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Global to Local

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Rose Mankaa, Antonio Covais

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Summary

DAY 1

Session 1.01: Communication and Raising Circular Economy Awareness via Robust LCA Part I

Session Chair: Matthias Finkbeiner, Technische Universität Berlin, Germany
Session Chair: Stephane Morel, ESCP Business School, France

Session 1.02: Future-Proof Verification processes in LCA

Session Chair: Alexander Forell, Makersite, Germany
Session Chair: Gabriella Arcese, Niccolò Cusano University, Italy

Session 1.03: Pathways to Net-Zero: Industrial Decarbonization & Green Energy Part I

Session Chair: Nele De Belie, Ghent University, Belgium
Session Chair: Pascal Di Croce, EuLA, Belgium

Session 1.04: Life Cycle Metrics for industry and policymakers: From Innovation to Integration I

Session Chair: Luca Zampori, PRé Sustainability, The Netherlands
Session Chair: Davis Jose, INaB - RWTH, Germany

Session 1.05: LCA in the mining and metals industry: Current practices and challenges

Session Chair: Johannes Arnold Drielsma, Drielsma Resources Europe, The Netherlands
Session Chair: Stéphanie Muller, BRGM, France

Session 1.06: Sustainable Underground Construction In Pipeline Infrastructures

Session Chair: Stefan Schmitz, TRACTO-TECHNIK GmbH & Co. KG, Germany
Session Chair: Andreas Redmann, Kunststoffrohrverband e.V., Germany

Session 1.07: LCA in Policy: Frameworks, Compliance & Placement Part I

Session Chair: Antonio Valente, ecoinvent, Switzerland
Session Chair: Diego Iribarren, IMDEA Energy, Spain

Session 1.08: PCF data: Achievements and challenges for sector-specific guidelines in industry

Session Chair: Martina Prox, iPoint-Systems gmbh, Germany
Session Chair: Peter Rudolf Hans Saling, BASF SE, Germany

Session 1.09: Social Sustainability: Data & Method Advancements Part I

Session Chair: Luigia Petti, UNIVERSITÀ "G.D'ANNUNZIO", Italy
Session Chair: Sonia Valdivia, WRFA, Switzerland

Session 1.10: Sustainable mobility solutions Part I

Session Chair: Stephan Krinke, Fraunhofer IST, Germany
Session Chair: Katharina Gompf, BMW Group, Germany

Session 1.11: Circular Textiles: how LCA can Support the Transition

Session Chair: Archana Datta, UNEP, France
Session Chair: Claudia Giacovelli, UNEP, France

Session 1.12: Healthcare LCA

Session Chair: Rose Nangah Mankaa, INaB-RWTH Aachen, Germany
Session Chair: Scott McAlister, University of Melbourne, Australia

LP1: Lunch & Poster

Session 1.13: Digital LCA/PCF data sharing for Collaboration & Innovation

Session Chair: Martin Baitz, Sphera Solutions GmbH, Germany
Session Chair: Massimo Collotta, Henkel AG & Co. KGaA, Germany

Session 1.14: Communication and Raising Circular Economy Awareness via Robust LCA Part II

Session Chair: Matthias Finkbeiner, Technische Universität Berlin, Germany
Session Chair: Stephane Morel, ESCP Business School, France

Session 1.15: LCM for the Biobased Economy: Innovative Methods and Practices Part I Part I

Session Chair: Thomas Schaubroeck, Luxembourg Institute of Science and Technology, Luxembourg
Session Chair: Tamara Coello García, Cesefor, Spain

Session 1.16: LCA & LCM for Improved Energy Decision-Making Part I

Session Chair: Luka Smajila, KTH - Royal Institute of Technology, Sweden
Session Chair: Ketan Vaidya, ex-Northvolt AB, Sweden

Session 1.17: Textile/Apparel: B2B & B2C Communication Challenges

Session Chair: Enrico Benetto, Luxembourg Institute of Science and Technology, Luxembourg
Session Chair: Federico Brugnoli, SPIN360, Italy

Session 1.18: LCA & Circularity to Improve Road Construction Env. Performance Part I

Session Chair: Nicolás Héctor Carreño Gómez, VINCI Construction Shared Services GmbH, Germany
Session Chair: Davide Lo Presti, Universita degli studi di Palermo, Italy

Session 1.19: Life Cycle Based Tools and Data Science Interactions Part I

Session Chair: Alessandro Manzardo, University of Padova, Italy
Session Chair: Monia Niero, Sant'Anna School of Advanced Studies, Italy

Session 1.20: Evaluations of Circular and Low Carbon Plastic Value Chains towards sustainability Part I

Session Chair: Tomas Ekvall, Tomas Ekvall Research, Review & Assessment (TERRA), Sweden
Session Chair: Christian Krüger, BASF, Germany

Session 1.21: LCM for the Biobased Economy: Innovative Methods and Practices Part II

Session Chair: Thomas Schaubroeck, Luxembourg Institute of Science and Technology, Luxembourg
Session Chair: Tamara Coello García, Cesefor, Spain

Session 1.22: LCM implementation in SMEs

Session Chair: Yahong Dong, Macau University of Science and Technology, Macau S.A.R. (China)
Session Chair: Mark Goedkoop, Product-ecology, The Netherlands

Session 1.23: Thermochemical Waste Management: Status & Outlook

Session Chair: Filomena Ardolino, University of Campania "Luigi Vanvitelli", Italy
Session Chair: Umberto Arena, University of Campania Luigi Vanvitelli, Italy

Session 1.24: LCA & Circularity to Improve Road Construction Env. Performance Part II

Session Chair: Nicolás Héctor Carreño Gómez, VINCI Construction Shared Services GmbH, Germany
Session Chair: Davide Lo Presti, Universita degli studi di Palermo, Italy

DAY 2

Session 2.01: Pathways to Net-Zero: Industrial Decarbonization & Green Energy Part II

Session Chair: Nele De Belie, Ghent University, Belgium
Session Chair: Pascal Di Croce, EuLA, Belgium

Session 2.02: Life Cycle Metrics for industry and policymakers: From Innovation to Integration II

Session Chair: Luca Zampori, PRé Sustainability, The Netherlands
Session Chair: An De Schryver, PRé sustainability, The Netherlands

Session 2.03: Advancing Polymer Recycling: Methods & Policy for a Sustainable Transition

Session Chair: Paola Federica Albizzati, Joint Research Centre - European Commission, Spain
Session Chair: Carlo Brondi, CNR, Italy

Session 2.04: Methodologies and Tools for Sustainable Agriculture and Food Value Chains Part I

Session Chair: Andrea Di Maria, University of Liege, Belgium
Session Chair: Olubukola Olumuyiwa Tokede, Deakin University, Australia, Australia

Session 2.05: Regional Sustainability via Life Cycle Instruments Part I

Session Chair: Takunda Yeukai Chitaka, University of Bordeaux, France
Session Chair: Pia Wiche, EcoEd, Chile

Session 2.06: Nutritional LCA for Sustainable Agri-Food Management Part II

Session Chair: Silvia Zingale, Agroscope, Switzerland
Session Chair: Gianluca De Nardi, EcorNaturaSì Spa, Italy

Session 2.07: Mass Balance Chain of Custody and LCA methodology and practices

Session Chair: Markus Berger, University of Twente, The Netherlands
Session Chair: Guy Castelan, PlasticsEurope, Belgium

Session 2.08: Policy Coherence: Tools and best practices for an efficient and effective sustainable transition

Session Chair: Laura Garcia Herrero, EC - JRC, Italy
Session Chair: Martina Orefice, Joint Research Centre, Italy

Session 2.09: LCA in Policy: Frameworks, Compliance & Placement Part II

Session Chair: Diego Iribarren, IMDEA Energy, Spain
Session Chair: Antonio Valente, ecoinvent, Switzerland

Session 2.10: Social Sustainability: Data & Method Advancements Part II

Session Chair: Manuela D'Eusanio, Università degli Studi "G.d'Annunzio" di Chieti-Pescara, Italy
Session Chair: Isabel Susan Wolf, TU Berlin, Germany

Session 2.11: Sustainable mobility solutions Part II

Session Chair: Katharina Gompf, BMW Group, Germany
Session Chair: Tobias Viere, Pforzheim University, Germany

Session 2.12: LCSA advancements and implementation in building Part I

Session Chair: Matthias Fischer, Fraunhofer Institute for Building Physics IBP, Germany
Session Chair: Jana Gerta Backes, Meo Carbon Solutions GmbH, Germany

LP2: Lunch & Poster

Session 2.13: Boosting LCM with AI, Machine Learning & Data Science Tools

Session Chair: Antonino Marvuglia, Luxembourg Institute of Science and Technology, Luxembourg
Session Chair: Peter Rudolf Hans Saling, BASF SE, Germany

Session 2.14: Biogenic Carbon: Challenges of Modelling & Accounting in LCA

Session Chair: Michael Sturges, RISE Research Institutes of Sweden, United Kingdom
Session Chair: Mateo Saavedra del Oso, Stora Enso, Finland

Session 2.15: Dynamic and Prospective LCA Part I

Session Chair: Hanna Pihkola, VTT Technical Research Centre of Finland, Finland
Session Chair: Friedrich Jasper, Karlsruhe Institute of Technology (KIT), Germany

Session 2.16: Using LCSA for Industry Decision-Making Part I

Session Chair: Nils Jäger, thyssenkrupp Steel Europe AG, Germany
Session Chair: Julian Suer, thyssenkrupp Steel Europe AG, Germany

Session 2.17: LCA & LCM for Improved Energy Decision-Making Part II

Session Chair: Luka Smajila, KTH - Royal Institute of Technology, Sweden
Session Chair: Ketan Vaidya, ex-Northvolt AB, Sweden

Session 2.18: Engineering Composites with LCA-Oriented Methods

Session Chair: Tobias Viere, Pforzheim University, Germany
Session Chair: Davide Bonaffini, Hitachi Rail, Italy

Session 2.19: Digital Product Passport: Information Access for Sustainable Consumption

Session Chair: Enrico Benetto, Luxembourg Institute of Science and Technology, Luxembourg
Session Chair: Kostas Chatziioanou, ICCS, Greece

Session 2.20: Life Cycle Based Tools and Data Science Interactions Part II

Session Chair: Monia Niero, Sant'Anna School of Advanced Studies, Italy
Session Chair: Alessandro Manzardo, University of Padova, Italy

Session 2.21: Evaluations of Circular and Low Carbon Plastic Value Chains towards sustainability Part II

Session Chair: Christian Krüger, BASF, Germany
Session Chair: Tomas Ekvall, Tomas Ekvall Research, Review & Assessment (TERRA), Sweden

Session 2.22: Filling the Gaps in Life Cycle Assessments of Upstream Materials for the Sustainable Deployment of Battery Ecosystems

Session Chair: Sophia Roy, Polytechnique Montréal, Canada
Session Chair: Ketan Vaidya, ex-Northvolt AB, Sweden

Session 2.23: LCA & Natural Capital: Driving Nature-Positive Outcomes

Session Chair: Alexandra Evans, Vito, Belgium
Session Chair: Sun-Hea Hong, University of Stuttgart, Germany

Session 2.24: LCSA for decision making in energy systems

Session Chair: Maurizio Cellura, Università di Palermo, Italy
Session Chair: Guido Sonnemann, Université de Bordeaux, France

DAY 3

Session 3.01: Handprints as a method to accelerate the sustainable Transition

Session Chair: Gregory A. Norris, MIT, United States of America
Session Chair: Sonia Valdivia, WRFA, Switzerland

Session 3.02: LCT based Tool for Sustainability in Industry

Session Chair: Stephan Krinke, Fraunhofer IST, Germany
Session Chair: Juan Felipe Cerdas Marin, Technical University of Applied Sciences Würzburg-Schweinfurt, Germany

Session 3.03: LCM for an enhanced circularity in steel and other metals

Session Chair: Luiz Kulay, University of São Paulo, Brazil
Session Chair: Diego C Magalhaes, ArcelorMittal, Brazil

Session 3.04: LCSA Insights: Actionable Solutions for Global Challenges

Session Chair: Jana Gerta Backes, Meo Carbon Solutions GmbH, Germany
Session Chair: Alessandra Zamagni, Ecoinnovazione, Italy

Session 3.05: Regional Sustainability via Life Cycle Instruments Part II

Session Chair: Takunda Yeukai Chitaka, University of Bordeaux, France
Session Chair: Pia Wiche, EcoEd, Chile

Session 3.06: Nutritional LCA for Sustainable Agri-Food Management Part II

Session Chair: Gianluca De Nardi, EcorNaturaSì Spa, Italy
Session Chair: Silvia Zingale, Agroscope, Switzerland

Session 3.07: Data Creation & Exchange Tools: Transparency First

Session Chair: Stephan Pfister, ETH Zurich, Switzerland
Session Chair: Emilia Moreno Ruiz, ecoinvent, Switzerland

Session 3.08: Downscaling SDGs & Planetary Boundaries for Products & Organizations

Session Chair: Andreas Barth, Wood K Plus Kompetenzzentrum Holz GmbH, Austria
Session Chair: Naeem Adibi, WeLOOP, France

Session 3.09: Tackling climate risks and nature dependencies for a healthy future

Session Chair: Jan Bollen, ArcelorMittal Europe, Belgium
Session Chair: Giulia Maggiora, Quantis, Italy

Session 3.10: LCM in Rail, Aviation and other transport systems

Session Chair: Davide Bonaffini, Hitachi Rail, Italy
Session Chair: Ladji Tikana, International Copper Association, Germany

Session 3.11: Ecotox/Toxicity Metrics for Portfolio Assessment in Chemicals

Session Chair: Tomas Vilhelm Rydberg, IVL Swedish Environmental Research Institute, Sweden
Session Chair: Peter Rudolf Hans Saling, BASF SE, Germany

Session 3.12: LCSA advancements and implementation in building Part II

Session Chair: Matthias Fischer, Fraunhofer Institute for Building Physics IBP, Germany
Session Chair: Pamela Haverkamp, INaB - RWTH, Germany

LP3: Lunch & Poster

Session 3.13: Sustainability & Circularity

Session Chair: Cécile Bulle, CIRAIG, Canada, Canada
Session Chair: Anna Luthin, Mitsui Chemicals Europe GmbH, Germany

Session 3.14: Dynamic and Prospective LCA Part II

Session Chair: Jessica Hanafi, Life Cycle Indonesia, Indonesia
Session Chair: Suzana Ostojic, INaB - RWTH Aachen, Germany

Session 3.15: Data Creation & Exchange Tools: Transparency First

Session Chair: Stephan Pfister, ETH Zurich, Switzerland
Session Chair: Emilia Moreno Ruiz, ecoinvent, Switzerland

Session 3.16: LCM's Future: Collaboration, Innovation & Impact

Session Chair: Philip Strothmann, Forum for Sustainability through Life Cycle Innovation e.V., Germany
Session Chair: Anna Wikström, Sweden

Session 3.17: Using LCSA for Industry Decision-Making Part II

Session Chair: Nils Jäger, thyssenkrupp Steel Europe AG, Germany
Session Chair: Julian Suer, thyssenkrupp Steel Europe AG, Germany

Session 3.18: Methodologies and Tools for Sustainable Agriculture and Food Value Chains Part II

Session Chair: Andrea Di Maria, University of Liege, Belgium
Session Chair: Roland Meyer, INaB - RWTH Aachen, Germany

Session 3.18: Methodologies and Tools for Sustainable Agriculture and Food Value Chains Part II

Time: Friday, 12/Sept/2025: 2:30pm - 4:00pm
Session Chair: Andrea Di Maria, University of Liege, Belgium
Session Chair: Roland Meyer, INaB - RWTH Aachen, Germany

Durum wheat production in Sicily, Italy: Evaluating the environmental impacts of conventional vs. organic farming systems

Monica Auteri[1], Giuseppe Di Miceli[1], Mario Licata[1], Rose Nangah Mankaa[2], Simona Prestigiacomo[1], Marzia Traverso[2]

[1]Department of Agricultural, Food and Forest Sciences, University of Palermo, Viale delle Scienze, Building 4, 90128 Palermo, PA, Italy; [2]INaB-RWTH Aachen, 52074 Aachen, Germany

Wheat production is a cornerstone of global food security, essential for sustaining populations worldwide, and it covers approximately 219 million hectares globally. Its production requires substantial material and energy inputs, including fertilisers, pesticides and fuel. These inputs contribute to environmental degradation and biodiversity loss, raising concern about the sustainability of agricultural practices. In the context of global climate change and environmental threats, mitigating the impact of agricultural activities is urgent. The aim of this study was to evaluate and compare the environmental impacts of conventional and organic wheat grain production systems in Sicily using the Life Cycle Assessment (LCA) methodology. Surveys were conducted during the 2021/2022 season, collecting data from 14 conventional and 7 organic farms. A "cradle to gate" approach was applied, considering all the wheat cultivation processes. The functional unit was yield-scaled (per ton of wheat grain production). Ecoinvent v.3.0 was used as database for secondary data, when the necessary primary information was unavailable. The analysis was carried out using SimaPro 9.5.0.1, employing the CML-IA baseline impact assessment method. The results indicated that marine aquatic ecotoxicity was the most affected impact category, ranging from 1.30E+05 to 1.05E+06 kg 1,4-B eq. Conventional system had a higher impact, due to pesticides and fertilisers production and transport. Only eutrophication (with values ranging from 3.34E-01 to 5.54E+00 kg PO4 eq.) was primarily influenced by fertilization practices. Organic system, with fewer inputs, had impact mainly associated with fuel production and use. No significant differences were observed between self-produced and locally sourced seeds. These results will provide valuable insight for developing a strategy to reduce the environmental impact of the wheat production system.

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Enhancing Sustainability in the Food Value Chain: A Three-Dimensional Methodological Assessment of Innovative Food Product Design

Dilber Ayhan[1], Ignacio Zurano[2], Mecit Halil Oztop[3]

[1]The Scientific and Technological Research Council of Türkiye (TÜBİTAK); [2]Lomartov Applied Innovation Engineering; [3]Middle East Technical University

Sustainable food product design is essential to minimizing global impacts across the food value chain. This study focuses on developing innovative food products and evaluating their sustainability through environmental, economic, and social dimensions. Using Life Cycle Assessment (LCA), the environmental impacts are assessed to identify and improve hotspots. Economic sustainability method integrates global economic factors with Life Cycle Costing (LCC), bridging gaps in economic assessments. For social impact methodology, the Social Life Cycle Assessment (S-LCA) is enhanced by combining product-specific factors with