



**REGGIO CALABRIA 2025
INTERNATIONAL CONFERENCE**

**BIOSYSTEMS ENGINEERING
FOR THE GREEN TRANSITION**

BOOKLET PROGRAMME



**REGGIO CALABRIA, ITALY
SEPTEMBER 21-24, 2025**



ASSOCIAZIONE ITALIANA DI
INGEGNERIA AGRARIA



università
degli studi
mediterranea
di reggio
calabria





WELCOME ADDRESS

Distinguished Guests, esteemed Colleagues, dear Participants,

On behalf of the Organizing Committee, it is with immense pleasure that I extend a most warm welcome to this assemblage for the thirteenth International Conference of the Italian Agricultural Engineering Association (AIIA). Established in 1959, the AIIA has been steadfast in its foundational mission: to propel the field of Agricultural Engineering forward. This is achieved through the provision of scientific and technical counsel on issues of public import, the cultivation of synergistic relationships among scholars and practitioners, and the promotion of disciplinary advancement across all its facets. Our affiliation with the Commission Internationale du Génie Rural (CIGR) and the European Society of Agricultural Engineers (EurAgEng) from the outset has cemented this international vocation. It is thus with a profound sense of purpose that we dedicate this thirteenth convening to the theme, "Biosystems Engineering for the Green Transition." This focus is acutely pertinent, engaging directly with the pressing global imperatives of our era-challenges to which our collective disciplines are intrinsically equipped to respond. We are exceedingly gratified by the resonance of this call to the scientific community. The participation of over three hundred scientists, hailing from the national territory and beyond, stands as a compelling testament to the stature and magnetic appeal of our association and its scholarly gatherings. The pivotal essence of this conference is inextricably linked to your intellectual contributions. With a programme featuring over one hundred ninety oral communications and one hundred ten poster presentations, encompassing the full spectrum of the AIIA's seven sections, you impart a profound wealth of expertise, dedication, and erudition. It is through this vibrant exchange that we shall catalyse novel discourse, disseminate pioneering knowledge, and underpin the scientific rigor and overall success of this event. For your indispensable role in this endeavour, we



express our deepest gratitude. Thus, it is our distinct honour to welcome you not merely to a conference, but to the city of Reggio Calabria and to the University Mediterranea. This historic locale, imbued with layers of time-honoured tradition, affords a most fitting panorama for our deliberations. Indeed, this institution embodies a contemporary crossroads—a veritable proscenium upon which the practitioners of science may present and interchange their art, thereby perpetuating a centuries-old legacy of intellectual commerce on the shores of the Mediterranean, that majestic sea upon which our gaze is set. We extend our sincerest wishes for a most stimulating and productive conference.

Thank you,

Giuseppe Zimbalatti



The Italian Society of Agricultural Engineering (AIIA) invites you to attend the next International Conference 2025 of the Italian Association of Agricultural Engineering (AIIA). The Conference will be held at the University of Reggio Calabria, Italy, on September 21-24, 2025.

ORGANIZING COMMITTEE

Giuseppe Zimbalatti (**AIIA Incoming President**), Bruno Bernardi (**Coordinator**), Lorenzo M. M. Abenavoli, Souraya Benalia, Matteo Sbaglia, Andrea R. Proto, Salvatore Papandrea, Maria Francesca Cataldo, Giuseppe Bombino, Demetrio Antonio Zema, Salvatore Di Fazio, Francesco Barreca, Oreste Gentile, Silvio Bagnato, Carlo Taranto

You can contact the organising committee by email at [**aiaaRC2025@unirc.it**](mailto:aiaaRC2025@unirc.it)

SCIENTIFIC COMMITTEE

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Visit [**www.aiaareggiocalabria2025.unirc.it**](http://www.aiaareggiocalabria2025.unirc.it) for more information



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BIOSYSTEMS ENGINEERING FOR THE GREEN TRANSITION
Reggio Calabria, Italy. September 21-24, 2025

PATRONAGE



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TRANSFER SERVICE

AIIA 2025 International Conference Biosystems Engineering for the Green Transition

To ensure smooth transportation during the event, a dedicated free transfer service will be provided.

Sunday, September 21

From Airport of Reggio Calabria to Reggio City Meeting Point	18:00→18:10
From Reggio City Meeting Point to Altafiumara Resort & Spa	18:45→19:15
From Altafiumara Resort & Spa to Reggio City Meeting Point	22:20→22:50

Monday, September 22

From Altafiumara Resort & Spa to Reggio City Meeting Point	8:30→9:00
From Reggio City Meeting Point to Dipartimento di AGRARIA	9:00→9:10
From Dipartimento di AGRARIA to Reggio City Meeting Point	19:10→19:20
From Reggio City Meeting Point to Altafiumara Resort & Spa	19:30→20:00

Tuesday, September 23

From Reggio City Meeting Point to Altafiumara Resort & Spa	8:15→8:45
From Altafiumara Resort & Spa to Reggio City Meeting Point	18:45→19:15

Social dinner

From Altafiumara Resort & Spa to Reggio City Meeting Point	19:45→20:15
From Reggio City Meeting Point to Altafiumara Resort & Spa	22:45→23:15

Wednesday, September 24

From Altafiumara Resort & Spa to Reggio City Meeting Point	8:30→9:00
From Reggio City Meeting Point to Dipartimento di AGRARIA	9:00→9:10



REGGIO CALABRIA 2025
INTERNATIONAL CONFERENCE

BIOSYSTEMS ENGINEERING FOR THE GREEN TRANSITION
Reggio Calabria, Italy. September 21-24, 2025

Additional Transport Options

In addition to the scheduled conference transfers, participants can also use public transportation from Reggio Calabria Airport to the Department of AGRARIA.

 **Bus Line 27** – This public transport route **connects the Reggio Calabria Airport to the Department of AGRARIA**, passing through key city locations. It is a convenient option for reaching the university independently.

 **Frequency:** One ride per hour.

 A private shuttle service will also be available upon reservation (for a paid service). To book the shuttle, please contact 0965373329



PROGRAMME AT A GLANCE

Sunday, September 21	
19:30-22:00	ALTAFIUMARA RESORT SANTA TRADA DI CANNITELLO VILLA SAN GIOVANNI (RC) Ice breaking and Music Party by Ensemble Mediterranea

Monday, September 22				
8:30-18:30	DIPARTIMENTO DI AGRARIA UNIVERSITÀ MEDITERRANEA DI REGGIO CALABRIA			
	Registration			
9:00 – 10:30	Welcome Coffee			
10:30-11:30	Opening ceremony Authorities' welcome addresses			
11:30-12:30	Invited lecturer Introduced by Rector of the University of Bologna, Giovanni Molari Alessandra Gentile, President of the Sud-ovest section of the Accademia dei Georgofili <i>New approaches for sustainability in horticulture</i> José Blasco, Institut Valencià d'Investigacions Agràries (IVIA) <i>From field to data: opportunities and challenges to AI adoption in agriculture</i>			
12:30-13:00	AIA Board Meeting			
13:00-14:00	Lunch			
14:00-14:30	Poster sessions			
14:30-16:30	Parallel Oral Sessions			
	Room "M"	Seminar Room "Nesci"	Room "N"	Room "A"
	Tractors Going Greener	Precision Management in Livestock and Aquaculture	Materials and Solutions for Sustainable Agriculture	Nature-Based Solutions and Hydrological Modelling for Resilient Water Management



16:30-17:00	Coffee break			
17:00-18:30	Parallel Oral Sessions			
	Room "M"	Seminar Room "Nesci"	Room "A"	Room "N"
	From Concept to Field: Innovations in Agricultural Equipment and Machinery	Intelligent Forestry Mechanization	Advancing Energy Sustainability in Agriculture	Data-Driven Approaches for Sustainable Water and Land Resource Management
18:30-19:00	AIIA Member Meeting			



TUESDAY, September 23				
8:30-10:00	ALTAFIUMARA RESORT SANTA TRADA DI CANNITELLO VILLA SAN GIOVANNI (RC)			
	Registration			
9:15-11:00	Parallel Oral Sessions			
	ROOM "VERSACE"	ROOM "ALICUDI"	ROOM "FILICUDI"	ROOM "LE VELE"
	Toward Autonomous Farming	Architecting High- Throughput Smart Agri- food Processing	Green Solutions for Sustainable Buildings	Integrated Modelling and Monitoring for Sustainable Agricultural Water
11:00-11:30	Coffee break			
11:30-13:00	Parallel Oral Sessions			
	ROOM "VERSACE"	ROOM "ALICUDI"	ROOM "FILICUDI"	ROOM "LE VELE"
	Beyond the Canopy: Multi-Scale Sensing for Precision Managemen t in Tree Crops	Sensing the Unseen: Imaging for non- destructive agrifood quality control	Environment Assessment and Monitoring of livestock and Agrifood Facilities	Linking Hydrological Processes and Vegetation Dynamics through Remote Sensing and Tracers
13:00-14:00	Lunch			
14:00-16:30	Parallel Oral Sessions			
	ROOM "VERSACE"	ROOM "ALICUDI"	ROOM "FILICUDI"	ROOM "LE VELE"
	Agri-Tech Guardians: Drones, Data, and AI for Sustainable Crop Health	Closing the Loop: Integrated Energy and Environmenta l Remediation for the Agrifood Sector	Green Infrastructure and Ecosystems Services	Integrated Solutions for Agricultural Water Pollution, Reuse, and Resilience



16:30-17:00	Coffee break			
17:00-18:30	Parallel Oral Sessions			
	ROOM "VERSACE"	ROOM "ALICUDI"	ROOM "FILICUDI"	ROOM "LE VELE"
	Data-Driven Technologies for Precision Weed Management	Process Optimization and Novel Extraction Techniques for High-Value Compounds	Geographic information systems for land management	Quantifying Soil Erosion and Runoff for Improved Land Management
20:30	Social Dinner at Restaurant L'Accademia Gourmet Via Largo Cristoforo Colombo, 9 (Reggio Calabria)			
	Dress code: a casual and comfortable dress code is suggested			

WEDNESDAY, September 24				
9:15-11:00	DIPARTIMENTO DI AGRARIA UNIVERSITÀ MEDITERRANEA DI REGGIO CALABRIA			
	Parallel Oral Sessions			
	ROOM "M"	ROOM "A"	Seminar Room "Nesci"	ROOM "N"
	UAV and Proximal Data Fusion for Crop Models	Enhancing Safety and Comfort of Agricultural Machinery and Tools	Innovative Strategies for Environmental Sustainability and Circular Bioeconomy in Agriculture	Case Studies in Advancing Irrigation Efficiency: Technology, Modelling, and Infrastructure
11:00-11:30	Coffee break			
11:30-13:00	PLENARY SESSION Young researcher Award Conference Awards Conference closing			
13:00-14:30	Lunch			
15:00-19:00	SIDE EVENTS			



Monday, September 22nd

PARALLEL SESSION

14:30-16:30

TRACTORS GOING GREENER - ROOM "M"

Moderator: Domenico Pessina

031 Environmental impact of medium-powered tractors with different gaseous emission stages

Domenico Pessina, Davide Facchinetti, Lavinia Eleonora Galli, Valeria Tadini, Enrico Piazza

165 Estimated specific CO₂ production of agricultural tractor over the years

Bruno Franceschetti, Luigi Filannino, Giulia Piovaccari, Simone Zintu, Enrico Capacci, Valda Rondelli

199 Experimental Study on Agricultural Tractor Emissions and Fuel Consumption through Laboratory Testing

Francesco Nicolosi, Pietro Oss, Giovanni Carabin, Merve Karaca, Lorenzo Becce, Andreas Gronauer, Fabrizio Mazzetto, Massimiliano Renzi, Michele Mattetti

033 A survey on the technical strategies for the reduction of gaseous pollutant emissions in agricultural tractors

Domenico Pessina, Jacopo Bacenetti, Davide Facchinetti, Lavinia Eleonora Galli, Enrico Piazza, Michele Zoli, Valeria Tadini



052 Assessing the Sustainability of Tractor Electrification:
Development of an electrification Index Using Real-World Data

Massimiliano Varani, Michele Mattetti

210 Agrivoltaics to power electric tractors: first results from an
energy farm

*Nicola Furnitto, Giancarlo Ghidesi, Giuseppe Sottosanti, Asia Paone,
Maria Spagnuolo, Sabina Failla*

114 Biomethane as an alternative fuel: A Case of study on a crawler
tractor

Davide Assandri, Christian Preti, Niccolò Pampuro



Monday, September 22nd

PARALLEL SESSION

14:30-16:30

**PRECISION MANAGEMENT IN LIVESTOCK AND AQUACULTURE
– SEMINAR ROOM "FRANCESCO SAVERIO NESCI"**

Moderator: Mauro Zaninelli

112 Coarse Particle Quality in Total Mixed Ration: Computer Vision vs. Operator Mixing

Massimo Brambilla, Andrea Lazzari, Simone Giovinazzo, Francesco Maria Tangorra, Aldo Calcante, Carlo Bisaglia

184 A low-cost 3D camera-based system for non-contact weight estimation in dairy calves

Marco Torrente, Francesco Maria Tangorra, Stefano Cossa, Daniele Manenti, Anna Sandrucci, Roberto Oberti, Aldo Calcante

130 Advances in the classification of behavioural activities of grazing cows by improving a statistical method based on accelerometer thresholds

Marco Bonfanti, Dominga Mancuso, Giovanni Cascone, Simona Maria Carmela Porto

188 Development of digital technologies for promoting good agricultural practices in Lebanon's dairy farms

Giovanni Usai, Daniele Pinna, Gabriele Sara, Maria Sabbagh, Luciano Gutierrez, Maria Caria, Giuseppe Todde



083 Optimizing oxygen use in land-based aquaculture:
environmental and energetic benefits of a novel control system

Michele Zoli, Carlo Bibbiani, Riccardo Tonasso, Jacopo Bacenetti



Monday, September 22nd

PARALLEL SESSION

14:30-16:30

**MATERIALS AND SOLUTIONS FOR SUSTAINABLE AGRICULTURE
– ROOM "N"**

Moderator: Evelia Schettini

016 Buried Plastics: exploring the fate of polyethylene mulching films in agricultural soil

Anna Chiara Dell'Acqua, Evelia Schettini, Fabiana Convertino

236 Potential Use of Digestate and Biochar as Biofertilizers for Mitigating Land Degradation in Rural Areas: A GIS and Remote Sensing-Based Approach

Federica D'Acunto, Filippo Iodice, Francesco Marinello, Andrea Pezzuolo

237 Agricultural by-products valorization for buildings materials purposes in a circular economy framework

Monica Parlato, Anna Perbellini, Lorenzo Guerrini, Francesca Valenti, Andrea Pezzuolo

098 Preliminary laboratory tests for rain permeability evaluation of agricultural nets

Audrey Maria Noemi Martellotta, Sergio Castellano, Ileana Blanco, Greta Mastronardi, Giacomo Scarascia Mugnozza



089 Experimental results on rainwater permeability of agricultural nets

Greta Mastronardi, Ileana Blanco, Audrey Maria Noemi Martellotta, Sergio Castellano, Giacomo Scarascia Mugnozza

060 The influence of rainfall kinetic energy on the agro-textiles permeability

Audrey Maria Noemi Martellotta, Greta Mastronardi, Sergio Castellano, Ileana Blanco, Giacomo Scarascia Mugnozza

023 Innovative Use of Low-Quality Sheep Wool Waste in CRM Bio-Composite for Sustainable Building Solutions

Giusi Midolo, Marta Del Zoppo, Andrea Prota, Massimo Durante, Dario De Fazio, Francesca Valenti

058 Grading Bamboo Pruning Pellets

Mirko Maraldi, Rosa Greco, Stefano Grigolato, Valda Rondelli



Monday, September 22nd

PARALLEL SESSION

14:30-16:30

**NATURE-BASED SOLUTIONS AND HYDROLOGICAL MODELING
FOR RESILIENT WATER MANAGEMENT – ROOM “A”**

Moderator: Massimo Iovino

063 Hydraulic modelling to assess flood risk for sustainable stormwater management in urban area: the case study of Catania (Sicily, Italy)

Liviana Sciuto, Alessia Rizzo, Vincenzo Scavera, Giuseppe Luigi Cirelli, Feliciano Licciardello

072 Evaluating the effectiveness of wood-biochar addition against rill erosion

Alessio Nicosia, Costanza Di Stefano, Gaetano Guida, Vincenzo Pampalone, Antonino Lucchese, Vincenzo Palmeri, Vito Ferro

113 A Multicriteria Approach to Regional-Scale Planning of Water Harvesting in Arid Regions of Somalia

Marco Sirigu, Paolo Paron, Luigi Piemontese, Ugo Leonardi, Flavian Muthusi, Michael Makokha, Awo Osman, Abdullahi Ali, Elena Bresci, Giulio Castelli

212 Hydrological response of green roof microcosms under Mediterranean climatic conditions

Cristina Bondi, Massimo Iovino



077 Testing of materials for mitigating phosphate pollution in surface water

Daniele Marceddu, Mario Pirastru, Paola Cetera, Luca Ledda, Hassan Awada, Alberto Carletti

151 Nature-based scenarios for urban climate neutrality

Maria Elena Menconi, Marco Vizzari, Gavid Grohmann



Monday, September 22nd

PARALLEL SESSION

17:00-18:30

FROM CONCEPT TO FIELD: INNOVATIONS IN AGRICULTURAL EQUIPMENT AND MACHINERY - ROOM "M"

Moderator: Pietro Catania

039 Finite Element Analysis for Material Selection and Optimization of Frame Structures in Elevating Work Platforms

Antonio Berardi, Antonia Tamborrino, Domenico Tarantino, Cosimo Damiano Dellisanti, Alessandro Leone

206 Farm machinery fleet management through a new generation of Ag-software: a case study

Giuseppe Sottosanti, Maria Spagnuolo, Michele Mattetti, Nicola Furnitto, Juan Miguel Ramírez Cuesta, Luciano Caruso, Vincenzo Viola, Giampaolo Schillaci, Sabina Failla

047 Optimization of machines for sowing, transplanting and harvesting of "Cipolla Bianca di Margherita"

Claudio Perone, Antonietta Eliana Barrasso, Roberto Romaniello

274 Exploring new approaches to mechanize cereal production in mountain areas

Andreas Mandler, Lorenzo Becce, Giovanni Carabin, Andreas Gronauer, Fabrizio Mazzetto

227 An open-source platform for tracking carbon dioxide levels in soil: proof of concept and prototype



Niccolò Rimbotti, Daniele Sarri, Marco Vieri, Riccardo Lisci, Andrea Pagliai, Carolina Perna, Celine Russo, Giuseppe Rossi, Federico Rotini

142 Developing a Demonstrative Model of Electric Trunk
Shaker Head to Optimise Olive Harvesting

Matteo Sbaglia, Giuseppe Papuzzo, Bruno Bernardi



Monday, September 22nd

PARALLEL SESSION

17:00-18:30

**INTELLIGENT FORESTRY MECHANIZATION – SEMINAR ROOM
"FRANCESCO SAVERIO NESCI"**

Moderator: Raffaele Cavalli

208 Comparison of four types of skidders: performance and production costs

Stanimir Stoilov, Antonio Zumbo, Iliya Nenov, Georgi Georgiev Angelov, Giuseppe Zimbalatti, Andrea R. Proto

009 Technical and Economic Features of Tree Stumps Removal in a Chestnut Orchard in Calabria (Southern Italy)

Raffaele Spinelli, Natascia Magagnotti, Pietro Gallo, Marcello Biocca

100 Specific machine for roadside overgrowth brushwood harvesting

Federico Bertone, Marco Manzone

106 Assessing rolling resistance of forest machines on steep terrain using CAN-BUS data under real-world operating conditions

Filippo Guerra, Luca Marchi, Nicolò Di Marzio, Francesco Marinello, Thilo Wagner, Stefano Grigolato

308 Digital Tools and Practices in Cable Yarder Line Design and Tracking: A Survey-Based Analysis

Federica Caffaro, Andrea Laschi, Giulia Nicoletto, Nicola Svaizer, Stefano Grigolato



172 Identifying the dynamic response and acclimatization to wind
of a poplar plantation based on operational modal analysis

Luca Marchi, Francesco Zanutto, Stefano Grigolato



Monday, September 22nd

PARALLEL SESSION

17:00-18:30

**ADVANCING ENERGY SUSTAINABILITY IN AGRICULTURE -
ROOM "A"**

Moderator: Stefano Benni

159 Agricultural building design: BIM-AI integration for energy optimisation

Serena Vitaliano, Stefano Cascone, Claudia Arcidiacono

094 Energetic performance analysis of a plant factory in a Mediterranean climate

Ileana Blanco, Luigia Mandriota, Robert J. Howlett, Giacomo Scarascia Mugnozza

163 Assessment by machine learning of the energy consumption for cooling ventilation in livestock buildings

Marco Bovo, Carlos Alejandro Perez Garcia, Alberto Barbaresi, Stefano Benni, Patrizia Tassinari, Daniele Torreggiani

254 Novel covering system to contain greenhouse indoor overheating

Gabriella Impallomeni, Giuseppe Davide Cardinali, Francesco Barreca

279 Analysis of Potential Energy Supply to a Greenhouse through Shallow Geothermal Heat Exchange



Stefano Benni, Carlos Alejandro Perez Garcia, Emanuele Bedeschi, Patrizia Tassinari, Daniele Torreggiani, Marco Bovo, Enrica Santolini, Francesco Tinti, Alberto Barbaresi

107 The use of hemp residues in sustainable building materials: Mechanical performance and environmental benefits of Cannabis Sativa-based composites

Roberto Puglisi, Dina Statuto, Salvatore Margiotta, Pietro Picuno

014 Integrating Building Footprints and Bioenergy Potential in Rural Areas: a Case Study

Zhan Shi, Andrea Pezzuolo



Monday, September 22nd

PARALLEL SESSION

17:00-18:30

**DATA-DRIVEN APPROACHES FOR SUSTAINABLE WATER AND
LAND RESOURCE MANAGEMENT - ROOM "N"**

Moderator: Paolo Tarolli

214 Developing equations to estimate rainfall erosivity from
coarse time resolution precipitation data in southern Italy

Paolo Nasta, Dario Pumo, Roberto Deidda, Nunzio Romano

085 Machine Learning and Big Data application for predicting
sap flow fluxes: a case study on maize crop

*Francesca Todisco, Grazia Tosi, Lorenzo Vergni, Francesco Tei, Marco
Legittimo, Francesco Crocetti, Gabriele Costante, Paolo Valigi, Jennifer
Bertuzzi*

078 Estimate of the correction factor of surface velocity for rough
bed rills

*Antonino Lucchese, Costanza Di Stefano, Gaetano Guida, Alessio
Nicosia, Vincenzo Pampalone, Vincenzo Palmeri, Vito Ferro*

056 A statistical approach to site suitability of small agricultural
reservoirs and application in Tuscany (Italy)

*Luigi Piemontese, Chiara Bocci, Elisa Michelotti, Tobia Papini, Giulio
Castelli, Yamuna Giambastiani, Federico Preti, Elena Bresci*



264 Assessing the spatial and temporal patterns of sediment and nutrient transport from catchment to sea

Giovanni Francesco Ricci, Rose Mary, Ossama Mohamed Mahmoud Abdelwahab, Giovanni Romano, Anna Maria De Girolamo, Francesco Gentile



Tuesday, September 23rd

PARALLEL SESSIONS

9:15-11:00

TOWARD AUTONOMOUS FARMING - SALA "VERSACE"

Moderator: Danilo Monarca

247 Autonomous navigation systems for agricultural machines and robots: development, performances and future scenarios

Paolo Gay, Leandro Eloi Alcatrao, Alessandro Biglia, Lorenzo Comba, Chiara Messina, Paolo Barge, Davide Ricauda Aimonino

139 Evaluating a Commercial Agricultural Robot and a Conventional Tractor for Corn and Wheat Production: A Two-Year Field Trial

Marco Sozzi, Nebojša Nikolić, Roberta Masin, Francesco Bettucci, Luigi Sartori, Francesco Marinello

205 EU Artificial Intelligence Act: potential effects on fully autonomous vehicles in agriculture

Valda Rondelli, Giulia Piovaccari, Donato Longo, Luigi Filannino, Simone Zintu, Bruno Franceschetti, Enrico Capacci,

209 Semi-anechoic chamber to assess the Electromagnetic Compatibility of Unmanned Ground Vehicles for agriculture

Luigi Filannino, Giulia Piovaccari, Simone Zintu, Enrico Capacci, Bruno Franceschetti, Valda Rondelli



131 Immersive and Interactive First-Person Navigation in Vineyards Using Neural Radiance Fields (NeRF) and Gaussian Splatting

Mariano Crimaldi, Angela De Vivo, Fabrizio Sarghini

311 The effects of automation and digitalization on managers and employees in horticulture – a mixed methods study in Germany

Kai Sparke, Mira Lehberger

203 A survey to analyse stakeholder perception on Unmanned Ground Vehicles in agriculture

Giulia Piovaccari, Bruno Franceschetti, Luigi Filannino, Donato Longo, Enrico Capacci, Valda Rondelli



Tuesday, September 23rd

PARALLEL SESSIONS

9:15-11:00

**ARCHITECTING HIGH-THROUGHPUT SMART AGRI-FOOD
PROCESSING - SALA "ALICUDI"**

Moderator: Riccardo Guidetti

004 Modeling and simulation of a chiller secondary circuit: valve performance analysis

Orkhan Mammadov, Sabina Laveglia, Giuseppe Altieri, Francesco Genovese, Attilio Matera, Luciano Scarano, Giovanni Carlo Di Renzo

128 Electrification of Thermal Processing of Heterogeneous Food: Modeling of Ohmic Heating Effects

Angela De Vivo, Mariano Crimaldi, Francesco Marra, Fabrizio Sarghini

202 Innovative vacuum-conveying plant for grape marc handling in winery: operative evaluations and health and safety aspects

Ferdinando Corti, Agnese Spadi, Giulia Angeloni, Piernicola Masella, Lorenzo Bruchi, Cristiano Vizzo, Alessandro Parenti

266 Improving Pulse Logistics: Big-Bag Transport and Controlled Atmosphere for Traceability

Remigio Berruto, Patrizia Busato, Emanuele Rovera, Ricardo Bartosik, Gisele Maciel, Marcelo Cardoso



296 Pasta with balanced aminoacidic profile enriched with proteins from pulses

Remigio Berruto, Patrizia Busato, Emanuele Rovera, Enrico Prenesti, Milena Corredig, Luis Miguel Jimenez Munoz

313 Carbon Footprint of Powdered Smoothies Developed Using Pulse Spray Drying (PSD)

Javier Soler-Martínez, Gabriela Clemente, Neus Sanjuan, Emma Cecilia Giron Rojas

035 Integrating Conversational AI and Large Language Models for Smart Food Processing in Industry 4.0/5.0

Roberto Moscetti, Riccardo Massantini, Simone Massaro



Tuesday, September 23rd

PARALLEL SESSIONS

9:15-11:00

**GREEN SOLUTIONS FOR SUSTAINABLE BUILDINGS - SALA
"FILICUDI"**

Moderator: Francesco Barreca

155 Management of Green Roofs: Evaluating Green Manure for Low-maintenance, Herbaceous Plant Species to Increase Sustainability
Mattia Trenta, Carlos Alejandro Perez Garcia, Bianca Sambuco, Enrica Santolini, Marco Bovo, Patrizia Tassinari, Alberto Barbaresi, Daniele Torreggiani

249 Natural based solution for habitants well-being: proposed of a novel indoor living wall system
Giuseppe Davide Cardinali, Francesco Barreca

006 Indoor vertical greening for buildings: a case study at the University of Bari
Fabiana Convertino, Ali Hachem, Evelia Schettini, Giuliano Vox

160 Mitigation strategies for Livestock farming Air Pollution: Green Wall System Design
Alice Finocchiaro, Serena Vitaliano, Claudia Arcidiacono, Giovanni Cascone



226 Energy performances of a building-plant system equipped with a hybrid configuration of living wall

Roberto Bruno, Natale Arcuri, Francesco Barreca

240 Species Selection for Nature-Based Green Facades Design in the Mediterranean Area

Miriam Patti, Carmelo Maria Musarella, Giovanni Spampinato

235 A novel green wall system for high sustainable buildings

Giuseppe Davide Cardinali, Francesco Barreca



Tuesday, September 23rd

PARALLEL SESSIONS

9:15-11:00

**INTEGRATED MODELLING AND MONITORING FOR
SUSTAINABLE WATER MANAGEMENT – SALA “LE VELE”**

Moderator: Claudio Gandolfi

048 Depuration of citrus processing wastewater in aerated lagoons: laboratory tests

Domenica Pangallo, Paolo S. Calabrò, Alessio Paciello, Pietro Denisi, Demetrio Zema

104 Climate change impacts and response of small and large reservoirs: insights from Val d'Orcia

Lorenzo Villani, Giulio Castelli, Eleonora Forzini, Ismail Bouizrou, Luigi Piemontese, Enrico Lucca, Davide Danilo Chiarelli, Gabriele Bertoli, Marco Lompi, Alessandro Giuliano, Tommaso Pacetti, Enrica Caporali, Elena Bresci

232 Groundwater Recharge in the Padana Plain: Irrigation as a Driving Force

Olfa Gharsallah, Sara Cazzaniga, Enrico Antonio Chiaradia, Michele Eugenio D'Amico, Michele Rienzner, Claudio Gandolfi

256 Using Microtensiometers for Irrigation Management in a Citrus Orchard Irrigated with Subsurface Drip System

Girolamo Vaccaro, Mariachiara Fusco, Vincenzo Alagna, Loris Franco, Massimo Iovino



158 Sap flow – VPD dynamics at the hillslope scale under water stress conditions

Matteo Verdone, Ilenia Murgia, Ilja van Meerveld, Christian Massari, Daniele Penna

177 Unveiling the Interdependencies of eco-hydro-meteorological variables in a Mediterranean Forested catchment

Ilenia Murgia, Konstantinos Kaffas, Matteo Verdone, Francesca Sofia Manca di Villahermosa, Andrea Dani, Federico Preti, Catalina Segura, Christian Massari, Daniele Penna

154 Antecedent conditions and riparian tree water uptake control stream network dynamics in a Mediterranean forested catchment

Daniele Penna, Lorenzo Innocenti, Ilenia Murgia, Luigi Piemontese, Matteo Verdone, Giacomo Belli, Chirici Diletta, Andrea Danie, Duccio Gheri, Francesca Sofia Manca di Villahermosa, Sara Nicoletti, Matteo Nigro, Federico Preti, Omar Morandi, Emanuele Marchetti, Luca Solari



Tuesday, September 23rd

PARALLEL SESSIONS

11:30 - 13:00

**BEYOND THE CANOPY: MULTI-SCALE SENSING FOR PRECISION
MANAGEMENT IN TREE CROPS - SALA "VERSACE"**

Moderator: Paolo Gay

286 UAV vs. Ground-Based LiDAR Systems Comparison for 3D
Modelling in Precision Oliviculture

*Pietro Catania, Mariangela Vallone, Massimo Vincenzo Ferro, Antonio
Comparetti, Carlo Greco, Eliseo Roma*

269 Analysis of multispectral and geometric features of six olive
cultivars using UAVs in different training systems

Pietro Catania, Eliseo Roma

295 Vineyard vegetative characteristics evaluation through UAV-
based LiDAR SLAM technology

*Pietro Catania, Marco Canicattì, Massimo Vincenzo Ferro, Eliseo Roma,
Santo Orlando*

273 Bridging the Theory-Practice Divide: New Skills for Sustainable
Precision Viticulture

*Daniele Sarri, Carolina Perna, Andrea Pagliai, Marco Vieri, Anastasios
Michailidis, Aikaterini Paltaki, Efstratios Loizou, Abdul M. Mouazen,
Manuel Vázquez-Arellano, Christophe Gaviglio, Philippine Pietrement,
Francesco Domenico Meringolo, Giovanni Pianigiani, Valentina Mulas,
Manuel Perez Ruiz, Tilde Scali*



097 Determination of vines water status using hyperspectral analysis

Alessia Cogato, Marco Sozzi, Francesco Marinello

230 An attempt to assess *Vitis vinifera* (L.) water status by integrating stomatal conductance and UAV imagery

Antonio Carlomagno, Alessandro Biglia, Roberta Bruno, Vitale Nuzzo, Giuseppe Montanaro, Fabrizio Gioelli, Simona Vingiani

262 *Moringa oleifera* Lam. cultivation monitoring through remote and proximal sensing in Sicily

Michele Massimo Mammano, Pietro Catania, Santo Orlando, Salvatore Amato, Carlo Greco



Tuesday, September 23rd

PARALLEL SESSIONS

11:30 - 13:00

**SENSING THE UNSEEN: IMAGING FOR NON-DESTRUCTIVE
AGRI-FOOD QUALITY CONTROL - SALA "ALICUDI"**

Moderator: Giancarlo Colelli

156 Integration of RGB and Thermal Imaging Techniques for
Non-Destructive Analysis of Toasting Dynamics and Acrylamide Level
in Whole-Grain Bread

*Aref Sepehr, Alberto Carraro, Marco Napoli, Antonio Pescatore,
Lorenzo Guerrini*

027 Optical sensor prototype for in-line must turbidity
determination

Eleonora Iaccheri, Arianna Ricci, Luigi Ragni

301 Detection of Pesticide Residues in Table Grapes by mean of
Hyperspectral Imaging

*Maria Matloob, Danial Fatchurrahman, Claudio Perone, Maria Luisa
Amodio, Giancarlo Colelli*

137 Sparkling Wine Foamability Evaluation Using a Computer
Vision-based Approach

Alessandro Zanchin, Simone Vincenzi, Lorenzo Guerrini



051 Deep Chemometrics for Olive Oil Profiling: from Classical to
Deep Chemometrics

Andrea Bandiera, Roberto Moschetti, Riccardo Massantini

075 Hyperspectral imaging to trace the origin of shelled
pistachios

Chiara Cevoli, Angelo Fabbri

300 The Use of VIS-NIR Hyperspectral Imaging to Assess Pulp
Redness Level of Blood Oranges (cv. Tarocco Sant'Alfio)

*Lucia Russo, Danial Fatchurrahman, Ayoub Fathi-Najafabadi,
Fernando Garrido-Auñón, Giancarlo Colelli, Maria Luisa Amodio*



Tuesday, September 23rd

PARALLEL SESSIONS

11:30 - 13:00

**ENVIRONMENT ASSESSMENT AND MONITORING OF LIVESTOCK
AND AGRIFOOD FACILITIES - SALA "FILICUDI"**

Moderator: Giorgio Provolo

030 Performance and benefits of an indoor location system for real-time cow tracking

Elisabetta Riva, Giorgio Provolo, Matteo Grotto, Filippo Sciamanna, Andrea Canidio, Fabio Palmiro Abeni, Luca Giroletti, Francesca Petrera, Rosanna Marino, Stefania Barzaghi

066 Monitoring Ammonia Emissions in Livestock Farming: A Comparative Study of Dairy Buffalo and Cow Barns Across Different Climate Regions

Alessandra Apostolico, Ester Scotto Di Pertà, Elena Cervelli, Antonio Mautone, Giorgio Provolo, Elisabetta Riva, Stefania Pindozi

145 Forecasting NH₃ Concentrations from a Dairy Barn by Using Artificial Neural Networks

Luciano Manuel Santoro, Provvidenza Rita D'Urso, Claudia Arcidiacono, Salvatore Coco

231 Environmental Monitoring for Contamination Risk Assessment in Food-Handling Facilities: A Sensor-Based Approach

Dorra Kouka, Francesco Barreca



043 Integral monitoring of manure management practices in three dairy cow farms in Italy *Giorgio Provolo, Alberto Finzi, Elena Beretta, Antonio Mautone, Pietro Iavazzo, Paolo Alberti, Alessio Pacati, Silvia Motta*

289 Monitoring and Energy Optimization of Agricultural Shelters: Case Study of Poultry Tunnels in the Province of Viterbo, Italy *Stefano Bigiotti, Alessio Patriarca, Giulia Mancini, Fabio Recanatesi, Maria Nicolina Ripa, Alvaro Marucci*



Tuesday, September 23rd

PARALLEL SESSIONS

11:30 - 13:00

**LINKING HYDROLOGICAL PROCESSES AND VEGETATION
DYNAMICS THROUGH REMOTE SENSING AND TRACERS - SALA
"LE VELE"**

Moderator: Francesco Gentile

026 Assessing Drought-Induced Stress in Sicilian Citrus Orchards
Using Remote Sensing *Giuseppe Longo Minnolo, Dario Morganti,
Daniela Vanella, Salvatore Barbagallo, Simona Consoli*

121 Relationship between Surface Water Content and Surface
Reflectance in the Infrared Domain
*Oscar Rosario Belfiore, Mario Palladino, Giovanni Battista Chirico,
Angelo Luigi Aprile, Anna Pelosi, Guido D'Urso*

198 Environmental-tracer behavior in a pre-Alpine catchment:
insights from a temporary stream network
Giulia Zuecco, Chiara Marchina, Diego Todini Zicavo

103 Quantifying soil erosion and tracer-based characterization of
overland flow from eroded hillslopes in eastern Italian Alps
*Girma Berhe Adane, Enrico Marin, Chiara Marchina, Francesco Bettella,
Marco Martini, Paolo Tarolli, Giulia Zuecco*



Tuesday, September 23rd

PARALLEL SESSION

14:00 - 16:30

**AGRI-TECH GUARDIANS: DRONES, DATA, AND AI FOR
SUSTAINABLE CROP HEALTH – SALA “VERSEACE”**

Moderator: Valda Rondelli

010 Mechanical-aeraulic Device for Sustainable Pest Control of
Xylella fastidiosa

*Francesco Paciolla, Aziza Hussein, Francesco Vicino, Francesco Porcelli,
Annalisa Milella, Simone Pascuzzi*

315 Protecting olive trees from pests and diseases: Comparing
laboratory and field spraying effectiveness

*Bruno Bernardi, Souraya Benalia, Lorenzo Maria Massimo Abenavoli,
Matteo Sbaglia, Giovanni Costa, Riccardo Ortale, Davide Macrì,
Agostino Forestiero, Giuseppe Manetto, Domenico Longo, Salvatore
Privitera, Sebastian Lupica, Emanuele Cerruto*

245 Implementing variable rate application sprayer algorithm:
how to identify the spray application rate according to canopy density?

*Fabrizio Gioelli, Antonio Josè Sozzi, Marco Resecco, Muhammad Huzaifa
Mahmood, Claudio Bozzer, Eric Mozzanini, Paolo Marucco, Marco Grella*

204 UAV spot spraying in the traditional cultivation of olive trees
in Tuscany by *Andrea Pagliai, Daniele Sarri, Carolina Perna, Celine
Russo, Riccardo Lisci, Marco Vieri, Niccolò Rimbotti*



239 Multi-temporal hyperspectral analysis of downy mildew symptoms on vine leaves

Valeria Maritano, Gica Stefanescu Miralles, Cristina Tortia, Paolo Gay, Lorenzo Comba

283 Unmanned Aerial Spraying Systems application in vineyard: preliminary results

Giulio Calderone, Santo Orlando, Mariangela Vallone, Maria Alleri, Antonio Comparetti, Massimo Ferro

258 Novel and practical methodology for UASS spray mixture sloshing reduction evaluation

Eric Mozzanini, Fabrizio Gioelli, Claudio Bozzer, Emilio Dicembrini, Davide Ricauda Aimonino, Paolo Gay, Marco Grella

162 Delving into the environmental benefits of precision viticulture applications for crop protection

Francesco Giacomelli, Michele Zoli, Andrea Pagliai, Alessandro Zanchin, Leonardo Assettati, Pierluigi Rossi, Daniele Sarri, Francesco Marinello, Marco Vieri, Danilo Monarca, Domenico Pessina, Jacopo Bacenetti

090 Possibility of using an ozonized-solution sprayer in organic viticulture

Rino Gubiani, Nicola Zucchiatti, Maurizia Sigura, Gellio Ciotti, Alessandro Zironi, Marco Bietresato

200 An RCNN-based Image Processing Method for Adhesive Droplets on Water-sensitive Papers

Qi Gao, Marco Sozzi, Francesco Marinello



Tuesday, September 23rd

PARALLEL SESSION

14:00 - 16:30

**CLOSING THE LOOP: INTEGRATED ENERGY AND
ENVIRONMENTAL REMEDIATION FOR THE AGRIFOOD SECTOR –
SALA “ALICUDI”**

Moderator: Fabrizio Sarghini

065 Has time come for Synthetic Fuels in Agriculture?

Carlo Bibbiani, Michele Zoli, Jacopo Bacenetti

218 Effectiveness of physical and enzymatic pre-treatments on
biogas production and struvite precipitation from digestate

Martina Friuli, Elio Dinuccio, Luisella Celi, Alice Boarino

248 Energy efficiency and carbon footprint of three biogas
valorization strategies

*Flavia Dela Pierre, Giberto Mistsuyoshi Yuki Junior, Frederic Marias,
Sabine Sochard, Elio Dinuccio*

021 Optimization of Bioenergy Production from Plant Biomass in
Nature-Based Solutions

*Giuseppe Mancuso, Nico Bolognini, Dilia Carolina Duran Lugo,
Francesca Valenti, Emanuele Spizzirri, Attilio Toscano*

243 Chemical, physical and energetic characterization of food
pellets

*Alessio Ilari, Alessio Santarelli, Carmine De Francesco, Kofi Armah
Boakye-Yiadom, Ester Foppa Pedretti, Duca Daniele*



143 Heavy Metal Contamination: A Dual Opportunity for Soil Recovery and Renewable Energy Generation

Stefania Sole, Giulia Urracci, Gianluca Carboni, Marta Canu, Maria Caria, Giuseppe Todde

164 Integration of a geothermal system in a winery: preliminary assessment

Marco Bietresato, Gellio Ciotti, Alessandro Zironi, Roberto Zironi, Rino Gubiani

084 Assessing energy and environmental benefits of insect-based feeds in trout farming

Michele Zoli, Emanuele Tona, Jacopo Bacenetti

129 Improving maize environmental sustainability by increasing fertilization efficiency

Filippo Vigo, Jacopo Bacenetti, Jessica Murelli



Tuesday, September 23rd

PARALLEL SESSION

14:00 - 16:30

**GREEN INFRASTRUCTURE AND ECOSYSTEMS SERVICES - SALA
"FILICUDI"**

Moderator: Maurizia Sigura

044 Historical parks as ecosystem service providers: a framework for sustainable design

Denise Corsini, Giulio Senes, Marco Boffi, Nicola Rainisio, Natalia Fumagalli

176 Green infrastructure and adaptation to climate change in European cities: an investigation on the municipality of Sassari, Sardinia (Italy)

Antonio Ledda, Vittorio Serra, Giovanna Calia, Andrea De Montis

123 Connecting Nature, Enhancing Lives: A Regional-Scale Study on Green Infrastructure Planning

Maurizia Sigura, Marco Vizzari

125 High Nature Value Farmlands: Preserving Biodiversity and Ecosystem Services

Anna Lilian Gardossi, Alberto Bertossi, Lucia Piani, Maurizia Sigura

282 Leveraging Sentinel-2 and Pléiades Data for Sustainable Management of Urban Forestry: A Case Study of Historic Parks in Rome



Lorenzo Boccia, Antonietta De Santis, Lorenzo Gatti, Alessio Patriarca, Giulia Mancini, Chiara Iavarone, Carlo Maria Rossi, Gabriele Delogu, Miriam Perretta, Fabio Recanatesi, Eros Caputi

292 Sustainable farm buildings in a mountain area of Southern Italy. Study of site-specific building types and construction systems in Nebrodi Mountains, (Sicily)

Giuseppe Modica, Salvatore Praticò, Amelia Lamberto, Luigi Lamberto, Salvatore Di Fazio

109 Use of graph theory, movement simulations and machine learning algorithms for the implementation of an Ecological Network. A study case in Reggio Calabria province, Italy

Giovanni Lumia, Salvatore Praticò, Giuseppe Modica

186 Reduction of ecosystem services provided by green infrastructure due to land take. The case of the Province of Monza and Brianza (Italy)

Giulio Senes, Paolo Stefano Ferrario, Giulia Lussana, Natalia Fumagalli

305 Urban land cover mapping utilizing Sentinel 2 data for the strategic planning and management of the available green spaces

Md Abdul Mueed Choudhury, Ernesto Marcheggiani



Tuesday, September 23rd

PARALLEL SESSION

14:00 - 16:30

**INTEGRATED SOLUTIONS FOR AGRICULTURAL WATER
POLLUTION, REUSE, AND RESILIENCE - SALA "LE VELE"**

Moderator: Elena Bresci

093 Farm constructed wetland for the control of diffuse water pollution from agriculture

Stevo Lavrnic, Francesco Chioggia, Francesco Cavazza, Raffaella Zuccaro, Salvatore Luca Gentile, Giuseppe Mancuso, Attilio Toscano

105 Improving Water Footprint reliability with a novel characterization factor at the local scale

Niccolò Renzi, Benedetto Rugani, Daniele Penna, Elena Bresci, Tommaso Pacetti, Enrica Caporali, Giulio Castelli

120 Managing unconventional water resources in the Mediterranean: insights from a participatory approach in four Living Labs

Eleonora Forzini, Giulio Castelli, Lorenzo Villani, Enrico Lucca, Luigi Piemontese, Mohamed Bahnassy, Basma Hassan, Rasha Badr, Osama Rady, Sami Mohamed, Fatma Karaouli, Fethi Abdelli, Omar Rahal, Layachi Gouaidia, Luis Garrote, Alvaro Sordo-Ward, Paola Bianucci, Enrica Caporali, Gabriele Bertoli, Tommaso Pacetti, Elena Bresci

091 Risk management approach for a safe and sustainable treated wastewater reuse at irrigation district scale

Pietro Drei, Alberto Bavieri, Elena Vidili, Giuseppe Maistrello, Giuseppe Mancuso, Stevo Lavrnic, Francesca Valenti, Michele Solmi, Attilio Toscano



192 Performance enhancement of constructed wetlands for dairy and livestock wastewater treatment by aeration and alternative substrates

Salvatore Barresi, Federica Bivona, Alessia Marzo, Mirco Milani

082 Analysis of Soil Salinization Induced by Seawater Intrusion in the Po River Delta

Aurora Ghirardelli, Chiara Marchina, Vincenzo D'Agostino, Paolo Tarolli

062 A potential strategy to enhance agricultural resilience to climate change: optimizing water retention in agricultural ponds

Wendi Wang, Paolo Tarolli

088 Smart platform for efficient Treated Wastewater Reuse in crop irrigation

Giordano Odone, Giuseppe Mancuso, Giulio Demetrio Perulli, Loris Franco, Stevo Lavrnjic, Attilio Toscano



Tuesday, September 23rd

PARALLEL SESSION

17:00 - 18:30

**DATA-DRIVEN TECHNOLOGIES FOR PRECISION WEED
MANAGEMENT – SALA “VERSACE”**

Moderator: Giovanni Carlo Di Renzo

019 Comparative analysis of weed management strategies in vineyards and evaluation of NDVI/NDRE indices to assess their effectiveness

Sofia Matilde Luglio, Lorenzo Gagliardi, Marco Fontanelli, Christian Frasconi, Andrea Peruzzi, Michele Raffaelli

053 Weed detection in vineyards using very high resolution UAV imagery

Gaetano Messina, Giuseppe Modica, Salvatore Di Fazio, Salvatore Praticò

196 Precision Weed project: site-specific weed management in maize using advanced sensing technologies

Paola Pasta, Marco Rimoldi, Hachim Iderrami, Giorgio Ragaglini, Pietro Marino, Daniele Manenti, Paolo Tirelli, Marco Torrente, Aldo Calcante, Roberto Oberti

144 Mapping Fine-Scale Soil Moisture Variability Using 3m Satellite Spectral Indices for Enhanced Weed Management

Lamia Rahali, Christopher Chagumaira, Helen Metcalfe, David Comont, Salvatore Praticò, Giuseppe Modica



310 Next-Generation Robotic Weed Management: Enhancing Precision Agriculture through Computer Vision, CNNs, and Vision Transformers for Accurate Detection and Classification

Lies Boudhar, Oussama Lekhlifi



Tuesday, September 23rd

PARALLEL SESSION

17:00 - 18:30

**PROCESS OPTIMIZATION AND NOVEL EXTRACTION
TECHNIQUES FOR HIGH-VALUE COMPOUNDS – SALA “ALICUDI”**

Moderator: Alessandro Leone

046 Dehydrated potato slices: optimization of blanching pretreatments through a reverse engineering approach

Giovanni Ciano, Riccardo Massantini, Roberto Moschetti

002 Valorization of wasted olive tree leaves through an innovative polyphenol extraction process

Alessio Cappelli, Sirio Rossano secondo Cividino, Mauro Zaninelli

169 Valorisation of Forest By-products by Steam Distillation: Influence of Conservation Conditions

Anna Perbellini, Stefano Grigolato, Rosa Greco, Matteo Dallasega, Lorenzo Guerrini

187 Study for improving the extraction capacity of pod espresso machines

Agnese Spadi, Ferdinando Corti, Lorenzo Bruchi, Luca Calamai, Piernicola Masella, Giulia Angeloni, Alessandro Parenti



Tuesday, September 23rd

PARALLEL SESSION

17:00 - 18:30

**GEOGRAPHIC INFORMATION SYSTEMS FOR LAND
MANAGEMENT– SALA “FILICUDI”**

Moderator: Daniele Torreggiani

173 GIS-based multi-criteria spatial analysis model to support planning and implementation of green infrastructure

Priyanka Rao, Laura Caggiu, Alberto Barbaresi, Enrica Santolini, Patrizia Tassinari, Daniele Torreggiani

257 Optimizing Citrus Orchard Identification and Distribution: A Data-Driven Approach Using Machine Learning and Spectral Indices. Preliminary results

Giuseppe Antonio Catalano, Salvatore Praticò, Giuseppe Modica

280 Development of a land use intensity index in Google Earth Engine

Alessio Patriarca, Kato Vanpoucke, Stien Heremans, Ben Somers, Maria Nicolina Ripa, Eros Caputi

275 A GIS Method for Evaluating Built Heritage in Marginal Regions

Alessio Patriarca, Alvaro Marucci, Maria Nicolina Ripa, Stefano Bigiotti, Fabio Recanatesi



276 Development of a territorial Decision Support System (DSS)
for the Sustainable Management of Livestock Waste for the Lazio
Region

*Giulia Mancini, Stefano Bigiotti, Alvaro Marucci, Alessio Patriarca, Fabio
Recanatesi, Maria Nicolina Ripa*



Tuesday, September 23rd

PARALLEL SESSION

17:00 - 18:30

**QUANTIFYING SOIL EROSION AND RUNOFF FOR IMPROVED
LAND MANAGEMENT**

- SALA "LE VELE"

Moderator: Vito Ferro"

102 Soil loss under different agricultural management practices at the SERLAB monitoring site

Lorenzo Vergni, Alessandra Vinci, Giacomo Tosti, Andrea Parisi, Francesca Todisco

068 Rainfall erosivity and soil loss measurements at the Sparacia experimental area

Maria Angela Serio, Roberto Caruso, Francesco Giuseppe Carollo, Alessio Nicosia, Vincenzo Pampalone, Vincenzo Palmeri, Vito Ferro

074 Interrill overland flow and erosion during rainfall in a silty clay soil

Francesca Todisco, Lorenzo Vergni, Dino Torri

307 Evaluating Rainfall Erosivity Using a Convection-Permitting Model Ensemble Across an Alpine Transect

Eleonora Dallan, Mansoor Ahmed Jiskani, Petr Vohnicky, Marco Borga

250 Effect of the soil storage period on saturated hydraulic conductivity

Vincenzo Alagna, Dario Autovino, Gaetano Caltabellotta, Massimo Iovino, Vincenzo Bagarello



193 A participatory evaluation of a large-scale landscape restoration project in steep-slope areas of Central Africa

Giulio Castelli, Antonio Santoro, Francesco Piras, Fides Gakunde, Jean Marie Vianney Nsabiyumva, Ciro Apollonio, Mauro Agnoletti, Elena Bresci, Federico Preti



Wednesday, September 24th

PARALLEL SESSIONS

09:15-11:00

**UAV AND PROXIMAL DATA FUSION FOR CROP MODELS –
ROOM "M"**

Moderator: Remigio Berruto

267 Developing high-resolution Nitrogen prescription maps using UAV-based multispectral data and dilution curve approach

Marco Canicattì, Davide Cammarano, Pietro Catania, Mariangela Vallone

213 Fluorimetric survey on Sardinian artichoke ecotype: a comparison between organic and conventional management

Alessandro Deidda, Marco Cossu, Maria Teresa Tiloca, Alberto Sassu, Luca Ghiani, Paola Antonia Deligios, Luigi Ledda, Filippo Gambella

005 Early diagnosis and sustainable agricultural management of tomato diseases through hyperspectral imaging models

Sabina Laveglia, Orkhan Mammadov, Giuseppe Altieri, Giovanni Carlo Di Renzo, Attilio Matera, Francesco Genovese

234 Correlation between agrometeorological variables measured inside and outside greenhouse and spatialization through remote sensing imagery

Juan Miguel Ramírez Cuesta, Sebastian Lupica, Giuseppe Manetto, Emanuele Cerruto, Alessandro D'Emilio, Pedro F. Freire García, Domenico Longo



293 YOLOv11 for Crop Variety and Plant Part Recognition in Greenhouse

Karim Laabassi, Houda Rahil Boularabi, Hanane Bedjaoui



Wednesday, September 24th

PARALLEL SESSIONS

09:15-11:00

**ENHANCING SAFETY AND COMFORT OF AGRICULTURAL
MACHINERY AND TOOLS - ROOM "A"**

Moderator: Massimo Cecchini

011 Study of Monitoring Systems for the Use of Personal Protective Equipment in Agriculture, "Safety in-out"

Sirio Rossano Secondo Cividino, Alessio Cappelli, Lena Avramovic, Fabiano Rinaldi, Paolo Belluco, Mauro Zaninelli

032 Optimize tractor's driver comfort with correct seat suspension adjustment

Domenico Pessina, Davide Facchinetti, Lavinia Eleonora Galli, Valeria Tadini, Enrico Piazza

086 Comfort and safety: the role of the seat in agricultural machinery

Davide Assandri, Niccolò Pampuro, Christian Preti, Mario Tamagnone

117 Sound quality analysis of agricultural tire noise

Maurizio Cutini, Christian Preti, Carlo Bisaglia, Massimo Brambilla,

119 Experimental analysis of the influence of different rim thicknesses on tractor operator comfort

Maurizio Cutini, Carlo Bisaglia

251 Preliminary assessment of requirements for simulator-based precision farming driver training

Andrea Bragaglio, Elio Romano, Maurizio Cutini, Carlo Bisaglia



298 Design and Development of a Test Bench for Measuring Vibrations from Portable Olive Harvesters

Giuseppe Manetto, Emanuele Cerruto, Salvatore Privitera, Luciano Caruso, Sebastian Lupica, Domenico Longo

167 Rollover stability evaluation of a tractor with suspended front axle

Giovanni Carabin, Francesco Nicolosi, Lorenzo Becce, Andreas Mandler, Fabrizio Mazzetto, Merve Karaca



Wednesday, September 24th

PARALLEL SESSIONS

09:15-11:00

**INNOVATIVE STRATEGIES FOR ENVIRONMENTAL
SUSTAINABILITY AND CIRCULAR BIOECONOMY IN
AGRICULTURE – SEMINAR ROOM "FRANCESCO SAVERIO NESCI"**

Moderator: Claudia Arcidiacono

149 Assessment of environmental impact of an experimental vertical farm in Greece through LCA

Bianca Sambuco, Enrica Santolini, Alberto Barbaresi, Marco Bovo, Patrizia Tassinari, Daniele Torreggiani

069 Eco-design of sustainable rice cultivation

Filippo Vigo, Michele Zoli, Luca Ferraro, Jacopo Bacenetti

312 Carbon Footprint of Vermicompost Production

Javier Rocher, Gabriela Clemente, Neus Sanjuan

124 Assessing Carbon Stock in Small Landscape Features: a study case in Northeast Italy

Anna Lilian Gardossi, Ester Curci, Antonio Tomao, Francesco Da Borso, Maurizia Sigura

238 Comparing gas concentrations from different livestock dairy farms in the Mediterranean area

Giuseppe Modica, Marco Bonfanti, Provvidenza Rita D'Urso, Marco Tolone, Vincenzo Lopreiato, Salvatore Laudani, Biagio Tuve', Luigi Liotta



036 Advancing Circular Bioeconomy in Agriculture: GIS-Based Strategies for Agricultural Bioresources Supply-Chain and Valorization

Federica D'Acunto, Filippo Iodice, Francesco Marinello, Andrea Pezzuolo

166 Exploitation of Renewable Sources for the Energy Needs of Farm Buildings: an Application in the Swine Sector

Stefano Benni, Claudia Giannone, Carlos Alejandro Perez Garcia

153 Advanced Agri-voltaics in Super-Intensive Olive Orchards: A Case Study Aligning with Italian Guidelines

Grazia Cinardi, Provvidenza Rita D'Urso, Claudia Arcidiacono, Giovanni Cascone



Wednesday, September 24th

PARALLEL SESSION

09:15-11:00

**CASE STUDIES IN ADVANCING IRRIGATION EFFICIENCY:
TECHNOLOGY, MODELING, AND INFRASTRUCTURE – ROOM "N"**

Moderator: Simona Consoli

278 Analysis of irrigation systems at a sub-district level
Rachele Eliana Riva, Michele Carlo Polletta, Lorenzo Sanguanini, Fabio Olivotti, Stefano Roverato, Olfa Gharsallah, Claudio Gandolfi

299 Proximal Hyperspectral Imaging May Support Decisions on Irrigation Strategy on Tomatoes
Danial Fatchurrahman, Lucia Russo, Maria Luisa Amodio, Giancarlo Colelli, Maria Matloob

115 Evaluating Drip Irrigation as a Sustainable Alternative to Flooded Cultivation for Rice in Northeast Italy: Preliminary results
Francesco Salmaso, Lucia Bortolini

194 Investment in irrigation infrastructure for more efficient water resource management
Massimo Tropeano, Marianna Ferrigno, Luca Adolfo Folino, Marica Furini

136 Irrigation management in an intensive olive grove in central Italy through the application of the SurEau-Ecos hydraulic model
Jennifer Bertuzzi, Lorenzo Vergni, Grazia Tosi, Franco Famiani, Nicola Cinosi, Maurizio Mencuccini, Nicolas Martin-StPaul, Francesca Todisco

175 Evaluating supplemental irrigation strategies to address climate change: a case study from the Veneto region (Northeast Italy)
Francesco Salmaso, Lucia Bortolini



POSTER SESSION
SIDE HALLWAY

007 Development and optimization of a prototype machine for the injection of truffle patè inside cheese

Francesco Genovese, Luciano Scarano, Giovanni Satriani, Giuseppe Altieri, Giovanni Di Renzo, Giuseppe Genovese, Attilio Matera, Carmela Lovallo

008 Classification of Common Beans Seed and Flour Using Hyperspectral Imaging and Deep Learning

Mahdi Rashvand, Giuliana Paterna, Sabina Laveglia, Attilio Matera, Tania Gioia, Iolanda Tornese, Giuseppe Altieri, Giovanni Carlo Di Renzo, Francesco Genovese

012 Proximity vs. Positioning vs. Video Tracking: A Comparative Analysis of State-of-the-Art Technologies for Studying the Social Interactions of Dairy Cows

Valentina Becciolini, Sebastian Schweizer, John Edson Chiodi, Matteo Barbari

013 Using horse on rural farms: investigation methodology and rural development practices

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