

# GrowingMedia2021

International Symposium on Growing Media, Soilless Cultivation, and  
Compost Utilization in Horticulture

22-27 August 2021, Melle, Belgium



GrowingMedia2021

## FULL PROGRAMME

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# GrowingMedia2021 – International Symposium on Growing Media, Soilless Cultivation, and Compost Utilization in Horticulture

22-27 August 2021, Melle, Belgium

Start (CEST)	End (CEST)	Monday, 23 August 2021
8:00	8:15	Registration
8:15	8:30	
8:30	8:45	
8:45	9:00	
9:00	9:15	Welcome address <i>Bart Vandecasteele, convener ILVO</i> <i>Jean-Charles Michel, chair ISHS Working Group Growing Substrates</i>
9:15	9:30	
9:30	9:45	Keynote K.1: <i>C. Blok</i> . Recirculation, circular fertilizers and resilience: the potential of growing media systems for circular production
9:45	10:00	
10:00	10:15	
10:15	10:30	Coffee break
10:30	10:45	
10:45	11:00	
11:00	11:15	<p><b>Session 1 - Growing media and sustainable use of resources</b> <i>Chair: Stefanie Siebert</i></p> <p><b>O.1:</b> Developing plant bioassays to evaluate the performance of sustainable growing medium <i>Rong Zhou, Thayna Mendanha, Karen Koefoe Petersen, Sren Ugilt Larsen, Aidan Mark Smith, Carl-Otto Ottosen</i></p>
11:15	11:30	<p><b>O.2:</b> Effect of recycled phosphorus and nitrogen blend fertilizers on the growth of <i>Viola (Viola cornuta L.)</i> <i>Ana Robles-Aquilar, Oliver Grunert, Erik Meers, Nicolai D. Jablonowski</i></p>
11:30	11:45	<p><b>O.3:</b> Performance of cucumber (<i>Cucumis sativus L.</i>) and sweet pepper (<i>Capsicum annuum L.</i>) in various local growing media, as alternative for rockwool in Saudi-Arabia <i>Wim Voogt, Abdulaziz Alharbi, Mohammed Almuwalid, Saif Alsahly, Jouke Campen, Hessel van der Heide, Mohammed Ewis Abdelaziz, Mohammed Osman, Ilias Tsafaras, Muyen Qaryouti, Feije de Zwart</i></p>
11:45	12:00	<p><b>O.4:</b> Testing peat-free growing media based on olive wood residues for olive saplings <i>Alev Kir, Anne Kristin Løes, Barbaros Cetinel, Hatice Sevim Turan, Erol Aydogdu, Ralf Pecenka, Christian Dittrich, Rafaela Caceres, Margi L Turner, Francis Rayns, Judith Conroy, Ulrich Schmutz</i></p>
12:00	12:15	<p><b>O.5:</b> Experimental design as a framework for optimising polyurethane foam as a soilless growing media <i>Harry Wright, Duncan Cameron, Anthony Ryan</i></p>
12:15	12:30	Group photo Lunch
12:30	12:45	
12:45	13:00	
13:00	13:15	

13:15	13:30	Poster pitches: P.1 - P.10
13:30	13:45	
13:45	14:00	Keynote K.2: <i>D. Neher</i> . Biological indicators and compost for managing plant disease
14:00	14:15	
14:15	14:30	
<b>Session 2 - The microbiome of growing media and integrated disease and pest control</b>		
<i>Chair: Oliver Grunert</i>		
14:30	14:45	<b>O.18:</b> Microbially managed growing media: future sustainable growing media development route with decreased environmental footprint <i>Pekka Järvenpää, Oliver Grunert, Nico Boon</i>
14:45	15:00	<b>O.14:</b> Influence of the application of mycorrhizal fungi and <i>Bacillus amyloliquefaciens</i> on the yields of three vegetables and a grass with organic fertilization on peat-free growing media in organic plant production <i>Frank Eulenstein, Uwe Schindler, Julian Ahlborn, Phillipp Scharschmidt, Elmira Saljnikov, Axel Behrendt</i>
15:00	15:15	<b>O.15:</b> Shifts in the microbiome of composts that are optimized for a better fit in growing media <i>Steffi Pot, Caroline De Tender, Sarah Ommeslag, Ilse Delcour, Johan Ceusters, Ellen Gorrens, Jane Debode, Bart Vandecasteele, Karen Vancampenhout</i>
15:15	15:30	<b>O.17:</b> Beneficial Microbes for improving circularity and yield in Hydroponic Crop Cultivation <i>Brechtje de Haas, Thijs Van Gerrewey, Maaïke Perneel, Marie-Christine Van Labeke, Danny Geelen</i>
15:30	15:45	Coffee break
15:45	16:00	
16:00	16:15	<b>Nomenclature workshop</b>
16:15	16:30	<b>O.36:</b> Glossary of terms and basic characteristics to be reported in scientific publications on growing media <i>J. Caron and Youbin Zheng</i>
16:30	16:45	
16:45	17:00	

Start (CEST)	End (CEST)	Tuesday, 24 August 2021
8:30	12:30	Technical tours (PCS and ILVO)
12:30	13:30	Lunch at ILVO
13:30	13:45	Keynote K.3: <i>M. Pugliese</i> . Use of compost in nursery as pre-planting substrate to control soil-borne pathogens on vegetable crops in field conditions
13:45	14:00	
14:00	14:15	
		<b>Session 2 - The microbiome of growing media and integrated disease and pest control</b> <i>Chair: Jane Debode</i>
14:15	14:30	<b>O.19:</b> Microbe'Plant Growing Media Interactions Modulate the Effectiveness of Bacterial Amendments on Lettuce Performance Inside a Plant Factory with Artificial Lighting <i>Thijs Vangerrewey, Danny Geelen, Jeroen De Zaeytijd, Oscar Navarrette, Maarten Vandecruys, Maaïke Perneel, Marie-Christine Van Labeke, Nico Boon</i>
14:30	14:45	<b>O.13:</b> The interaction induced response next to changes in activity and community composition provide a comprehensive understanding of the resilience of microorganisms after peat mining <i>Oliver Grunert, Thomas Kaupper, Monica Harnisz, Marcus A. Horn, Adrian Ho</i>
		<b>Session 3 - Soilless cultivation: added value of innovations for water and nutrient use efficiency</b> <i>Chair: Dimitrios Savvas</i>
14:45	15:00	<b>O.20:</b> Using organic fertilizers in growing media for young plant production <i>Hans Verhagen</i>
15:00	15:15	<b>O.21:</b> New tools for particle size and shape analysis of substrate components: initial results and future prospects <i>Stan Durand, Brian E. Jackson, Paul C. Bartley, William V. Fonteno, Jean-Charles Michel</i>
15:15	15:30	Coffee break
15:30	15:45	
		<b>Session 3 - Soilless cultivation: added value of innovations for water and nutrient use efficiency</b> <i>Chair: Dimitrios Savvas</i>
15:45	16:00	<b>O.22:</b> Fen plant biomass as growing media constituent - reduction of nitrogen immobilization by composting <i>Christina Hartung, Elke Meinken</i>
16:00	16:15	<b>O.23:</b> Use of new soilless growing media with attention for nutrient balance in the plant tolerance test <i>Ine Geuijen, Hans Verhagen</i>
16:15	16:30	<b>O.24:</b> Reducing sodium accumulation in the root environment of tomato in a closed-loop cultivation system using a split root system <i>Tommaso Barbaqli, Wim Voogt, Wei-Ling Chen, G.J. Arteaga, Li Bo</i>
16:30	16:45	<b>O.25:</b> Response of cucumber plants to oxygen-enriched nutrient solution under different greenhouse environments <i>Poonam Singh</i>
16:45	17:00	<b>O.26:</b> A Practical Method for Determining Substrate Capillary Water Sorption <i>Brian Schulker, Brian Jackson, William Fonteno</i>
17:00	18:00	Poster session in Gather.town

Start (CEST)	End (CEST)	Wednesday, 25 August 2021
8:30	8:45	Keynote K.4: <i>E. Graber</i> . Mysteries and musings at the biochar/plant/stress/growing media interface
8:45	9:00	
9:00	9:15	
9:15	9:30	<p><b>Session 3 - Soilless cultivation: added value of innovations for water and nutrient use efficiency</b>  <i>Chair: Miguel Sánchez-Monedero</i></p> <p><b>O.27:</b> Analyzing rehydration efficiency of hydrophilic (wood fiber) vs potentially hydrophobic (peat) substrates using different irrigation methods  <i>Jean-Charles Michel, Stan Durand, Brian E. Jackson, William V. Fonteno</i></p>
9:30	9:45	<p><b>O.28:</b> Effect of reducing phosphorus dosage in nutrient solution on soilless culture of grafted tomato crops  <i>Minh Ngoc Nguyen, Kazue Inaba, Seitaro Toda, Kuninori Suzuki, Yasunaga Iwasaki, Kotaro Takayama</i></p>
9:45	10:00	<p><b>O.29:</b> Root oxygen use as a measure for ion uptake from slightly different nutrient solutions  <i>Nina Oud, Tommaso Barbagli, Chris Blok</i></p>
10:00	10:15	<p><b>O.30:</b> NUTRISENSE: A novel software to automatically control nutrient supply in closed hydroponic crops based either on off-line chemical analyses or on ion-selective electrodes  <i>Dimitrios Savvas, Stefanos Drakatos, Ioannis Panagiotakis, Georgia Ntatsi</i></p>
10:15	10:30	Coffee break
10:30	10:45	
10:45	11:00	
11:00	11:15	<p><b>Session 4 - Biochar and compost in horticulture and carbon storage potential</b>  <i>Chair: Ellen Graber</i></p> <p><b>O.31:</b> A preliminary study on the synthesis and characterization of novel biochar-based fertilizers  <i>Raúl Castejón-del Pino, María L. Cayuela, María Sánchez-García, Miguel A. Sánchez-Monedero</i></p>
11:15	11:30	<p><b>O.32:</b> Positive effects of compost and management residues in growing media for ornamental plant cultivation  <i>Treza Cordaro, Steffi Pot, Ilse Delcour, Jesse Tavernier, Jane Debode, Fien Amery, Bart Vandecasteele, Karen Vancampenhout</i></p>
11:30	11:45	<p><b>O.33:</b> Critical Review of Chemical properties of Biochar as a Component of a Growing Media  <i>Munoo Prasad, Nikos Tzortzakis</i></p>
11:45	12:00	<p><b>O.34:</b> Nature conservation management residues as alternative for farm yard manure: effects on nutrients, carbon and disease suppression  <i>Fien Amery, Bart Vandecasteele, Ilse Delcour, Steffi Pot, Treza Cordaro, Jane Debode, Jesse Tavernier, Karen Vancampenhout</i></p>

12:00	12:15	<b>O.35:</b> Effect of biochar and compost on the bacterial soil community <i>Lisa Joos, Caroline De Tender, Sarah Ommeslag, Wouter Asselberg, Jane Debode, Bart Vandecasteele</i>
12:15	12:30	Lunch
12:30	12:45	
12:45	13:00	
13:00	13:15	
13:15	13:30	Poster pitches: P.11 - P.20
13:30	13:45	
13:45	14:00	<b>Horti-BlueC Open Event (Interreg 2 Seas)</b> <b>O.37:</b> Introduction of the Horti-BlueC project <i>Bart Vandecasteele</i>
14:00	14:15	<b>O.38:</b> Biochar and chitin amendments for tomato substrates in commercial production: Evaluation of the potential to enhance growing media sustainability <i>Ewan Gage, Dave Kaye, Barry Mulholland</i>
14:15	14:30	Polls on growing media: how to introduce new blends? <b>O.39:</b> Succesfully organic growing media cultivated in a commercial tomato growing system <i>Julie Moelants, Lotte Similon, Lien Bosmans</i>
14:30	14:45	<b>O.40:</b> Extending the lifetime of coir substrate in strawberry production through coir reuse and amendment with biochar <i>Lucas Shuttleworth, Matevz Papp-Rupar, Tom Passey, Xiangming Xu</i>
14:45	15:00	<b>O.41:</b> Amending Butterhead Lettuce and Briosso Tomato with Recycled Shellfish Waste to Improve Yield and Antioxidant Activity <i>Edward Collins</i>
15:00	15:15	Coffee break
15:15	15:30	
15:30	15:45	Summary of the Horti-BlueC full scale trials for tomato and strawberry Panel discussion with observer partners Horti-BlueC Immersive Virtual Reality Experience
15:45	16:00	
16:00	16:15	
16:15	16:30	
16:30	16:45	ISHS business meeting
16:45	17:00	
17:00	17:15	
17:15	17:30	

Start (CEST)	End (CEST)	Thursday, 26 August 2021
8:30	8:45	Keynote K.5: <i>M. Sánchez-Monedero</i> . Biochar as an additive in composting: Impact on process performance and on the agronomical quality of the end product
8:45	9:00	
9:00	9:15	
<b>Session 1 - Growing media and sustainable use of resources</b> <i>Chair: Chris Blok</i>		
9:15	9:30	<b>O.6:</b> Replacement of peat by coir in <i>Ranunculus asiaticus</i> grown under different fertigation regimes and non-thermal plasma treatment <i>Samantha Cannazzaro, <u>Sonia Cacinì</u>, Sara Di Lonardo, Pane Catello, Silvia Traversari, Daniele Massa</i>
9:30	9:45	<b>O.7:</b> Basil ( <i>Ocimum basilicum L.</i> ) growth response to wood fiber based growing media in ebb-and-flow system as a function of the electrical conductivity of nutrient solution and pot size <i>Krzysztof Kusnierek, Mette Thomsen, Anita Sønsteby, Tomasz Woznicki</i>
9:45	10:00	<b>O.8:</b> Wood fibre in pot plant culture; peat replacement up to 50% in volume? <i>Barbara Eveleens-Clark, Aat van Winkel, Chris Blok</i>
10:00	10:15	<b>O.9:</b> Primary mechanical modification to improve performance of Miscanthus as stand-alone growing media <i>Van Nguyen, Thorsten Kraska, Winona Winkler, Sercan Aydinlik, Ralf Pude</i>
10:15	10:30	Coffee break
10:30	10:45	
<b>Peat-related workshop by the International Peatland Society</b>		
10:45	11:00	<b>O.46:</b> If IPS did not exist, it would have to be invented <i>Marko Pomerants, IPS President</i>
11:00	11:15	<b>O.47:</b> The meaning of "Responsibly Produced Peat" in situations where peat is essential for growing media <i>Maureen Kuenen, Executive Officer at Foundation Responsibly Produced Peat</i>
11:15	11:30	<b>O.48:</b> Peatland distribution, GHG emissions and peat extraction in Germany - an analysis of the current situation and forecast of future development <i>Bernd Hofer, Hofer &amp; Pautz GbR, Chair of IPS Commission Peatlands and Environment</i>
11:30	11:45	<b>O.49:</b> Horticultural Peat: Enabler and Foundation of Growing Media <i>Asha Hinqorani, President of the Canadian Sphagnum Peat Moss Association</i>
11:45	12:00	Panel debate
12:00	12:15	
12:15	12:30	Lunch
12:30	12:45	
12:45	13:00	
13:00	13:15	

13:15	13:30	Poster pitches: P.21 - P.32
13:30	13:45	
13:45	14:00	<p><b>Policy-related workshop by the European Compost Network and Growing Media Europe. 'EU Fertilising Products Regulation – Opportunities and Challenges to place Growing Media and Soil Improvers on the European Market'</b></p> <p><b>O.42:</b> Exploring the New Fertilising Product Regulation (FPR) – the case of soil improvers and growing media <i>Jérémy Pinte, DG for Internal Market, Industry, Entrepreneurship and SMEs, Policy Officer</i></p> <p><b>O.43:</b> Opportunities and challenges for the manufacturers of growing media <i>Nele Ameloot, Growing Media Europe, Technical expert</i></p> <p><b>O.44:</b> Opportunities and challenges for the manufacturers of soil improver <i>Irmgard Leifert, European Compost Network and RETERRA Service GmbH, Technical expert</i></p> <p><b>O.45:</b> Conformity assessment procedures for waste derived organic materials under the new EU Fertilising Products Regulation <i>Wim Vanden Auweele, European Compost Network and Vlaco vzw, Technical expert</i></p> <p>Panel debate: Does the new EU Fertilising Products Regulation really contribute to the EU Circular Economy? <i>European Compost Network and Growing Media Europe</i></p>
14:00	14:15	
14:15	14:30	
14:30	14:45	
14:45	15:00	
15:00	15:15	
15:15	15:30	Coffee break
15:30	15:45	<p><b>Session 1 - Growing media and sustainable use of resources</b> <i>Chair: Ann Cuypers</i></p> <p><b>O.10:</b> Progress on the social responsibility journey of the Canadian horticultural peat industry <i>Stéphanie Boudreau, Marie-Claire LeBlanc, Paul Short</i></p> <p><b>O.11:</b> Waste materials-based substrates for ornamental plant production: technical and environmental aspects <i>Paola Arfaoli, Lapo Azzini, Alessandra Cincinelli, Monika Heřmáňková, Stefano Lucchetti, Cristina Macci, Grazia Masciandaro, Roberto Scodellini, Giancarlo Renella, Karel Waska, Francesco Paolo Nicese</i></p> <p><b>O.12:</b> Soilless Substrate Science: A North American needs assessment to steer soilless substrate research into the future <i>Jeb Fields, Jim Owen, Alexa Lamm, James Altland, Brian Jackson, Youbin Zheng, Loren Oki, Kathryn Fontenot, Jayesh Samtani, Benjamin Campbell</i></p>
15:45	16:00	
16:00	16:15	
16:15	16:30	Final summary & conclusions and award ceremony
16:30	16:45	
16:45	17:00	





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22-27 August 2021, Melle, Belgium

Start (CEST)	End (CEST)	Friday, 27 August 2021
9:00	12:00	<b>Next-Generation Sequencing Workshop:</b> "From species to digits: a workshop to analyze microbial communities in growing media and plants" <i>Caroline De Tender and Lisa Joos (ILVO/Ghent University)</i>
9:00	12:00	Optional tour organized by the European Compost Network and Vlaco