



WORKSHOP ON SOIL SUSTAINABILITY IN A BIO-BASED SOCIETY

Date: 26 to 28 February 2018

Objectives: a) to understand broad soil sustainability concepts, involving chemical, physical, and biological aspects related to crops used for bioenergy production, focusing on sugarcane; b) to develop integrated perspectives and to put sustainability concepts into practice.

Target public: post-graduate students, scientists and professionals working in bioenergy and other bio-based industries.

Number or participants: 30-50

Venue: Agronomic Institute of Campinas (IAC), Campinas, SP, Brazil

Organizers: Wim van der Putten, Heitor Cantarella, and Hans van Veen

Support: BE-Basic and IAC

Set-up: Every day there will be presentations followed by discussions, moderated by Hans van Veen. For every discussion, two of the course participants will be asked to make a detailed preparation of questions, also using two papers provided by the speaker, to promote a lively discussion. Then, in the second half of the afternoon, course participants will have discussions in small groups of approximately 5 persons to review the presentations of that day, and prepare for the next day, so that they will have clear expectations of the subjects to be presented.

Program:

26 Feb 2018 (Monday)

Overview of current practices and sustainability status in sugarcane production, comprising soil management and recycling of plant and industrial residues in view of an industry undergoing transformation due to mechanized harvesting and increasing demand for crop material for energy production.

8:30 – 12:00h:

- ✓ Rafaella Rossetto (APTA Piracicaba): Current practices in sugarcane production and residue management
- ✓ João Luis Nunes Carvalho (CTBE): straw management options in a changing industry
- ✓ Isabella C. de Maria (IAC): the challenge of soil conservation in sugarcane

13:30 – 17:00h

- ✓ Tsai Miu Sui (CENA/USP): Microbiology in sugarcane soils
- ✓ Newton La Scala Jr. (UNESP, FCAV): How sugarcane practices affect soil organic matter

Each speaker will indicate two papers which the students could use for the discussion

Group discussions: prepare conclusions on current practices in sugar cane production systems for bio-based economy purposes, formulate questions and challenges, and prepare expectations for the next day
(2 hours)

27 Feb 2018 (Tuesday)

Overview of basic science and concepts in soil ecology that relate to the various management issues of biomass production for a bio-based economy: soil biodiversity, soil ecosystem functions and promoting ecosystem multifunctionality.

8:30 – 12:00h:

- ✓ Mirjam Pulleman (Wageningen University): Linking soil biodiversity to soil physics and chemistry.
- ✓ Carlos Eduardo Cerri (ESALQ): Advances in our understanding of soil organic matter.
- ✓ Eiko Kuramae (NIOO): Advances in linking soil-borne microbiome to sustainability
- ✓ Arjen Biere (NIOO): Plant-microbe interactions: back to the roots and further

13:30 – 17:00h

- ✓ Paul Bodelier (NIOO): Greenhouse gas production by bio-based production systems

After each presentation Hans van Veen (moderator) will lead a brief discussion

Group discussions: prepare conclusions on how to apply novel scientific concepts and prepare discussions for the next day

28 Feb 2018 (Wednesday)

In the final day, we will explore the practical and ecological concepts from a broad and integrated perspective to evaluate how sustainability concepts may guide us towards sustainable soil management while developing a more bio-based economy

8:30 – 12:00h:

- ✓ Heitor Cantarella (IAC): Sugar cane production: The challenge of integrating soils and sustainability (including crop rotation and use of straw for 2nd generation bioethanol)
- ✓ Wim van der Putten (NIOO): Enhancing sustainability of land management by learning from nature
- ✓ Luís C. Schiesari (USP, Environmental management): Biodiversity and ecological impacts in sugarcane.

13:30 – 17:00h

- ✓ Patricia Osseweijer (TU-Delft): Combining industrial, ecological, and socio-economic research approaches to develop sustainable systems for producing biofuel for aviation: results from the BE-Basic Horizontal Integration Project
- ✓ Victor Campanelli (Agro Pastoral Paschoal Campanelli) – Personal view on the topics covered in the workshop; what are the gaps to application to the real world

After each presentation Hans van Veen (moderator) will lead a brief discussion

Group discussions on conclusions about novel perspectives for sustainability