:45	Charalampos-Rafail Medentzidis	OP13-5	Advanced forest digitization with collaborative multi spectral drone and quadruped robot actors: ML advanced soil moisture prediction, forest density and species
15:45 - 16:00	Chris Koliopanos	OP13-6	Estimating air temperature using Modis LST aiming to feed daily evapotranspiration models - Case study for the plain of Arta Greece

Auditorium A


 **14:30 - 16:00**

Session 14: Smart crop farming / Precision agriculture

Chair: **Gregorio Egea**

14:30 - 14:45	Raphael Linker	OP14-1	Contactless-actuated drip emitters for variable rate irrigation
14:45 - 15:00	Muhammad Ali	OP14-2	Subsoil compaction amelioration using a novel soil drilling machine in fodder maize
15:00 - 15:15	Maria Schneider	OP14-3	Site-specific yield recording in grassland and forage production using sensor technology on the self-propelled forage harvester
15:15 - 15:30	Abdul Mouazen	OP14-4	Incorporation of soil N mineralization rate for optimizing precision N doses using N balance method: A DNDC simulation study
15:30 - 15:45	Diana Andrade	OP14-5	Optimizing of online nutrient measurement by fertilization with liquid manure: Implementing a quality management system for mobile NIRS systems "NIRS-QS"
15:45 - 16:00	Yael Salzer	OP14-6	The challenges of developing a decision support system for niche agricultural communities: A case study of date palm growers

Auditorium B

 **14:30 - 16:00**

Session 15: Post-harvest technologies and losses

Chair: **Pavlos Tsouvaltzis**


14:30 - 14:45	Joerg Schemminger	OP15-1	Multivariable and multiobjective optimization of convective drying for carrot slices
14:45 - 15:00	Khuthadzo Mugodo	OP15-2	The effects of combined hot-air, microwave and infrared sweet potato drying on colour and β -carotene



Scientific Program


DAY 2 | Tuesday, 2 July 2024

15:00 - 15:15	Xu. U. Zhang	OP15-3	Sweet in a flash: Fiber-optic refractometer for rapid, accurate, and minimally invasive sugar content measurement
15:15 - 15:30	Alessandro Biglia	OP15-4	A Nitrogen-based brayton cryocooler prototype for foods quick-freezing
15:30 - 15:45	Eleni Pliakoni	OP15-5	CO2 laser-labeling on fresh produce: Evaluating postharvest quality, microbial safety, and consumers' acceptability
15:45 - 16:00	Dimitrios Kateris	OP15-6	Mobile application for recording the empty packages of plant protection products

 **16:00 - 16:30**

Coffee break


Conference Auditorium

 **16:30 - 18:00**

Session 16: Integrated and sustainable Farming systems (live-stock)


Chair: **Peter Groot Koerkamp**

16:30 - 16:45	Marco Bovo	OP16-1	The SUS3D project as link between animal welfare and sustainability for the dairy cow sector
16:45 - 17:00	Bastiaan Vroegindeweij	OP16-2	Wellness for chickens - development and prototype testing of dust bathing unit for laying hens
17:00 - 17:15	Jarissa Maselyne	OP16-3	Technologies for monitoring pig and chicken welfare at the slaughterhouse – tracing back to farm, loading, transport and slaughter
17:15 - 17:30	Stephane Godbout	OP16-4	Drinking and water-based cooling systems in animal buildings: A literature review about the identification of opportunistic plumbing pathogens with emphasis on occupational health risks
17:30 - 17:45	Salma Rian	OP16-5	Design of a moist feeding system for poultry
17:45 - 18:00	Daniel Reyes Lastiri	OP16-6	Mathematical model for the dynamics of nutrients in fish excretions under uncertainty

Elections Hall

16:30 - 18:00
Session 17: Energy and bioenergy

 Chair: **Thomas Kotsopoulos**

16:30 - 16:45	Heinz Bernhardt	OP17-1	Energy management in agriculture - potential for farmers and the region
16:45 - 17:00	Ying Chen	OP17-2	Fuel consumption prediction based on GNSS recordings of agricultural machinery
17:00 - 17:15	Vasileios Arapostathis	OP17-3	Energy management system for charging autonomous viticultural robotic vehicles with photovoltaic stations in a microgrid topology
17:15 - 17:30	Georgia-Christina Mitraka	OP17-4	Charting the course to the optimal sewage sludge pretreatment method through continuous reactor operation: Process efficiency and microbial community dynamics
17:30 - 17:45	George Papadakis	OP17-5	A greenhouse plants' heating system based on low temperature long wave radiation emission
17:45 - 18:00	Ioannis Fotidis	OP17-6	Lyophilized inoculum bioaugmentation to improve anaerobic digestion affected by ammonia toxicity

Multimedia Hall

16:30 - 18:00
Session 18: Artificial Intelligence, data processing and management

 Chair: **Spyros Fountas**

16:30 - 16:45	Ana Gonçalves	OP18-1	Revolutionizing wine production: Innovative traceability solutions and metrology integration for enhanced transparency, efficiency, and sustainability of winemaking practices
16:45 - 17:00	Netanel Karsanti	OP18-2	A system for predicting the time to ripeness in avocado based on hyperspectral images and artificial intelligence
17:00 - 17:15	Luis Sanchez-Fernandez	OP18-3	A deep learning approach for automated phenological prediction in barley



DAY 2 | Tuesday, 2 July 2024

17:15 - 17:30	Maria Karampoiki	OP18-4	Time-series grain yield predictions based on a Bayesian network approach fusing multi-source data and expert knowledge
17:30 - 17:45	Sebastian Bökle	OP18-5	Establishing resilient AI applications in agriculture by redundancy and graceful degradation: Two use cases
17:45 - 18:00	Jurrian Doornbos	OP18-6	Deliberate image chipping for free UAV deep learning generalization

Auditorium A

16:30 - 18:00

Session 19: Smart crop farming / Precision agriculture

Chair: **Dimitrios Argyropoulos**

16:30 - 16:45	Kyra Smith	OP19-1	Orchard digital twin: A prototype for smart agricultural monitoring
16:45 - 17:00	Clare Sullivan	OP19-2	Can we leverage data sharing benefits to increase adoption of smart farming technologies?
17:00 - 17:15	Gregorio Egea	OP19-3	Harnessing infrared thermometry and spectral indices for enhanced crop water stress monitoring in drip-irrigated rice cultivation with reclaimed wastewater
17:15 - 17:30	Gilad Ravid	OP19-4	Season-long stress detection: Maize growth charts augmented with a machine learning approach
17:30 - 17:45	Javier Bueno Lema	OP19-5	Influence of field, crop and climate variables on corn silage yield maps
17:45 - 18:00	Qi Gao	OP19-6	A variable-rate spraying system based on RGB-depth and object detection

Auditorium B

16:30 - 18:00

Session 20: Smart farming / Remote sensing

Chair: **Victor Alchanatis**

16:30 - 16:45	Sergio Vélez	OP20-1	Challenges and opportunities for remote sensing in agrivoltaic systems
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DAY 2 | Tuesday, 2 July 2024

16:45 - 17:00	Georgia Nikolakopoulou	OP20-2	Estimating pomegranate fruit cracking through proximal and aerial remote sensing
17:00 - 17:15	José Rafael Marques Da Silva	OP20-3	The use of sentinel-2 satellite data for spatially variable rate fertilisation of durum wheat crop in the centre of Sicily
17:15 - 17:30	Marco Napoli	OP20-4	Precision nitrogen fertilization strategies for durum wheat: A sustainability evaluation of NNI and NDVI map-based approaches
17:30 - 17:45	Matti Pastell	OP20-5	Predicting crop biophysical parameters using high resolution satellite data
17:45 - 18:00	Chris Cavalaris	OP20-6	A UAS based protocol for obtaining high resolution cotton yield maps

Conference Auditorium



18:00 - 18:30

EurAgEng and Biosystems Engineering Awards

- ▶ Awarding of the EurAgEng Awards
- ▶ Biosystems Engineering: Outstanding Paper Award (published during 2022-2023)




Scientific Program

DAY 3 | Wednesday, 3 July 2024

08:00 – 09:00 Registrations


Conference Auditorium

 09:00 - 09:45 **Keynote Lecture 2**

Chair: **Tomas Norton**

09:00 - 09:30 **Stavros Vougioukas** Fruit-harvesting robots: How can we surpass current limitations?

09:30 - 09:45 **Q & A**

 10:00 - 11:30 **Session 21: Automation, robotics and sensor technology**

Chair: **Ole Green**

10:00 - 10:15 **Joe Mari Maja** **OP21-1** A new mobile robot harvesting prototype for cotton production

10:15 - 10:30 **Robert van de Ven** **OP21-2** Using learning from demonstration (LfD) for robotic apple harvesting


10:30 - 10:45 **Stavros Vougioukas** **OP21-3** Optimization of the travel speed and workspace partitioning of multi-armed fruit harvesting robots for increased performance

10:45 - 11:00 **Renfu Lu** **OP21-4** Development of an innovative robotic technology and system for apple harvesting

11:00 - 11:15 **Hongyoung Jeon** **OP21-5** Stereo vision system guided variable rate sprayer with electric variable air assist system

11:15 - 11:30 **Stephanie Delalieux** **OP21-6** Drone- and satellite based variable task maps for precision agriculture

Elections Hall

 10:00 - 11:30 **Session 22: Circular Economy**


Chair: **Oliver Körner**

10:00 - 10:15 **Bas Paris** **OP22-1** A review of the EU rural bioeconomy: Driving the transition towards a circular bioeconomy

10:15 - 10:30 **Nikolaos Katsoulas** **OP22-2** Evaluation of water and nutrients use efficiency in a cucumber-melon cascade hydroponic system


DAY 3 | Wednesday, 3 July 2024

10:30 - 10:45	Lide Chen	OP22-3	Flushed liquid dairy manure solid particle and nutrient distributions
10:45 - 11:00	Kelechi Ezenwa Anyaoha	OP22-4	Composting off-gas as alternative source of carbon dioxide for spirulina cultivation – A preliminary study
11:00 - 11:15	Dimitris Michas	OP22-5	Advancing circular nutrient flows through the development of biofertilisers: P2Green project perspective
11:15 - 11:30	Alvarnt Anastasia Mourantian	OP22-6	Cultivating cucumber in a circular tri-trophic system

Multimedia Hall
Session 23: New application technologies and mechanisation

10:00 - 11:30

 Chair: **Athanasios Balafoutis**

10:00 - 10:15	Michele Mattetti	OP23-1	Estimating the benefits of tractor plugin P4 architecture: A possible solution to reduce CO ₂ of agriculture
10:15 - 10:30	Massimiliano Varani	OP23-2	Sustainability assessment of hydraulic and PTO driven inter-row tillage implements
10:30 - 10:45	Egidijus Katinas	OP23-3	The bulbous bow shape adaptability for the soil ripper tool
10:45 - 11:00	Tarek Kösters	OP23-4	Adaptive nonlinear dynamic system identification for separation process of combine harvester
11:00 - 11:15	Tseganesh Wubale	OP23-5	Economics of retrofitted autonomous tractors for crop protection spraying: Cases from Greece and Spain

Auditorium A
Session 24: Smart farming / Precision agriculture (livestock)

10:00 - 11:30

 Chair: **André Aarnink**

10:00 - 10:15	Evangelos Alexandropoulos	OP24-1	Understanding stakeholder perspectives on decision support tools for livestock farm emission management
10:15 - 10:30	Sandra Rose	OP24-2	Internet of livestock – A smart locatable multifunctional sensor device to enable interconnectivity between operators and actuators in dairy cattle farming



Scientific Program

DAY 3 | Wednesday, 3 July 2024

10:30 - 10:45	Yingqi Peng	OP24-3	Cattle behavior patterns classified automatically with SimCLR using an inertial measurement unit: A self-supervised machine learning method
10:45 - 11:00	Sara León-Ecay	OP24-4	Authentication of cattle finishing diets (conventional vs. vegetable by-products) using near-infrared spectroscopy
11:00 - 11:15	Razieh Abdollahipour	OP24-5	Advancing dairy farm management: Leveraging Data, neural networks, and interactive web design
11:15 - 11:30	Mattia Ceccarelli	OP24-6	Linear mixed models for corrections of milk components in AMS dairy farms

Auditorium B

Session 25: Education and Rural development

Chair: **Dimitrios Savvas**

10:00 - 11:30

10:00 - 10:15	Ana Chambel	OP25-1	The importance of rural extension and advisory services to achieve a sustainable viticulture in a climate change scenario
10:15 - 10:30	Hannu Haapala	OP25-2	Finnish future farm - A physical and virtual co-creation platform for RDI, education and business acceleration
10:30 - 10:45	Francisco Ayuga	OP25-3	Irrigation and population dynamics in depopulated rural environments: Causes, implications, and sustainable solutions
10:45 - 11:00	John Ikechukwu Njoku	OP25-4	A critical analysis of the impact and challenges of education and rural development in Nigeria
11:00 - 11:30	Peter Demeyer	OP25-5	Biosystems Engineering Publishing Workshop: Part-1

Agricultural Museum

Poster Session 2

10:15 - 18:00

Evangelia Thoukidides	PP02-001	Blockchain for food and beverage supply: Expired buzz word or accelerating trend?
Khan Wali	PP02-002	Testing the benefits of digital and physical augmentation methods for predicting nutrients in bio-based fertilizers

DAY 3 | Wednesday, 3 July 2024

Spyridon Petropoulos	PP02-003	Cultivation of golden thistle (<i>Scolymus Hispanicus</i> L.) can support low environmental footprint agriculture and food security
Jarissa Maselyne	PP02-004	Tracking and behavioural analysis of fattening pigs
Maria del Mar Ariza Sentís	PP02-005	Precision spraying under battery constraints and disease severity in vineyards
Henk Kramer	PP02-006	Georeferencing traitseeker field robot data for enhanced spatial analyses
Fabiana Convertino	PP02-007	Analysis of biodegradable mulch films behaviour after a field test
Dimitrios Kateris	PP02-008	Optimizing autonomous robotic navigation through sampling map-driven path planning
Arlindo Almeida	PP02-009	Strategies to reduce mechanical harvesting costs in traditional olive orchards
Tomasz Wojciechowski	PP02-010	PRAGMATIC - Innovative IT platform for yield and cost prediction of agricultural production
Tiago Ramos	PP02-011	Mapping the spatial variability of soil water fluxes through the integration of electromagnetic induction surveys and process-based modeling
Miguel Cachão	PP02-012	Increasing microalgae biomass feedstock by valorising wine gaseous and liquid residues
Nikolaos Katsoulas	PP02-013	Implementation of the circular economy concept in greenhouse production systems: Microalgae and biofertiliser production using soilless crops' drainage nutrient solution
Sjoerd Boersma	PP02-014	Tuber weight estimation using a neural network and ensemble Kalman filtering
Carmen Rocamora Osorio	PP02-015	A neural network approach for real-time monitoring of <i>Cannabis sativa</i> L. Germination
Arthur Fajardo	PP02-016	Hydraulic performance evaluation of low-cost gravity-fed drip irrigation systems under falling head conditions
Tomasz Wojciechowski	PP02-017	Site-specific application of solid organic fertilisers
Nikolaos Katsoulas	PP02-018	Greenhouses energy audits – procedures and results
Massimo Cecchini	PP02-019	Comparing the impact of different work phases on operator and driver exposure to whole-body vibration during olive harvesting activities
Evangelos Anastasiou	PP02-020	D4AgEcol platform: A web platform to promote the use of digital tools and technologies in agroecology
Maria Ravani	PP02-021	Environmental analysis of greenhouse powered by photovoltaics: An LCA case study

DAY 3 | Wednesday, 3 July 2024

Michalis Chatzinikolaou	PP02-022	A circular production system combining crop, fish, and insects: Effects on lettuce yield and physiology
Vasileios Anestis	PP02-023	Monitoring environmental contaminants concentrations emitted from broilers in Greece: A real-time study
Angeliki Kavga	PP02-024	Assessing the growth and physiological attributes of strawberry plants under greenhouse integrated semi-transparent photovoltaics
Petros Kokkinos	PP02-025	Crops under cover - hydroponics. A new challenge in distance education from the Hellenic Open University and the Agricultural University of Athens
Congcong Sun	PP02-026	AgRobPlanner: An open-source library for field operation using multi-agent cooperative robots
Ana Oliveira	PP02-027	Modelling nitrogen transport at the regional scale with MOHID-land. A preliminary evaluation
Dimitrios Kateris	PP02-028	Route-planning system for unmanned ground vehicle in vineyard field
Panagiotis Christakakis	PP02-029	Hyperspectral imaging based on AI algorithms for early detection of plant fungal diseases
Charalampos Patsianotakis	PP02-030	FPGA design to facilitate vast connection of heterogeneous IoT devices in agrifood applications
Philip Gassman	PP02-031	The Environmental Policy Integrated Climate (EPIC) model: Historical development, applications and contributions to other models, and future directions
Majid Alheidary	PP02-032	Optimization of mechanical and operating parameters for improving chisel plow performance in heavy clay soils
Gonzalo Ortiz de Elguea-Culebras	PP02-033	Assessing the liquid-phase from hydrothermal liquefaction (HTL) of distilled biomass of Lavandula X Intermedia for novel herbicide development
Ramón Salcedo	PP02-034	Development of a low-cost RGB camera system for soybean crop monitoring
Marios Spiliotopoulos	PP02-035	Historical spatiotemporal drought assessment in semi-arid regions of Greece
Georgios Nikolaou	PP02-036	Using an electronic atmometer to estimate reference evapotranspiration in a semi-arid region
Panagiotis Christakakis	PP02-037	Artificial intelligence algorithms revolutionizing insect monitoring and detection challenges
Marios Spiliotopoulos	PP02-038	Estimation of cotton actual evapotranspiration in Thessaly Greece using ESA's sentinel imagery and WRF model
Sergio Vélez	PP02-039	Strategic path planning for unmanned aerial vehicles in overhead agrivoltaic system management
Massimo Brambilla	PP02-040	Automatic feed pushing in dairy barns: Considerations on TMR leftovers particle size

Massimo Cecchini	PP02-041	Development of a method for the real-time assessment of the risk from severe-hot microclimate in agricultural and forestry environments
Sabine Schrade	PP02-042	Manure collecting robots: Investigations on cleaning quality and practical experiences on cattle farms
Apostolos Xenakis	PP02-043	Hybrid robotic UAV-vehicle using multi sensors and deep learning cooperation for proactive prognosis and treatment of plant diseases
Dimitrios Kateris	PP02-044	A machine learning approach for lameness identification in cattle using IMU sensors
Fernando Rojano	PP02-045	Concurrent geospatial data for supervising invasive species in small and dispersed areas
Atsushi Hashimoto	PP02-046	Effects of assistance of high-frequency dielectric heating on vacuum freeze drying characteristics of all biomass wet-extruded plate
Giorgi Shtenberg	PP02-047	Detection of bacterial pathogen residues in milk samples from mastitis-infected cattle using a sers-based biosensor
Dimitris Papanastasiou	PP02-048	The agro future climate stress project: Crop and livestock stress under climate change scenarios
Fatima Baptista	PP02-049	Sustainable management of olive oil production surpluses: The INOVIRCOLIVE project
Hannah Graef	PP02-050	A holistic data insight into pig husbandry: Practical perspectives on smart livestock farming
Eleonora Buio	PP02-051	Rapid prediction of ammonia, nitrite and nitrate concentrations in water of Recirculating Aquaculture Systems (RAS) using portable near-infrared spectroscopy combined with PCA-neural network-based model
Angeliki Elvanidi	PP02-052	Evaluation of plant-response irrigation model in greenhouses
Yi-Chich Chiu	PP02-053	Study of the individual information collection system for weaner pigs
Francisco J. Castillo-ruiz	PP02-054	Harvesting date influence on multi-trunk traditional olive productivity in next years
João Serrano	PP02-055	Upgrade of a Vicon RS-EDW spreader to variable rate application: Development of a microcontroller for communication between systems
Nur Arifin Akbar	PP02-056	Enhancing agriculture correlation model within QA augmented systems and through re-ranking and in-memory computing




11:30 - 12:00

Coffee break

DAY 3 | Wednesday, 3 July 2024

Conference Auditorium


 **12:00 - 13:30**

Session 26: Automation, robotics and sensor technology

Chair: **Dionysis Bochtis**

12:00 - 12:15	Ole Green	OP26-1	Commercial ROBOTTI based optimized weeding with less soil disturbance and energy use, while minimizing chemical use by using on-board cameras for site specific applications
12:15 - 12:30	Asi Lazar	OP26-2	Development of autonomous robotic platform for pinpoint weed management using multi spectral imaging system
12:30 - 12:45	Franz Handler	OP26-3	Factors influencing the working time requirement and work rate of field robots when weeding organic sugar beet
12:45 - 13:00	Laiquan Luo	OP26-4	A hybrid design of a soft robotic finger for safe and versatile grasping
13:00 - 13:15	Apostolos Xenakis	OP26-5	Design and implementation of a robotic gripper for secure, precise handling and manipulation of stem plants
13:15 - 13:30	Remigio Berruto	OP26-6	Potential of exploitation and use of robots in viticulture: Results from the BACCHUS projects

Elections Hall

 **12:00 - 13:30**

Session 27: Circular Economy

Chair: **Barbara Sturm**

12:00 - 12:15	Georgios Ntinis	OP27-1	Vertical greenhouse production of baby leaf vegetables and rainbow trout in a high-tech aquaponic system
12:15 - 12:30	Charitini Nikolaidou	OP27-2	Closing the loop for sustainable agriculture: The impact of partial or full substitution of chemical fertilizers with digestate on soil health and maize yield
12:30 - 12:45	Marco Bignardi	OP27-3	Oenotrace – A data-driven approach to trace sustainable practices in wine-growing
12:45 - 13:00	Pinelopi Baltzoi	OP27-4	Investigation of production of grapevine seedlings inoculated with AMF and grown using organic compost with wine lees under water stress conditions

13:00 - 13:15	Enrica Santolini	OP27-5	Environmental assessment of green walls' design choices using life cycle assessment
13:15 - 13:30	Dobrochna Augustyniak-Wysocka	OP27-6	Fostering pyrolysis products application to decrease the carbon footprint of European agriculture and forestry: The PYRAGRAF concept

Multimedia Hall



12:00 - 13:30

Session 28: New application technologies and mechanisation

 Chair: **Dimitrios Paraforos**

12:00 - 12:15	Emilio Dicembrini	OP28-1	Efficiency comparison of mechanical and electrically driven implements
12:15 - 12:30	Ufuk Can Bicici	OP28-2	Terrain aware monoplotting for ortho UAV images
12:30 - 12:45	Francisco J. Castillo-ruiz	OP28-3	Hitched two sides windrowing and chipping prototype development for olive pruning management in an only tractor wipe
12:45 - 13:00	Rossana Marie Amongo	OP28-4	Development of a numerical rating system for the selection of agricultural and fisheries machinery in the Philippines
13:00 - 13:15	Eleonora Buio	OP28-5	Enhancing aquaculture sustainability: Application of photo-electrocatalysis in recirculating aquaculture systems
13:15 - 13:30	Li Zhang	OP28-6	Plant factory technology as a powerful tool for improving vegetable quality: Lettuce as an application example

Auditorium A



12:00 - 13:30

Session 29: Smart farming / Precision agriculture (livestock)

 Chair: **Stefano Benni**

12:00 - 12:15	Xuefei Wu	OP29-1	The effect of the wind direction on sampling strategies for measuring ventilation rate in a naturally ventilated pig barn with an outdoor exercise yard
12:15 - 12:30	Timothy Akpenpuun	OP29-2	Optimization of poultry house ventilation system using computational fluid dynamics



Scientific Program

DAY 3 | Wednesday, 3 July 2024

12:30 - 12:45	Cecilia Hagberg	OP29-3	Floor cooling for growing finishing pigs during warm conditions – impact on pig hygiene, thermal and gaseous environment
12:45 - 13:00	Alaa Jamal	OP29-4	Machine learning models for real-time dissolve oxygen and temperature predictions in fish ponds
13:00 - 13:15	Sandra Rose	OP29-5	Energy harvesting for a multi-sensor on dairy cattle
13:15 - 13:30	Jihane EL Mahdi	OP29-6	Source segregation in dairy housing effectively separates organic matter and nutrients and facilitates acidification for ammonia emission reduction

Auditorium B

12:00 - 13:30

Session 30: Education and Rural development


Chair: **Constantinos Kittas**

12:00 - 12:30	Peter Demeyer	OP30-1	Biosystems Engineering Publishing Workshop: Part-2
12:30 - 12:45	Dimitris Michas	OP30-2	Training needs analysis for integrating bioeconomy approaches into the EU's agricultural sector
12:45 - 13:00	Manuel Pérez-Ruiz	OP30-3	Growing together: Enhancing skill and cultivating sustainable winegrowing communities
13:00 - 13:15	Tetiana Pavlenko	OP30-4	Acceptance of cutting-edge technologies in viticulture: A students' perspective

13:30 - 14:30

Lunch Break

Conference Auditorium

 14:30 - 16:00

Session 31: Automation, robotics and sensor technology

Chair: Sabine Schrade

14:30 - 14:45	Victor Bloch	OP31-1	Field monitoring for assessment of weeding robot performance
14:45 - 15:00	Maria-Zoi Papantonatou	OP31-2	Shaping the agricultural future: Engaging stakeholder feedback for the development of agricultural robotic solutions
15:00 - 15:15	Chit Ho Cheng	OP31-3	Robotic arranging of full chicken bodies for automated handling
15:15 - 15:30	Luis Angel Ponce Pacheco	OP31-4	Weighted complete coverage path planning for collaborative manure removing robots in dairy barns
15:30 - 15:45	João Valente	OP31-5	Operational limits for UAV livestock counting based on foundation models
15:45 - 16:00	Rick van Essen	OP31-6	Adaptive path planning for drones based on detection certainty

Elections Hall

 14:30 - 16:00

Session 32: Integrated and sustainable Farming systems

Chair: Daniele Torreggiani

14:30 - 14:45	Miguel Cachão	OP32-1	Are farm to fork strategy goals reasonable and achievable? State of the art of Península de Setubal's winegrowers
14:45 - 15:00	Athanasios Balafoutis	OP32-2	Policy gaps and policy guidelines for accelerating the adoption of fossil-energy-free technologies and strategies in the EU agricultural sector
15:00 - 15:15	Andreas Meyer-Aurich	OP32-3	Harmonizing agroecology and digitalization for sustainable European agriculture
15:15 - 15:30	Markus Demmel	OP32-4	Mechanical termination of cover crops - corn cultivation for less erosion and less herbicide use
15:30 - 15:45	Christos Vatistas	OP32-5	Usage of artificial lighting to promote seed germination for microgreen production
15:45 - 16:00	Fabiana Convertino	OP32-6	Indoor vertical greening for regulating building microclimate



Multimedia Hall

Session 33: New application technologies and mechanisation

14:30 - 16:00

Chair: **Claus Gron Sorensen**

14:30 - 14:45	João Paulo Arantes Rodrigues Da Cunha	OP33-1	Spray deposition assessment using an unmanned aerial vehicle in coffee crop
14:45 - 15:00	Heping Zhu	OP33-2	Development of an inline injection and mixing system for sensor-guided variable-rate sprayers
15:00 - 15:15	Ramón Salcedo	OP33-3	Assessing the adaptive capability of an intelligent recycling tunnel sprayer system to vine canopy size
15:15 - 15:30	Alberto Sassu	OP33-4	Evaluation of agrochemical aerial distribution from UAS on a vineyard
15:30 - 15:45	Alba Vigo-Morancho	OP33-5	Preliminary evaluation of a knapsack sprayer prototype that combines electrostatic technology and hydraulic spraying
15:45 - 16:00	Arthur Fajardo	OP33-6	Performance evaluation of different pumps and pumpsets for agricultural application

Auditorium A


Session 34: Artificial Intelligence, data processing and management

14:30 - 16:00

Chair: **Baoming Li**

14:30 - 14:45	Hao-Ping Chen	OP34-1	Comparative analysis of deep learning models for a dairy cow face recognition framework
14:45 - 15:00	Manuel Córdova	OP34-2	Image-based fish classification: Novelty detection via open-set fish recognition
15:00 - 15:15	Ali Alaei	OP34-3	From pixels to airflow: Exploring image similarity methods for barn ventilation analysis
15:15 - 15:30	Carmen Rocamora Osorio	OP34-4	Cultivating knowledge: A comprehensive dataset for monitoring germination of cannabis sativa in greenhouse-controlled environments

15:30 - 15:45	Kiran Kumar Sathyanarayanan	OP34-5	AI-enhanced language support for advanced operation in controlled environment agriculture
15:45 - 16:00	Jianchao Ci	OP34-6	SSL-NBV: A self-supervised learning-based NBV algorithm for efficient plant reconstruction by robot

Auditorium B

14:30 - 16:00
Session 35: Soil, land and water engineering

 Chair: **Abdul Mouazen**

14:30 - 14:45	George Vellidis	OP35-1	SmartIrrigation cropfit – A decision support tool for scheduling irrigation in cotton, maize, peanut, and soybean
14:45 - 15:00	Charalampos Doulgeris	OP35-2	Irrigation water management in rice fields to sustain environmental flow requirements in Axios river basin
15:00 - 15:15	Philip Gassman	OP35-3	Application of the soil and water assessment tool (SWAT) model to assess mitigation strategies for diffuse nutrient pollution in Iowa, United States
15:15 - 15:30	Andrea Lazzari	OP35-4	Use of NIR regional scale calibrations to map soil characteristics for PA: A case study in 5 fields
15:30 - 15:45	Fran Garcia-Ruiz	OP35-5	CultiSensor – Smart subsoiler for automatic generation of soil resistance maps, and its correlation with soil compaction
15:45 - 16:00	Marina Graf	OP35-6	Soil tillage quality measurement: A methodical approach


16:00 - 16:30
Coffee break



Conference Auditorium



16:30 - 18:00

Session 36: Automation and sensor technology

Chair: **Matti Pastell**

16:30 - 16:45	Longsheng Fu	OP36-1	Key technologies for fully intelligent production of kiwifruit
16:45 - 17:00	Andreas Heiss	OP36-2	Localization of metal piles in grapevine rows by means of LiDAR based 3D reconstruction
17:00 - 17:15	Nicolas Congouleris	OP36-3	Continuous monitoring of an Agri-PV-covered pear orchard with autonomous solar-powered UGVs
17:15 - 17:30	Evangelia-Maria Giatsiou	OP36-4	Potential challenges encountered when adopting new technologies such as proximal sensing to realize VRA applications in cotton
17:30 - 17:45	Rukayat Oladipupo	OP36-5	Utilization of an on-line dual sensor system for soil property measurement and mapping
17:45 - 18:00	Gerrit Polder	OP36-6	Evaluation of supercontinuum laser line illumination for imaging spectroscopy in agriculture

Elections Hall




16:30 - 18:00

Session 37: Integrated and sustainable Farming systems

Chair: **Søren Pedersen**


16:30 - 16:45	Vasileios Kilimpas	OP37-1	Automation systems in management of remote bee apiaries
16:45 - 17:00	Rwan Al Najadi	OP37-2	Effectiveness of using drone-based thermal /infrared in enhancing the performance of controlled environment agriculture
17:00 - 17:15	Algirdas Jasinskas	OP37-3	Utilization of multi-crop plant biomass for production of biofuel pellets and analysis of biofuel properties and life cycle assessment
17:15 - 17:30	Daniele Torreggiani	OP37-4	Mapping the best sites for inland aquaponics using multi-criteria analysis powered by geospatial technologies
17:30 - 17:45	João Serrano	OP37-5	Temporal stability of soil electrical conductivity patterns: Case study with contact and non-contact sensors in dryland pastures

Multimedia Hall
 16:30 - 18:00

Session 38: New application technologies and mechanisation

 Chair: **Thomas Bartzanas**

16:30 - 16:45	Giorgi Shtenberg	OP38-1	Bacterial contamination detection in water and milk samples with porous si immunosensor coupled with a rapid catalytic signal amplification
16:45 - 17:00	Chrysanthos Maraveas	OP38-2	Multispectral imaging application for food safety and quality evaluation
17:00 - 17:15	Raquel Martínez Peña	OP38-3	Tracing irrigation treatments and geographical origin in pistachio nuts using hyperspectral imaging
17:15 - 17:30	Massimo Brambilla	OP38-4	The aquaphotomic approach in the discrimination of the metabolic condition of dairy cows
17:30 - 17:45	Jordan Abad	OP38-5	Development of an oyster (<i>Pleurotus</i> spp.) mushroom substrate compactor-bagger in the Philippines
17:45 - 18:00	Dewen Qiao	OP38-6	Insertion of carbon-rich exogenous materials with bio-stimulants into subsoil for promoting maize growth

Auditorium A
 16:30 - 18:00

Session 39: Automation and sensor technology

 Chair: **Ying Chen**

16:30 - 16:45	Dimitrios Savvas	OP39-1	Optimisation of individual nutrient supply in a closed-loop soilless tomato crop using ion selective electrodes and a novel decision support system
16:45 - 17:00	Klaus Müller	OP39-2	Automatic generation of shrub and tree crop datasets for use in deep learning detection algorithms on agricultural vehicles
17:00 - 17:15	Yiannis Ampatzidis	OP39-3	Automated needle-based trunk injection system for Hlb-affected citrus trees
17:15 - 17:30	Ian Fisk	OP39-4	Hyperspectral imaging as a novel early detection method of aphid infestation on faba bean (<i>Vicia faba</i> L.)




Scientific Program

DAY 3 | Wednesday, 3 July 2024

17:30 - 17:45	Qingzhuo (George) Qi	OP39-5	Autonomous greenhouse cultivation control through deep reinforcement learning with recurrent neural networks
17:45 - 18:00	Roel Klein	OP39-6	Gerbera temperature monitoring over time using thermal imaging and deep learning-based segmentation

Auditorium B


 16:30 - 18:00

Session 40: Soil, land and water engineering

Chair: **Konstantinos Ferentinos**


16:30 - 16:45	Ioannis Nikolaos Bougiouklis	OP40-1	Delineation of soil management zones using unsupervised machine learning methods in olive orchards
16:45 - 17:00	Silvia Balzan	OP40-2	Isotherms and desorption patterns of various natural zeolites during the removal of ammonium from wastewaters
17:00 - 17:15	Robert Simmons	OP40-3	Flobond™ CCAMS50 enhances emergence, stand establishment and yield in salad onions
17:15 - 17:30	Dany El-Obeid	OP40-4	Pesticide management: modeling agricultural practices for sustainable soil and groundwater quality in Nabatyeh Governorate - South Lebanon

Conference Auditorium

 18:15 - 18:45

Closing Remarks

- ▶ Preview AgEng2026
- ▶ EurAgEng presidency - hand-over
- ▶ AgEng2024 Closing Words

 20:30 - 23:00

Conference Dinner

Bar-Restaurant Skyfall



09:00 - 19:00

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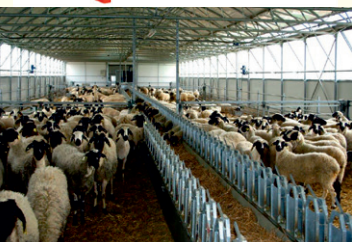
- ✓ Rational use of propagating material, fertilizer, pesticide, leads to the reduction of production costs and the improvement of the produced product
- ✓ Dramatic improvement of working conditions and level of safety for the operator
- ✓ Significant reduction of any environmental impact
- ✓ Increase in production
- ✓ Strengthening the sustainability of agriculture
- ✓ Income increase



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