



III International Symposium on growing media, composting and substrate analysis

Milan, June 24-28, 2019



FINAL PROGRAM

Monday, 24 June

9:00-17:00 Registration

from 10:00 Poster set up (First Set: Monday and Tuesday sessions)

11:00-12:00 Welcome Brunch

12:00-12:20 Welcome Address Patrizia Zaccheo, *convener*, Osvaldo Failla, *DiSAA*, Jean-Charles Michel, *ISHS*, Gerald Schmilewski, *IPS*

12:20-13:00 **Opening Lecture:** Circular economy and nutrient recycling
Fabrizio Adani

Session: Young Mind Presentations - Chairmen: Bill Carlile and Jean Caron

13:00-13:15 Flexible polyurethane foam with sodium bentonite: Improving the properties of foams for use as a synthetic growing media
Harry Wright

13:15-13:30 Investigating the effect of organic growing media composition on microbial activity using fractional factorial design of experiment analysis
Danny Geelen

13:30-13:45 Assessing plant availability of ammonium stored in pumice by isotope dilution mass spectroscopy
Ambrogio Pigoli

13:45-14:00 Different *Miscanthus* genotypes as growing media in soilless tomato cultivation and cascade utilization
Van Nguyen

14:00-14:15 Stability assessment of neem-based compost using chemical, thermogravimetric and spectroscopic analyses
Bryan Smith

14:15-14:30 Nutrients recovery from aquaculture waste for use as fertilizer in soilless growth systems
Maha Ezziddine

14:30-14:45 Peat market in Europe: Evolution and climate relevance
Olivier Hirschler

14:45-15:00 Green application for an industrial by-product: aged *Eucalyptus globulus* bark based substrates
Catarina Chemetova

15:00-16:00 Coffee break & Poster session

Monday, 24 June

Session 1: Novel components and innovative processing of growing media - Chairman: Brian Jackson

- 16:00-16:15 Agricultural wastes-based substrates affect growth and flowering of geranium (*Pelargonium bicolor*)
Iftikhar Ahmad
- 16:15-16:30 Exploration of alternative growing media potential in strawberry production under Nordic conditions
Tomasz Woznicki
- 16:30-16:45 ReGrow4C: Reuse of spent growing media for circular cultivation of ornamentals
Bart Vandecasteele
- 16:45-17:00 Universal nitrate free nutrient substrates based on chemically modified natural clinoptilolites
Yauheni Kasandrovich
- 17:00-17:15 Evaluation of wood fiber as component of substrates for container nursery crops
Daniela Beretta
- from 17:45 City Center tour

Tuesday, 25 June

9:00-17:00 Registration

Session 2: Life in growing media - Chairman: Bart Vandecasteele

9:00-9:45 **Keynote** - Microbial life in sustainable and disease suppressive growing media - *Jane Debode*

9:45-10:00 Fungus gnats and growing media - *Reza Nemati*

10:00-10:15 Suppressive substrate as affected by substrate type and potassium phosphite in strawberry cultivation in tunnel - *Sammar Khalil*

10:15-10:30 Cocopeat based media for growing seedling of grafted tomato - *Triwidodo Arwiyanto*

10:30-11:30 Coffee break & Poster session

11:30-11:45 Tomato plants rather than fertilizers drive rhizosphere microbial community structure - *Oliver Grunert*

11:45-12:00 Testing of processes in growing media production on sanitation effectiveness with *Bacillus globigii* as a test organism - *Hans Verhagen*

12:00-12:30 **Group picture**

12:30-14:00 Lunch

14:00-14:15 **Young Mind awards**

Session 3: Advances in growing media characterization - Chairman: Jean-Charles Michel

14:15-14:30 Quantifying hydro-physical properties of growing media with the HYPROP and comparison with the DIN standard procedure *Uwe Schindler*

14:30-14:45 Mechanisms explaining the evolution of substrates` physical properties according to root development and irrigation management: a synthesis of the Ecol´eau Terreau project - *Jean-Charles Michel*

14:45-15:00 Designing rockets and growing media - *Andrew Watson*

15:00-15:15 Diversifying the market and lessening the reliance on single growing media raw materials for UK horticulture - *Barry Mulholland*

15:15-15:30 Relationship between particle size summation curves and the moisture characteristic curve for soilless substrates - *Jim Owen*

15:30-16:15 Coffee break

16:15-16:30 Overview and characterization of some North American and European wood substrates - *Brian Jackson*

16:30-16:45 Dewpoint hygrometry used to measure water potential of soilless substrates - *Jeb Fields*

16:45-17:00 Nutritional aspects in bioassays according to EN 16086-1 - *Ine Geuijen*

17:00-17:15 Presentation of City Life and Vertical Forest Projects

17:15-21:00 City Life and Vertical Forest Tour & Reception

Wednesday, 26 June - Field Day

TOUR A bus1

7:00	Departure
8:30-10:10	Fertil (growing media and compost producer) – refreshment <i>Calcinate (BG)</i>
11:30-12:30	Sempre Fresco (basil in soilless cultivation) <i>Guidizzolo (MN)</i>
12:40-14:20	Ferrari Costruzioni Meccaniche (vegetable farm equipment) Lunch (by Ferrari and Vivai Gremizzi) <i>Guidizzolo (MN)</i>
15:15-17:00	Vivai Gremizzi (horticultural nursery) – refreshment <i>Asola (MN)</i>
19:30	Arrival

TOUR B

7:00	Departure
9.15 -13:00	La Linea Verde (fresh-cut salads and chilled fresh ready soups company) - refreshment <i>Manerbio (BS)</i>
13.00-14:00	Lunch
15:15-16:45	Fertil (growing media and compost producer) – refreshment <i>Calcinate (BG)</i>
18:30	Arrival

TOUR A bus2

7:00	Departure
9:15-10:45	Vivai Gremizzi (horticultural nursery) – refreshment <i>Asola (MN)</i>
11:30-12:30	Soc. Agr. Porrini Flavio e Stelio (lettuce in open field) <i>Guidizzolo (MN)</i>
12:35-13:45	Lunch (by Ferrari Costruzioni Meccaniche and Vivai Gremizzi) <i>Guidizzolo (MN)</i>
14:00-15:00	Sempre Fresco (basil in soilless cultivation) <i>Guidizzolo (MN)</i>
16:30-17:45	Fertil (growing media and compost producer) – refreshment <i>Calcinate (BG)</i>
19:30	Arrival

Thursday, 27 June

8:30-17:00 Registration

8:30-10:00 Poster set up (Second Set: Thursday and Friday sessions)

Session 4: Biochar production and use in growing media - Chairman: Alessandro Pozzi

9:00-9:15 Development of alternative growing media with hydrochar and evaluation their hydro-physical quality - *Uwe Schindler*

9:15 - 9:30 Biochar as growing substrate alternative to peat for potted ornamentals - *Giancarlo Fascella*

9:30 - 9:45 Effect of different rates of plant -based biochar on the propagation and growth of Pines - *Henry A. Akintoye*

9:45-10:00 Nutrients in circular horticulture: changes in nutrient behaviour and adapted fertilization strategy for soilless cultivation - *Fien Amery*

10:00-10:15 Production and preliminary characterization of an innovative amendment by co-composting biochar with digestate from anaerobic digestion - *David Casini*

10:15-11:15 Coffee break & Poster session

Session 5: Compost production and use in growing media - Chairman: Massimo Centemero

11:15-11:30 Optimization of solid phosphate sludge composting with organic horticultural residues - *Khalid Azim*

11:30-11:45 Recycling wastes from Douro wine industry by composting - *Luis Miguel C.M. Brito*

11:45-12:00 Comparison of compost types for two varieties of tomato (*Solanum lycopersicum*) 'Alicante' and 'Golden Sunrise' effects on yield and fruit cracking
Trine Hvoslief-Eide

12:00-12:15 The organic matter content of low EC compost as a practical factor for its quality in growing media - *Adrie Veeken*

12:15-12:30 *Posidonia oceanica* based-compost and dredged sediments as growth substrate for ornamental plants – *Cristina Macci*

12:30-14:30 Typical Friuli Venezia Giulia lunch with brief ERSA FVG presentation

Session 6: State-of-the-art and future directions of GM industries - Chairman: Olli Reinikainen

14:30-15:00 Italian growing media market: size and characteristics - *Giovanni Minuto*

15:00-15:30 Growing media for food and quality of life in the period 2020-2050 - *Chris Blok*

15:30-15:50 Analysis of PEST and SCP of China growing media industry and future development - *Xianmin Meng*

15:50-16:10 Wood substrates in horticulture: Past, present, and future - *Brian Jackson*

16:10-16:30 **Awards sponsored by CIC, ICHAR and AIPSA**

16:30-17:00 Coffee break

17:00-18:30 ISHS Business meeting

19:30-23:00 Social Dinner at Villa Necchi

Friday, 28 June

9:00-12:00 Registration

Session 7: Traditional and new cultivation systems - Chairman: Stefania De Pascale

- 9:00-9:45 **Keynote** - Roles of indoor vertical farming in sustainable production of horticultural crops
Genhua Niu
- 9:45-10:00 Soiless production of drug-type *Cannabis sativa* L
Youbin Zheng
- 10:00-10:15 Effect of cooling root-zone temperature on growth, yield and nutrient uptake in cucumber grown in hydroponic system during summer season in cooled greenhouse
Muthir Seleh Al-Rawahy
- 10:15-10:30 Declining growth rate of lettuce (*Lactuca sativa* L.) due to nutrient imbalance in an EC-controlled recirculating hydroponic system
Helge Liltved
- 10:30-11:30 Coffee break & Poster session

Session 8: Water and mineral nutrition - Chairman: Chris Blok

- 11:30-11:45 Field production of strawberry fruit using growing media under different irrigation scheduling regimes
Dong Wang
- 11:45-12:00 Water and air balance in plant propagation cells
Paul Fisher
- 12:00-12:15 Nutrient management implications in the use of peat-free growing media for the cultivation of two ornamental herbaceous perennials
Daniele Massa
- 12:15-12:30 Improving the effect of hydrophilic polymer on water availability through injection in growing media
Jean Caron
- 12:30-12:45 Dolomitic lime rate effects on pH, available macro- and micro nutrient content, plant growth and plant nutrient content on peats of various degrees of decomposition
Munoo Prasad
- 13:00-13:15 Measurement and evaluation of hydraulic and chemical parameters of growing media for yield of ryegrass
Frank Eulenstein
- 13:15-14:15 Lunch

Session 9: Sustainability of Growing Media - Chairman: Youbin Zheng

- 14:15-14:30 The Canadian's peat moss industry: Progress on the social responsibility journey
Stéphanie Boudreau
- 14:30-14:45 Comparison of water, fertilizer and land use efficiency in four soil or stone wool based cultivation systems
Ep Heuvelink
- 14:45-15:00 Gas emissions from a soiless substrate at an ornamental production nursery
Bruno Pitton
- 15:00-15:15 Peat substitutes from renewable resources and landscape conservation materials
Katharina Leiber-Sauheitl
- 15:15-15:30 Dolomite and ferrous sulfate filter-layer reduces phosphorus leaching from pine bark container-substrate
Jacob Shreckhise
- 15:30-15:45 Symposium closure

