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RESEARCH

Conference

**XLIII ANNUAL
MEETING OF
THE EUROPEAN
SOCIETY FOR**

**NEW METHODS
IN AGRICULTURAL
RESEARCH**

Date and Location

**3.-6.9.2014
BOLZANO, ITALY**
—
**FREE UNIVERSITY
OF BOZEN - BOLZANO**
Faculty of Science and Technology

Conference Focus

*"Feeding the world: the
importance of sustainable
Agriculture and innovative
methods"*



unibz Fakultät für Naturwissenschaften und Technik
Facoltà di Scienze e Tecnologie
Faculty of Science and Technology



Thermo
SCIENTIFIC

Waters
THE SCIENCE OF WHAT'S POSSIBLE!

**The XLIII Annual Meeting
of the European Society
for New Methods in Agricultural Research**

Book of Abstracts

3rd - 6th September 2014

Free University of Bolzano
Faculty of Science and Technology Bolzano, Italy

Conference Program

Wednesday 3rd September 2014

18.00 – 21.00 *Registration and welcome reception*
Free University of Bolzano, Building "F", top floor & terrace

Thursday, 4th September 2014

Morning session: "Introduction to the conference" Room D1.02

9.00 – 10.00 *Registration and coffee break*

10.00 – 10.30 *Welcome by the organizers*

10.30 – 11.20 *Keynote*

Ecological soil function: Retention Properties influenced by Soil Development, Land-use and Management

Martin Gerzabek

University of Natural Resources and Applied Life Sciences, Vienna, Austria

11.20 – 12.10 *Keynote*

Classical and novel approaches for cereal quality improvement

Domenico Lafiandra

Department of Agriculture, Forests, Nature and Energy, Università della Tuscia, Viterbo, Italy

12.10 – 13.00 *Keynote*

Effect of climate changes on sustainability of animal production

Umberto Bernabucci

Department of Agriculture, Forests, Nature and Energy, Università della Tuscia, Viterbo, Italy.

13.00 – 14.30 Lunch

Afternoon session: "From Plant to Soil: innovative methods regarding the plant-soil system" Room D1.02

Chairmen: Athanasios Gertsis, Stefania Astolfi

14.30 – 14.50 TEM tomography reveals a three-dimensional reconstruction of the ultrastructural modifications occurring in *Cucumis sativus* mitochondria under Fe deficiency.

Gianpiero Vigani

Università degli Studi di Milano

14.50 – 15.10 Innovative applications of nanoparticles in agriculture

Stefano Grego

Università della Tuscia

15.10 – 15.30 Possibilities for International and National collaboration with International Atomic Energy Agency (IAEA) at the field of Plant Biology and Genetics and Soil Science: the First IAEA Regional Project RER/5/013 for the Central and Eastern Europe: "Evaluation of Natural and Mutant Genetic Diversity in Cereals Using Nuclear and Molecular Techniques" as the example

Anastasiya Zlatska

National Technical University of Ukraine

15.30 – 17.00 *Coffee Break and Poster Session*

- 17.00 – 17.20 Italian ryegrass for the phytoremediation of aqueous solutions polluted with terbuthylazine
Maria Luce Bartucca
 Dipartimento di Scienze Agrarie, Alimentari e Ambientali
 Università degli Studi di Perugia
- 17.20 – 17.40 Peculiarities of the interaction between soybean and *Bradyrhizobium japonicum* under drought stress
Viktorija Melnyk
 NAS of Ukraine
- 17.40 – 18.00 A specific approach in rehabilitation of heavy metals polluted coal mine overburden by growing vines (*Vitis vinifera* L.)
Vlado Licina
 University of Belgrade

Friday, 5th September 2014

Morning session: “From Soil to Plant: innovative methods regarding the soil-plant system” Room D1.02

Chairmen: Vlado Licina, Stefano Grego

- 9.30 – 9.50 Small scale floating-disk vegetable production: a solution for urban citizens
Athanasios Gertsis
 American Farm School
- 9.50 – 10.10 Synchrotron X-ray analytical techniques for iron (Fe) investigations in plant samples
Roberto Terzano
 Università degli Studi di Bari
- 10.10 – 10.30 Simulation of the evolution of the soil mobile potassium content in different soil and fertilizing conditions
Gheorghe Budoï
 University of Agronomic Sciences and Veterinary Medicine of Bucharest
- 10.30 – 11.45 *Coffee Break and Poster Session*
- 11.45 – 12.05 Use of *Trichoderma harzianum* T-22 as an effective antiviral agent against Cucumber mosaic virus (CMV)
Adriano Sofo
 Università degli Studi della Basilicata
- 12.05-12.25 Identification and diagnostics of plant pathogenic bacteria
Nataliya Punina
 INBI RAS
- 12.25-12.45 Impact of microbial preparations and sodding on the dynamics of agronomical benefit groups of microorganisms in the grapes rhizosphere
Nina Klymenko
 Institute of Agroecology and Environmental Management
- 12.45- 14.00 Lunch

Afternoon session: “Round Table”

- 14.00-15.00 Poster Session

- 15.00- 16.30 Round Table
Chair: Stefano Grego
Speakers: Vlado Licina, Luigi Lucini, Malgorzata Szczawinska, Anita Zamboni
- 20.30 Social Dinner at:
Parkhotel Laurin
 Via Laurin Straße 4, I - 39100 Bolzano Bozen
www.laurin.it

Saturday, 6th September 2014

Morning session: "Food and animal science: innovative methods regarding food products from the soil-plant and plant-soil system" Room D1.02

Chairmen: Matteo Scampicchio, Christian Huck

- 9.30 – 9.50 Comparison of dipping treatments and pulsed light on fresh cut apples by microcalorimetry
Marco Mason
 Faculty of Science and Technology
 Free University of Bolzano
- 9.50 – 10.10 Alps Food Authentication, Typicality, Traceability and Intrinsic Quality by a Novel Analytical Technologies Platform – Introduction of the EU-Project "ORIGINALP"
Christian Huck
 Institute of Analytical Chemistry and Radiochemistry CCB—Centre of Chemistry and Biomedicine
 Leopold-Franzens University Innsbruck
- 10.10 – 10.30 Evaluation of fruit quality and environmental biosafety of transgenic pear trees
Vadim Lebedev
 Russian Academy of Sciences
- 10.30 – 11.45 *Coffee Break and Poster Session*
- 11.45 – 12.05 In vitro effects of TCDD and PCB126 on iodothyronine secretion by chicken thyroid gland
Andrzej Sechman
 University of Agriculture in Krakow
- 12.05 – 12.25 Is ¹³⁷Cs radioactivity in forest berries a health hazard to humans?
Michael Pöschl
 Mendel University in Brno
- 12.25 – 12.45 The effect of temperature on survival rate of *Listeria monocytogenes* in yogurt
Malgorzata Szczawinska
 Warsaw University of Life Sciences
- 12.45 – 13.00 Closing remarks
- 12.45 – 14.00 Lunch

Sustainable agricultural practices and soil microbial diversity: the case of Mediterranean orchards

Sofo Adriano¹, Xiloyannis Cristos², Scopa Antonio¹, Crecchio Carmine³, Palese Assunta Maria²

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³ Dipartimento di Scienze del Suolo, della Pianta e degli Alimenti, University of Bari, Bari, Italy

Sustainable soil management of fruit orchards can have positive effects on both soils and crop yields due to increases in microbial biomass, activity and complexity. The aim of the present study was to investigate medium-term effects (12 yr) of two different management practices termed 'sustainable' (ST) and 'conventional' (CT) on soil microbial composition and metabolic diversity of a rainfed mature olive orchard in Southern Italy. ST included no-till, spontaneous self-seeding weeds (mainly graminaceous and leguminosae), and mulch derived from olive tree prunings, whilst CT was managed by frequent tillage and included severe pruning with residues removed from the orchard. Microbial analyses were carried out by culture-dependent methods (microbial cultures and Biolog[®]). Molecular methods were used to confirm the identification by light microscopy of the isolates of fungi and *Streptomyces*. A significant higher number of total culturable fungi and bacteria was found in ST. The number of fungal groups in ST was also significantly greater than in CT. Overall and substrate-specific Biolog[®] metabolic diversity indices of microbial communities and soil enzyme activities were greater in ST. The results demonstrate that soil microorganisms respond significantly to sustainable orchard management characterized by periodic applications of locally derived organic matter. This study confirms the need for Mediterranean orchards to encourage farmers to practice soil management based on organic matter inputs associated with zero tillage in order to improve soil functionality.