



AGRIVOLTAICS
WORLD CONFERENCE 2025
July 1-3, Freiburg, Germany

Tuesday, 01 July 2025

08:00 - 09:00 **Welcome Coffee & Check-in**
Foyer

09:00 - 10:00 **Opening Session**
Topaz

09:00 - 09:05 **Welcome Address by the Conference Chairpersons** Max 257
Trommsdorff¹, Elisabeth Insam¹ ¹Fraunhofer ISE

09:05 - 09:08 **Welcome Address by the Conference Organizer** Beatrix 258
Feuerbach¹ ¹Conexio-PSE

09:08 - 09:18 **Welcome Address by the Mayor of Freiburg** Martin Horn¹ 259
¹Mayor of Freiburg

09:18 - 09:28 **Opening Keynote** Andreas Bett¹ ¹Fraunhofer ISE 246

09:28 - 09:38 **Agrisolar from the EU perspective** Lina Dubina¹ ¹SolarPower Europe 260

10:00 - 10:30 **Coffee Break**
Foyer

10:30 - 11:45 **Challenging Agrivoltaics**

11:45 - 12:30 **Global Overview I - Pioneer Countries**
Topaz

12:30 - 13:30 **Lunch Break**
Foyer

13:30 - 14:30 **Global Overview II - Emerging Markets**
Topaz

13:30 - 13:37 **Gold Sponsor Presentation: Lightsource bp** Emilien Simonot¹ 247

¹Lightsource bp

13:37 - 13:44 **Research on agrivoltaics in Africa and acceleration of uptake through collaboration with C4SA** [Brendon Bingwa](#)¹ ¹Fraunhofer ISE [261](#)

13:44 - 13:57 **State of the art of Agrivoltaics in Brazil and Insights for National Regulation** [Laís Vidotto](#)¹ ¹Universidade Federal De Santa Catarina, Photovoltaic/UFSC Laboratory [129](#)

13:57 - 14:10 **Mainstreaming Farmer-Centric Agrivoltaics in India** [Shilp Verma](#)¹ ¹International Water Management Institute (IWMI) [227](#)

14:10 - 14:23 **From Global to Local: Building a Policy Framework for Agrivoltaics in Chile Based on International Experiences** [Frederik Schönberger](#)¹ ¹Fraunhofer Chile Research [171](#)

14:30 - 15:00 **Developments in Germany**
Topaz

15:00 - 15:30 **Coffee Break**
Foyer

15:30 - 16:00 **Model Region Agrivoltaics Baden-Württemberg**
Topaz

15:30 - 15:37 **Gold Sponsor Presentation: Winkelmann Foundation Screw** [Harald Hagenström](#)¹ ¹Winkelmann Foundation Screw [248](#)

15:37 - 15:47 **Analysis of the development of agrivoltaics in Germany** [Carl Pump](#)^{1,2} ¹Fraunhofer ISE, ²University of Greifswald [149](#)

16:00 - 17:00 **From Sun to Cider: Agrivoltaics in Apple Farming**
Topaz

16:00 - 16:13 **Impact of Various Agrivoltaic Systems on Different Apple and Plum Varieties** [Greta Verena Ott](#)¹ ¹Landwirtschaftliches Technologiezentrum Augustenberg [165](#)

16:13 - 16:26 **Assessment of Continuous Apple Growth under Dy-namic Agrivoltaic Systems using Fruit Dendrometry** [Andrei Pasquali](#)¹ ¹University of Bologna [163](#)

16:26 - 16:39 **Evaluation of production costs and plant protection savings of conventional gala apple under agrivoltaics system in Kressbronn** [Oliver Hoernle](#)¹ ¹Fraunhofer-Institut für Solare Energiesysteme [172](#)

17:00 - 18:30 **Poster Session 1**
Foyer

19:00 - 22:00 **Informal Get-Together**
Restaurant Süden

Wednesday, 02 July 2025

07:30 - 09:00 **Morning Hike to Schlossberg**
Freiburg Old City

07:45 - 09:00 **AgriVoltaics Morning Yoga**
Solar Info Center

08:30 - 09:00 **Morning Coffee**
Foyer

09:00 - 10:30 **Monitoring & Modelling**
Bonita

09:00 - 09:03 **Bronze Sponsor Presentation: DMEGC Solar** [DMEGC Solar](#)¹ [249](#)
¹DMEGC Solar

09:03 - 09:16 **Advanced Optimization of Agrivoltaics: Maximizing Energy Yield While Addressing Crop PAR Thresholds** [Adnin Tazrih Natasha](#)¹ [24](#)
¹Macquarie Univeristy

09:16 - 09:29 **The Hidden Canopies: Potential of UAV-based Crop Monitoring under APV Systems** [Erekle Chakhvashvili](#)¹ ¹IBG-2, Forschungszentrum Jülich [30](#)

09:29 - 09:42 **Assessing the suitability of land for agrivoltaics: Mapping Tool for Farmers in Colorado** [Thomas Hickey](#)¹ ¹NREL [262](#)

09:00 - 10:30 **PV Technology**
Topaz

09:00 - 09:03 **Bronze Sponsor Presentation: LAPP** [LAPP](#)⁻¹ ¹LAPP [250](#)

09:03 - 09:16 **The Economics of Agrivoltaics with Planar Spectral Beam Splitting** [Abraham Kribus](#)¹ ¹Tel Aviv University [157](#)

09:16 - 09:29	Colored Semi-Transparent CdTe PV Modules in Agrivoltaics: a 2-Year Study on Broccoli Growth and System Potential Silvia Ma Lu ¹ ¹ Mälardalen University	<u>6</u>
09:29 - 09:42	The Transparency of Semi-transparent Panels - Balancing between Protecting and Suppressing the Crop Frank de Ruijter ¹ ¹ Wageningen University & Research	<u>150</u>
09:42 - 09:55	Enhancing Lettuce Yield using Quantum Dot Films: A Computational Study Kristine Loh ¹ ¹ University of Minnesota, Department of Chemical Engineering and Materials Science	<u>190</u>
09:55 - 10:08	Catalyzing the Transition: Scaling Agrivoltaics with Adaptive Tracker Solutions Mo Horowitz ¹ ¹ Author	<u>202</u>
10:30 - 11:00	Coffee Break Foyer	
11:00 - 12:30	Global Case Studies Topaz	
11:00 - 11:13	A study of soil compaction during the construction process of a vertical agrivoltaic system Jana Kalmbach ¹ ¹ Fraunhofer Institute of Solar Energy Systems ISE	<u>166</u>
11:13 - 11:26	Effect on Sorghum bicolor and Triticum aestivum of Different Management Widths in an Agrivoltaic System Hubertus Wiberg ¹ ¹ BOKU University	<u>99</u>
11:26 - 11:39	Ecosystem Agrivoltaics - Energy Transition as a Biodiversity-Promoting Agricultural Value Creation Model Alexander Bauer ¹ ¹ BOKU University	<u>10</u>
11:39 - 11:52	Analysis of the agrivoltaics potential in Portugal A case study based on EDP's land assets José Silva ¹ ¹ Renewable Energy Chair, Universidade de Évora	<u>181</u>
11:52 - 12:05	Environmentally and Socially Friendly Aquavoltaics Led by Fish Farmers: Case Studies from Kaohsiung, Taiwan Ting-Wen Chen ¹ ¹ Green Energy and Environment Research Laboratories, Industrial Technology Research Institute, Taiwan	<u>219</u>
11:00 - 12:30	Solar Grazing Bonita	
11:00 - 11:05	Silver Sponsor Presentation: REM Tec REM Tec - ¹ ¹ REM Tec	<u>251</u>

11:05 - 11:18	Are Sheep Just Cheap? Understanding the Ecological and Environmental Value of Sheep Grazing in Agri-PV Projects Stephan Schindele ¹ ¹ BayWa r.e.	71
11:18 - 11:31	Grassland Yield Models Intercomparison Under Agrivoltaics Context: A Collaborative Data Analysis Didier Combes ¹ ¹ INRAE - URP3F	173
11:31 - 11:44	Two years of integrated ecological research in an agrivoltaic grazing system: Impacts of microclimate & land-management on vegetation productivity & carbon cycling Taylor Bacon ¹ ¹ Colorado State University	91
11:44 - 11:57	Monitoring Heifers Behavior in Vertical Photovoltaic Panels Solar Pasture Nathan Berezyiat ¹ ¹ INRAE	105
11:57 - 12:10	Impact of Agrivoltaic Structure on Grassland Productivity: A First-Year Assessment Lucie LORIEAU ¹ ¹ TSE	44
12:30 - 13:30	Lunch Break Foyer	
13:30 - 15:00	Plant and Crop Physiology I: Arable and Vegetable Farming Bonita	
13:30 - 13:43	Assessing the effect of high biaxial solar tracker on wheat photosynthesis Clémentine INGHELS ¹ ¹ Groupe OKWIND SAS	39
13:43 - 13:56	Spring Barley Development in Different Agrivoltaic Systems: Insights from a Single Site Study Malte Stöppler ¹ ¹ Technology and Support Centre	48
13:56 - 14:09	Effect of periodic shade on growth and yield of spring wheat, spring barley and faba bean Felicitas von Ow-Wachendorf ¹ ¹ University of Hohenheim	170
14:09 - 14:22	Efficient Photochemical Energy Conversion Underneath APV Facility Improved Growth And Yield Performance Of Soybean In Tropical Nigeria UCHENNA NOBLE UKWU ¹ ¹ UNIVERSITY OF NIGERIA NSUKKA	124
14:22 - 14:35	First Year Observations of Growing Solanaceous Vegetable Crops in an Agrivoltaic System in New Jersey Rebeca Mata ¹ ¹ Rutgers University	183
14:35 - 14:48	The Effects of Urban Agrivoltaics on Polyculture Farming in a Temperate Climate Sujith Ravi ¹ ¹ Department of Earth & Environmental Sciences, Temple University, 1901 N. 13th Street, Philadelphia, PA 19122, USA	225

13:30 - 15:00	Policy & Regulation Topaz	
13:30 - 13:33	Bronze Sponsor Presentation: OTT HydroMet OTT HydroMet ¹ ¹ OTT HydroMet	252
13:33 - 13:40	Policy Implications for Agrivoltaics - The Case of Southern European Union Countries Anatoli Chatzipanagi ¹ ¹ Joint Research Centre, European Commission	94
13:40 - 13:47	Quantifying the Monetary Competitive Advantage of Germany's Legal Framework for Agrivoltaic Systems A Comparative Analysis with Ground-Mounted PV Michael Pfundstein ¹ ¹ Fraunhofer ISE	161
13:47 - 13:54	Exploring the Effects of Policy on Stakeholder Adoption and Deployment of Agrivoltaics: A Case Study of Massachusetts Alexis Pascaris ¹ ¹ NREL	22
13:54 - 14:01	Light Availability and Distribution as Key Factors in Agrivoltaics Legal Frameworks Cas Lavaert ¹ ¹ KU Leuven	186
14:01 - 14:08	Spatial Heterogeneity in Large-Scale AgriPV Systems: A Multi-Variable Resource Analysis Emilien SIMONOT ¹ ¹ Lightsource bp	206
15:00 - 15:30	Coffee Break Foyer	
15:30 - 17:00	Industry Perspectives Topaz	
15:30 - 15:43	ECONOMIC ATTRACTIVENESS OF AGRIVOLTAICS IN DIFFERENT REGULATION STATUSES Elina Bosch ¹ ¹ Becquerel Institute	84
15:43 - 15:56	Scaling Agri-PV Across Europe: Addressing Safety, Regulatory Certainty, and Cost Efficiency to Unlock Market Growth Fabian Neu ¹ ¹ RWE	14
15:56 - 16:09	Levelized Cost of Electricity and its limitations to consider the value of electricity Fabian Spera ¹ ¹ Main Author	217
16:09 - 16:22	Solar Grazing: A Best Practices Guide Lexie Hain ¹ ¹ American Solar Grazing Association	238
16:22 - 16:35	Adressing Open Techno-Economic Questions in Agrivoltaics Erion Bousi ¹ ¹ BayWa r.e.	235
16:35 - 16:48	How Agri-PV Can Boost the Transition to Regenerative	74

15:30 - 17:00 **Plant and Crop Physiology II: Fruit Farming**
Bonita

15:30 - 15:43 **Harnessing the Sun: Agrivoltaics and Its Shading Impact on Berry Yields in Switzerland** [Jocelyn Widmer](#)¹ ¹Agroscope [192](#)

15:43 - 15:56 **Enhancing Agrivoltaic Synergies Through Optimized Tracking Strategies** [Maddalena Bruno](#)¹ ¹Fraunhofer ISE [111](#)

15:56 - 16:09 **Reproductive behaviour of early apricot trees under agrivoltaic system** [Clémentine Jardon](#)¹ ¹CIRAD Hortsys [141](#)

16:09 - 16:22 **Impact of Intermittent Shading from an Agrivoltaic System in the Physiology and Growth of Cherry Trees in Central Chile: Insights from a First-Season Evaluation** [Viviana Araus](#)¹ ¹Centro de Energía, Universidad de Chile, Chile [90](#)

16:22 - 16:35 **Cherries under Dynamic Agrivoltaics for Rain and Heat Protection** [Gerardo Lopez](#)¹ ¹Sun'Agri [80](#)

17:00 - 18:00 **Poster Session 2**
Foyer

18:30 - 22:00 **Conference Dinner**
Markthalle Freiburg

Thursday, 03 July 2025

08:00 - 08:45 **Fraunhofer ISE Campus Tour**
Fraunhofer ISE, Heidenhofstraße 2

08:30 - 09:00 **Morning Coffee**
Foyer

09:00 - 10:30 **Roundtable: Methods for Predicting Agricultural Yield**
Topaz

09:00 - 09:03 **Bronze Sponsor Presentation: Sun'Agri** [Sun'Agri](#)⁻¹ ¹Sun'Agri [253](#)

09:03 - 09:16 **Shedding Light on Semi-Transparent Agrivoltaics: Spectral Light Composition for Irradiance and Photosynthetic Rate Modelling** [Silvia Ma Lu](#)¹ ¹Mälardalen University [12](#)

09:16 - 09:29	Modeling the Agronomic Impact of Semi-transparent Modules in Photovoltaic Greenhouses Hunter Smith ¹ ¹ Feedgy	<u>32</u>
09:29 - 09:42	Standardizing Data Handling for Location-Specific Crop Yield Estimations in Agrivoltaics Rhea Pöter ¹ ¹ Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstraße 2, 79110 Freiburg, Germany	<u>224</u>
09:00 - 10:30	Social Science Bonita	
09:00 - 09:03	Bronze Sponsor Presentation: Goldbeck Solar Patricia Gese ¹ ¹ Goldbeck Solar	<u>254</u>
09:03 - 09:16	Just Transition: An Analysis of Agrivoltaics Development in Li'nan District, Hangzhou, China Zhe JIN ¹ ¹ Tsinghua University	<u>9</u>
09:16 - 09:29	Understanding the Social Dimension of Agrivoltaics - A Study on societal Awareness and Attitudes Felix Zoll ¹ , Alexandra Doernberg ¹ ¹ Leibniz Centre for Agricultural Landscape Research (ZALF)	<u>45</u>
09:29 - 09:42	Traditional Media Coverage of Agrivoltaics in Japan Christian Doedt ¹ ¹ Institute for Sustainable Energy Policies	<u>135</u>
09:42 - 09:55	Solar Expert Perspectives: Unlocking Acceptance and Driving the Future of Agrivoltaics Alessandra Scognamiglio ¹ ¹ ENEA, Department of Energy Technologies and Renewable Sources, Technical Strategic Support Section (TERIN-STs), Italy	<u>232</u>
10:30 - 11:00	Coffee Break Foyer	
11:00 - 12:30	Quantifying Co-Benefits: From Bifacial Gains to Less Heat Stress for Farmworkers Bonita	
11:00 - 11:03	Bronze Sponsor Presentation: SolarTap SolarTap - ¹ ¹ SolarTap	<u>255</u>
11:03 - 11:16	Solar Panels as a Tool for Pest Control in Organic Greenhouses Gerardo Lopez ¹ ¹ Sun'Agri	<u>87</u>
11:16 - 11:29	Reduction of methane from paddy fields through agrivoltaics utilizing perovskite solar cells. Mitsuhiro Higashi ¹ ¹ TERRA Co.,Ltd.,Japan	<u>132</u>
11:29 - 11:42	Agrivoltaics and Nurseries: Innovation to Enhance Crop Protection and Energy Production Perrine Juillion ¹ ¹ Sun'Agri	<u>56</u>
11:42 - 11:55	Bifacial Gain Modelling and Validation for Orchard Agrivoltaics Erion Bousi ¹ ¹ baywa r.e.	<u>236</u>

11:55 - 12:08	Beyond Air Temperature: A Multi-Metric Assessment of Farmworker Heat Stress Under Agrivoltaic Arrays. Talitha Neesham-McTiernan ¹ ¹ university of arizona	220
11:00 - 12:30	Vitivoltaics Topaz	
11:00 - 11:13	Modelling Photovoltaic Panel Inclination for Balanced Plant Growth in Vineyards Sara Elisabetta Legler ¹ ¹ Horta S.r.l.	143
11:13 - 11:26	Agrivoltaics in Viticulture: Impact on Soil and Plant Water Status Lucía Garstka ¹ ¹ Department of General and Organic Viticulture, Hochschule Geisenheim University	62
11:26 - 11:39	Dynamic agrivoltaics: effect on wine quality and grape maturity in the context of climate change Damien Fumey ¹ ¹ Sun'Agri	179
11:39 - 11:52	Deep Learning for Phenological Stage Detection: Enhancing Vineyard Shading Strategies in Dynamic Agrivoltaics Damien FUMEY ¹ ¹ Sun'Agri	72
11:52 - 12:05	5 Years Study of Winegrapes under Agrovoltaico® Iliana Le Bossenec ¹ ¹ Agricultural Engineer	242
12:05 - 12:18	Vineyard-PV on the Move - Innovative Mobile Agrivoltaic Systems for Climate-Resilient Vineyards and Young Vine Protection Christian Weinmann ¹ ¹ schlaich bergemann partner - sbp sonne GmbH, Schwabstr. 43, 70197 Stuttgart, Germany	154
12:30 - 14:00	Lunch Break Foyer	
14:00 - 15:30	PV Greenhouses Bonita	
14:00 - 14:13	Exploring Emerging Agrivoltaic Concepts- Organic Photovoltaic Greenhouses Chantal Kierdorf ^{1,2} ¹ Forschungszentrum Jülich, Institute of Climate and Energy Systems, Jülich Systems Analysis (ICE-2), ² RWTH Aachen University, School of Business and Economics	3
14:13 - 14:26	Assessing the Solar Irradiation in Various Photovoltaic Greenhouse Designs Shu-Ngwa Asa'a ^{1,2} ¹ Hasselt University, ² imo-imomec	223
14:26 - 14:39	Dynamic Agrivoltaics for Improved Irradiance Control in Nordic Greenhouses Émile Rousseau-Pinard ¹ ¹ Université de Sherbrooke	120
14:39 - 14:52	Advanced Monitoring System for Accurate Data to Enable Reliable Digital Twins in AgriPV Greenhouses: Insights from the REGACE	210

14:00 - 15:30 **Water Challenges**

Topaz

14:00 - 14:13 **On the use of evapotranspiration resistive models in agrivoltaics modeling** [Joran Dartevelle](#)¹ ¹Digital Energy and Agriculture Lab - University of Liège [185](#)

14:13 - 14:26 **Farming Conditions between Vertical Solar Panels - Micro-Climate and Soil Moisture** [Ulrike Feistel](#)¹ ¹University of Applied Sciences Dresden [49](#)

14:26 - 14:39 **Orchardgrass Production as Affected by Irrigation and Shade Regimes in Agrivoltaics** [Haley Kirschten](#)¹ ¹Oregon State University [187](#)

14:39 - 14:52 **Rainwater Harvesting Operational Monitoring** [Erion Bousi](#)¹ ¹BayWa r.e. [237](#)

14:52 - 15:05 **Field Study: Soil Microclimate in an Agrivoltaic Orchard - Assessment of Spatial Heterogeneity and Mitigation During Extreme Weather Conditions** [Johanna-Viktoria Rößner](#)¹, [Oliver Hörnle](#)¹ ¹Fraunhofer Institute for Solar Energy Systems ISE [233](#)

15:05 - 15:18 **Optimizing Water Use and Crop Yields for an Agrivoltaic Systems in the Desert Environment** [Min Hsian Saw](#)¹ ¹Technology Innovation Institute [214](#)

15:30 - 16:00 **Coffee Break**

Foyer

16:00 - 17:00 **Closing Session**

Topaz

18:00 - 23:00 **AgriVoltaics World Conference After Party!**

Solar Info Center
