

VI CONVEGNO AISSA #UNDER40

BOOK OF ABSTRACTS



5-7 GIUGNO 2025 | PORTICI (NA)

WWW.AISSAUNDER40.COM

Contents

Session P1: From Field Variability to Packaging Innovation: Multidisciplinary Approaches to Modern Enology.	9
Auxin treatment delays the onset of ripening of grape varieties cultivated in the Valpolicella area. 10	
Consumer Acceptance and Preferences for No- and Low-Alcohol Wines: A Systematic Review. ...	12
Upcycled White Grape Pomace for Chitosan-Based Active Food Packaging	13
Dealcoholized wines in the face of climate change: how to enhance sustainability and quality while meeting consumer demands.	14
Non-destructive predictions of quality parameters in table grape and tomato.....	15
Totally and Partially Dealcoholized Wines in a Traditional Wine Culture: Consumer Acceptance and Market Potential in Italy.....	16
Session P2: Food, Environment and Consumption: Multilevel Approaches to Sustainability Communication.	17
The effect of social media exposure on prompting sustainable food choices.....	18
Advancing sustainable and personalized product development through the integration of co-creation and sensory science	19
Discovering consumers who search for cheese with “mountain product label”: evidence from latent class.....	20
Italian consumers’ preferences for honey sustainability and traceability.....	21
An Exploratory Analysis of Media Coverage on the Presence of Large Carnivores: A Case Study in the Italian Context.	22
Sustainability Labels in European Food Systems: A Systematic Evaluation of Barriers and Drivers.	23
Taste of the future: Sensory optimization and consumers’ preferences of novel snack enriched with cricket powder	24
The effect of lighting on shopping behavior in a virtual reality supermarket.....	25
Unraveling the role of <i>Phytophthora inundata</i> in Citrus root and collar rot.	28
Nitrogen source influences extracellular pH modulation and secondary metabolism in <i>Trichoderma harzianum</i>	29
Climate change and foliar pathogens in leafy vegetables: the case of Spinach.....	33
Session P4: Innovative Approaches to Sustainable and Functional.....	34
Enhancing techno-functional properties of pea flour through combined enzymatic and lactic acid fermentation for a novel vegan spread	36

Guided fermentation of sprouted wheat and barley flours and their application in bread making: a sustainable and healthy alternative to conventional approaches	37
Development, optimization and integrated characterization of plant-based gurts enriched with roasted and non-roasted sprouted barley flour	38
Combination of lactic acid bacteria and legume flours as bio-preservative in baking industry	39
Exploring sea fennel as functional aromatic ingredient in extra virgin olive oil	41
Session P5: Sustainable Intensification of Agriculture: Novel Inputs and Technologies for Crop Enhancement	42
Evaluation of Prohexadione-Ca as a Growth Regulator in High-Density Sweet Cherry System.....	43
Influence of biochar and mineral N addition to organic fertilizers on nitrogen mineralization dynamics	44
Fate and uptake of pharmaceuticals in water-soil-plant systems: a short-term study on artichoke in apulia region.....	45
The use of untargeted metabolomics coupled with supervised statistics and machine learning unravels crop-specific versus generalized effects of biostimulants: Towards sustainable approaches	46
Microalgae Extracts as Novel Biostimulants	48
PTF4Med: make hydro-pedotransfer functions easily accessible to everyone.....	49
Biochar as feed supplementation: effect on ghg and ammonia emission from manure produced by holstein calves fed with biochar.....	50
Session P6: Smart Farming, Authenticity, and Technological Adoption: New Frontiers in Agri-Food Systems	51
The Role of Heuristics in Agricultural Risk Management: Insights from an Experimental Study on Apple Producers	52
Preliminary Comparative Analysis of Autonomous Robots and Traditional Tractors for Mechanical Weed Control in Wheat	54
Authenticity and Traceability of Pomodorino del Piennolo del Vesuvio PDO: A geochemical fingerprinting approach.....	55
Optimization of artificial light strategies for baby leaf lettuce growth under Vertical Farming system (VFs)	56
Densimetric sorting of olives to control olive oil quality	57
Session P7: From Local to Global Pressures: Mapping and Mitigating Environmental and Economic Risks in Agriculture.....	58
Assessing Soil Ecosystem Services in Mediterranean Olive Farming.....	59
Economic analysis of the potential adoption of agrivoltaic systems in dairy sheep farms in Italy....	61
A gis-based approach for estimating and mapping agricultural plastic waste in italy	63
Land degradation in sub-Saharan regions: assessment, monitoring and restoration strategies.	64
Economic risk assessment of agricultural drought: implementation of the ADERA model for sunflower cultivation in central Italy	65
Land Use Challenges: Balancing Agricultural Needs and Renewable Energy Goals.....	66

Session P8: Agri-Food By-Products as a Resource: Biostimulants, Biofertilizers, and Functional Ingredients.....	68
Biostimulant effects of pumpkin seed extracts on the growth and quality of baby leaf lettuce (<i>Lactuca sativa</i> L.).....	69
From Waste to Wealth: Transforming agricultural waste into a Powerful Biofertilizer for Sustainable Agriculture	70
Green approaches to recover biomolecules from wheat bran	71
Bioconversion of food industry side-streams into polyunsaturated fatty acids through microalgae in the era of circular economy.....	73
OPTIMIZING INSECT FARMING FOR LOCAL FEED PRODUCTION: A PILOT STUDY IN CIRCULAR ECONOMY	74
Session P9: Soil Health and Agroecological Transitions: Innovative Approaches for Sustainable Land Use.....	75
Soil health and innovative practices at support of traditional agrifood products in marginal areas ..	76
Assessing the Impact of Regenerative Agricultural Practices on Soil Health: A Comparative Study of Different Systems.....	77
Soil Amendment Strategies Using Agroecological Practices in a Long-Term Experiment in Tuscany (Italy).....	78
Subclover (<i>Trifolium subterraneum</i> L.) Cover Cropping as a Soil Management Strategy to Enhance The Sustainability Of Pear (<i>Pirus communis</i>) Orchards	79
Living Labs for Future Healthy Soils: a Review	80
Influence of soil management on fruit quality and soil fertility in olive groves from sardinia	81
Session P10: Innovations in Soil Health Assessment: From Microbial Insights to Open-Source Monitoring.....	82
Effects of Salinity Stress on Hydroponically Grown Sweet Basil and Mint species in Indoor Farming	83
THE IMPACT OF COMPOSTABLE BIOPLASTICS ON SOIL-PLANT-MICROBIOTA SYSTEM	84
EVALUATING SOIL ECOSYSTEM SERVICES THROUGH A PROCESS-BASED MODELING APPROACH	85
Soil organic matter pattern in an olive orchard with different management practices for 21 years ..	86
Unveiling the citrus rhizosphere: Microbial diversity and functional insights in organic and conventional soils.....	87
SOS – Soil Observation System. A digital and open access alternative for soil data collection and management	89
An open-source platform for tracking carbon dioxide levels in soil: proof of concept and prototype	90
Session P11: Biotech-Enabled Crop Development: Enhancing Genetic Diversity, Adaptation, and Traceability.....	92

KASTRACK-DB – un database a supporto dell’identificazione varietale, della tracciabilità e dell’analisi della diversità genetica in castagno.....	93
The characterization of the complete panel of CRISPR/Cas9-edited lines targeting the core genes of strigolactone biosynthesis revealed novel phenotypic effects and identified DWARF27 (D27) as a key gene for conferring resistance to parasitic weeds in tomato	94
Exploring agro-qualitative traits and metabolic compounds in cultivated pepper towards dissection of underlying genetic basis.....	95
Transcriptional reprogramming and growth enhancement in pepper seeds mediated by iron oxide nanoparticle priming	96
A smart workflow for chestnut variety identification by snp genotyping.....	97
Nanotechnology-based approaches for improving delivery of genome editing reagents in plants ...	99
Breeding Novel Varieties of <i>Camelina sativa</i> L. and Investigating Its Potential as an Intermediate Crop.....	100
Session P12: The role of remote sensing in supporting agricultural and selvicultural management...	101
Assessing Soil Variability in Citrus Orchards Using Electromagnetic Induction and Satellite Remote Sensing	102
Virtual Fencing and Remote Sensing: Enhancing Herd Management Efficiency in Alpine Grazing	104
Identifying Potential Old-Growth Forests with Remote Sensing in Northern Italy.....	105
Precision Weed project: innovative approaches to site-specific weed management in maize using advanced sensing technologies	106
Comparison of vegetation indexes obtained by remote sensing and uav in viticulture: a case study	108
Exploring the Use of Drones for Corn Borer Management: a Case Study in Central Italy.....	109
Evaluation of Optimal Irrigation Volumes for an Industrial Tomato Season in a Sample Area of Campania Through the Analysis of Satellite Imagery, Reanalysis Data, and Agro-Hydrological Model	110
Remote sensing modeling of evapotranspiration of herbaceous irrigated crops in California.	111
Session P13: Novel strategies to study the health of forest soils.....	112
Assessing the effects of different forest management practices on soil health and forage supply in a mediterranean silvopastoral system	113
Long-Term Biochar Effects in Mediterranean Forests: Soil Chemistry and Microbiota at Ancient Kiln Sites.....	114
Effect of fire burning on microplastic particles lying on the forest soil surface.....	115
Digital soil mapping in mountain environments: insights into soil genesis, diversity, and evolution	116
Session P14: Advancements in managing water use efficiency for crops grown under water stress	
Thursday 6th June. Chair: Chiara Amitrano	117
Effects of water stress on agronomic, morphological and physiological parameters of maize hybrids with different drought tolerance.....	118

Exploring the Impact of Stomatal Density and Morphology on Water-Use Efficiency in barley ...	119
Maximizing polyphenols in leaf extracts: Sustainable insights from <i>Arbutus unedo</i> trees under water stress.....	120
Assessment of soybean water productivity and grain yield under optimal and regulated deficit irrigation.....	122
Using treated wastewater in agriculture: water and nutrient resource	123
Session P15: Effects of biostimulant application on plant growth and development Thursday 6th June. Chair: Giulia Franzoni.....	124
Evaluation of fermented kiwifruit by-product as biostimulant for tomato plants, cv. Solarino, grown in soilless conditions	125
Effects of Plant-Based Biostimulants on Processing Tomato ‘Heinz cv. 1534’ Over Two Years of Cultivation in Southern Italy.....	126
Different mycorrhiza strains and inoculation methods provide distinct metabolomic and lipidomic responses in tomato plant.....	127
Biostimulant Effects of Auxin-Producing Bacteria on Tomato and Olive Growth: Studies on Seed Priming and Soil Inoculation	128
Effects of plant growth-promoting and phosphate-solubilizing microorganisms on tomato (<i>Solanum lycopersicum</i> L.)	129
Session P16: Cross-Disciplinary Approaches to Agroecological Sustainability: From Product Quality to Ecosystem Restoration Thursday 6th June. Chair: Giovanni Ricci	130
Analytical framework for High Throughput Plant Phenotyping pipelines	131
Microbial-Based Strategies for Sustainable Crop Protection: Deciphering Plant Responses Through Multi-Omic Approaches.....	132
Wool enhancement for sustainable development of Piedmont's Alpine valleys.....	133
Monitoring of soil bioengineering interventions for the restoration of coastal dunes in southern Italy	134
Nergi [®] delight: preliminary evaluation of fresh and transformed baby kiwi by-products.....	135
Session P17: Abiotic Stressors and Their Influence on Plant growth Oral Thursday 6th June. Chair: Mariano Crimaldi	136
Nickel Toxicity and Uptake in Hydroponic Lettuce	137
Activation of retrotransposons by salt stress and seaweed extracts in Micro-Tom genome.....	138
Microplastics extraction from sandy soils of southern Italy: ATR spectroscopy and SEM analysis evaluation.....	139
Phytotoxic effect of chilli pepper (<i>Capsicum annuum</i> L.) extract on germination and growth of different plant species.....	140
Session P18: Development and nutraceutical aspects of Mediterranean crops Thursday 6th June. Chair: Gelsomina Manganiello	141
Unveiling the Hidden Potential of Six Rosemary Cultivars: Phenolic, Terpenic Profiles, and Antioxidant Capacity	142

The nutraceutical potential of chia, <i>Salvia hispanica</i> L. mutant and wild genotypes: a comprehensive metabolomics study of seeds and by-products.....	143
Exploring wild <i>Thymus</i> sp. (L.) chemotypes provides thyme-derived products preventing fungal proliferation on paper.....	144
Germination performances of twelve native Mediterranean wildflower species in different urban soils under climate change scenarios	145
Evaluation of rye (<i>secale cereale</i> L.): nitrogen use efficiency, agronomic potential and sustainability in matese regional park	146
Session P19: Sustainable agronomical practices in a changing climate Thursday 6th June. Chair: Paolo Dessi.....	147
<i>Zea mays</i> L. landraces under climate change: the effect of different growth environments on morphology and yield	148
Impatto delle pratiche sostenibili sulle radici di <i>Actinidia</i> con sintomi di KVDS e caratterizzazione di nuovi portinnesti	149
Trait-Based Adaptation of Durum Wheat to Future Climate Scenarios.....	151
Agronomic Performance in Durum Wheat-Vetch Intercropping: an Agroecological Strategy for Resource Use Efficiency	152
Evaluating the joint impacts of weather conditions on crop yields and quality: an application to durum wheat in Italy with implications for index-based insurances.....	153
Session P20: Light, Soil, and Sustainability: New Horizons in Crop Physiology and Management Thursday 6th June. Chair: Ferrero Francesco	154
Physiological and productivity responses of green and red lettuce under Pulsed Light.....	155
Towards herbicide-free cover crop management: mathematical modeling frost winterkill termination	156
Behaviour of olive suckers against <i>xylella fastidiosa</i> : resistance and differences between cultivars	157
Exploring the Spatial Variability of Nitrogen Balance and Its Relationship with Soil Properties... 158	
Growth and antioxidant capacity of four Tuscan landraces under different wavelengths of LED light	159
Session P21: Innovative Approaches in Plant tree Phenotyping and Environmental Stress Mitigation Thursday 6th June. Chair: Pierluigi Mazzei.....	160
MRI and NIR spectroscopies to correlate hazelnuts morphological and structural characteristics with agronomic treatments, bedbug occult damage and varietal features	161
3D Characterisation of Hazelnut Varieties through Innovative Technologies for Biodiversity Valorisation	162
Seasonal variations in wood starch concentration as key physiological markers associated with <i>Quercus ilex</i> L. crown defoliation.....	163
New streetlamp solutions to reduce the impact of urban light pollution on trees: can tailored lighting spectra mitigate adverse effects?.....	164
Biochemical and Nutraceutical Characterization of Different Accessions of the Apricot (<i>Prunus armeniaca</i> L.).....	165

Session P22: Advances in Microbiome Interactions, Biocontrol Strategies, and Breeding for Resilient Tomato Cultivation.....	166
Decoding the endophytic bacterial microbiota of tomato to construct in silico microbial consortia	167
Impact of Polyethylene Nanoplastics on Plant–Rhizosphere Interactions in Lettuce (cv. Canasta) and tomato (cv. Microtom): A Multi-Omics Approach.....	168
Harnessing breeding selection and heat tolerance in tomato: constitution of resilient hybrids for climate change adaptation	169
Stepwise screening of effective new fungal and bacterial biocontrol agents of soilborne tomato diseases using high-throughput digital plant phenotyping	170
Session P23: Sustainable Forest and Agroforestry Management: Integrating Biomass, Ecosystem Services, and Climate Resilience Thursday 6th June. Chair: Fabio Boncinelli.....	171
Geospatial Analysis of Agroforestry Biomass for Sustainable Bioenergy Supply Chains: Insights from the Lazio Region	172
Community Economic Losses from Forest Fires: A Focus on Environmental Assets and Ecosystem Services	173
Towards a sustainable and modern silvicultural management for direct protection forests	174
Sustainable Forest Management: Multi-Objective Strategies in the European Forest Sector	175
Urban Reforestation Perspectives in the Fight Against Climate Change.....	176
Session P24: From Genetic Variability to Market Preferences: A Multidisciplinary Approach in Viticulture Thursday 6th June. Chair: Riccardo Baroncelli	177
Communicating sustainability in wine: the influence of environmental and.....	178
social messages on PIWI wine preferences	178
Genome editing applications on grapevine cvs. Aglianico and Falanghina for the knockout of susceptibility genes	180
Genomic strategies for identifying genetic factors underlying resistance to <i>Xylella fastidiosa</i> in olive trees	181
STOMATAL VARIATIONS IN <i>VITIS VINIFERA</i> L.: VARIETAL/CLONAL DIFFERENCES AND RESPONSE TO CLIMATIC CONDITIONS	182
Preliminary study on the physical characteristics of the fermentation cap and their relationship to grape must extraction parameters.....	183
Session P25: Emerging Technologies in Circular Bioeconomy: Waste Derived Solutions for Agriculture Thursday 6th June. Chair: Ida Romano	184
Development of biotechnological processes for bioplastics production from dairy waste using selected microorganisms	185
The AFRODITE® process: High-agronomic value of selected poultry manure valorized through aerobic fermentation.....	186
Microalgae cultivation on biogas digestate fractions: a sustainable pathway for biostimulants production	187
Exploring the impact of human urine derivatives on gene expression in soilless lettuce.....	188

Session P26: Sustainable Livestock Production: Environmental Monitoring and Product Quality Thursday 6th June. Chair: Francesco Serrapica, Claudia Lambiase.....	189
Characterization of Grass-fed Bergamasca sheep products.	190
IoT-Based Monitoring System of Ammonia Emissions in Naturally Ventilated Buffalo Barns: Sensor Network Development	191
Land occupation to produce milk: relationship between on-farm and off-farm feed production, nitrogen balance and carbon footprint.....	193
Monitoring GHGs fluxes following slurry distribution in three alternative forage system managements	194
Impact of Metodo Mobile pasture on the chemical, physical, and sensory properties of goat Caciotta cheese	195
Session P27: Assessing Soil Carbon Stocks and Fluxes: Methods and Applications in Cropping Systems Thursday 6th June. Chair: Beatrice Giannetta	196
Soil carbon sequestration in different cropping systems: A mid-term field experiment.....	197
Thirty years of soil organic carbon and land use changes in central Apennines (Molise region) using vis-NIR soil spectroscopy.	198
The Roots Awakens: modelling root autotrophic respiration to enhance soil CO ₂ fluxes for cropping systems C balance assessment	199
Savanna ecosystem restoration: soil carbon and nutrient dynamics in Kenya's Maasai Mara.....	200
Session P28: Optimizing Irrigation and Water Use Efficiency in Open Field Tomato Production. Thursday 6th June. Chair: Christophe El-Nakhel	201
Optimizing open-field tomato irrigation: A data driven approach	202
Water Management by Mulching on Processing Tomato Yield and Quality	204
Evaluation of new biostimulants effectiveness on tomatoes grown under water stress conditions.	205
APPLICATION OF THE WATER FOOTPRINT IN SUSTAINABLE MANAGEMENT AND PROTECTION OF WATER RESOURCES FOR PROCESSED TOMATO CULTIVATION IN MEDITERRANEAN ENVIRONMENTS.....	206

Session P19: Sustainable agronomical practices in a
changing climate

Thursday 6th June. Chair: Paolo Dessì

Agronomic Performance in Durum Wheat-Vetch Intercropping: an Agroecological Strategy for Resource Use Efficiency

Michele Denora^{1*}, Donato Casiello¹, Pierluigi Casiero¹, Domenico Mario Melone¹, Andi Mehmeti¹, Sofia Del Gaudio^{1,2}, Gabriele Maria Cioffi², Pellegrino Alfieri², Enrica De Falco², Michele Perniola¹.

Department of Agriculture, Forest, Food and Environmental Sciences, University of Basilicata, Potenza, Italy

2 Pharmacy Department, University of Salerno, Via Giovanni Paolo II 132, 84084 Fisciano, Italy

** Corresponding author Michele Denora (e-mail: michele.denora@unibas.it)*

Crop diversification is a fundamental agroecological strategy to enhance resource use efficiency, improve soil fertility, and increase the resilience of agricultural systems to climatic variability. Intercropping between durum wheat (*Triticum durum* Desf.) and common vetch (*Vicia sativa* L.) represents a viable approach to achieving these objectives in Mediterranean organic farming. This study investigates the agronomic interactions between wheat and vetch under simultaneous sowing and harvesting, focusing on yield performance, nitrogen (N) dynamics, and overall system efficiency. A two-year field experiment was conducted in southern Italy, in the Basilicata region, using an additive intercropping model, optimizing species densities to balance complementarity and competition. Results demonstrate that intercropping enhances nitrogen use efficiency and increases total N uptake compared to monocultures. The land equivalent ratio consistently exceeded 1, confirming superior resource utilization. Moreover, intercropping improved wheat grain protein content, indicating enhanced N availability. Despite inter-annual climatic variability, intercropped systems exhibited greater yield stability than wheat monocultures, mitigating the effects of drought stress.

Economic assessment revealed that intercropping maintains a competitive gross production value, supporting its feasibility under low-input conditions. However, logistical challenges, particularly post-harvest grain separation, limit broader adoption. These findings underscore the potential of wheat–vetch intercropping to improve agronomic performance, reduce dependence on synthetic fertilizers, and enhance system resilience, contributing to more sustainable Mediterranean cropping systems.

Keywords: *Cereal-legume intercropping; Nitrogen use efficiency; Land Equivalent Ratio; Agroecological strategy; Nitrogen dynamics.*



#AISSA
#under40


DIPARTIMENTO DI
AGRARIA

Si ringraziano per il supporto:

