

RELACS Webinar series March 2021-April 2021

Organic contaminants in recycled fertilizers and their fate in soil-plant systems: Knowledge gathering and discussion with organic stakeholders

Background

Traditional nutrient management in organic agriculture builds mainly on closed nutrient cycles between animal and plant production and on nitrogen inputs via biological nitrogen fixation. However, this often implies nutrient depletion in the long term. Permitted external inputs are therefore becoming increasingly important, especially for stockless farms, but they include contentious inputs such as rock phosphate and manures from conventional farms. With growing areas under organic production (e.g. EU's goal of 25% of farmland being under organic agriculture by 2030), **new sources of nutrients are needed** and can be potentially found in recycled fertilizers, provided they are clean, safe and in line with organic production principles.

While our understanding with respect to heavy metals is more advanced, **defining acceptable levels of organic pollutants** in waste streams and recycled fertilizers remains a challenge, in view of thousands of different substances and compounds used in society and agriculture. Besides organic pollutants such as dioxins and pesticides, emerging pollutants include pharmaceuticals, hormones and endocrines. In addition, (micro)plastics, pathogens and antibiotic resistance genes need to be monitored. While analytical methods are becoming increasingly sensitive, enabling detection of extremely low concentrations, knowledge on the **fate of organic pollutants in the environment** is scarce, hindering a **sound risk assessment**. In particular, the capacity of soils to degrade or immobilize pollutants needs to be understood and taken into account. Finally, risks and gains need to be balanced and remaining uncertainties managed in order to **decide on feasible options for closing nutrient cycles**.

Workshop description

FiBL is organizing this online workshop in the frame of the H2020 project RELACS (<https://relacs-project.eu>), which searches for alternative external inputs for organic plant and animal production.

The aims of this workshop are to

1. gather the current knowledge on organic pollutants in waste streams and recycled fertilizers as compared to accepted nutrient sources such as manures and composts
2. summarize evidence on the fate of organic pollutants in the environment, understand risk assessment approaches and identify knowledge gaps
3. present options for closing nutrient cycles between society and agriculture, with a focus on acceptance criteria for organic agriculture.

Participants

The workshop will bring together **researchers in the field of organic pollutants and stakeholders from the organic sector:**

- Scientists from the H2020 projects RELACS and Organic+
- Invited experts on organic pollutants, risk assessment and recycling solutions
- Stakeholders from organic farmer associations
- Interested students, scientists and organic farmers

Workshop organization

- Scientific board: Else Bünemann and Jakob Magid, RELACS WP3
- Organizational aspects: Stefanie Leu (FiBL)
- Registration to this address: kurse@fibl.org
- 5 dates à 2 h for invited presentations, followed by discussions (i.e. 10 h in total)
- Output: Synthesis paper written by RELACS WP3 + presenters
- Follow-up workshop with organic stakeholders during World Congress of Organic Agriculture in Rennes Sep 2021 (90 min workshop “Debating the future of nutrient management in organic farming”)

Registration

To register to the webinar series, please send an email to kurse@fibl.org

The Zoom Link will be sent some days before the Webinars.

Program

Wed March 3, 2021, 2-4 pm CET	Introduction: Setting the scene	Min	Speaker
	Welcome: aims and organizational aspects	5	Else Bünemann, FiBL
	Nutrient management in organic agriculture: principles, demand, challenges	20	Marie Reimer, Hohenheim University
	Recycling nutrients from society in organic farming in Denmark: Discussions and developments in the last 20 years	35	Jakob Magid, Copenhagen University
	Heavy metal contamination of agricultural soils: sources, fate and impact	35	Erik Smolders, KU Leuven
	Discussion	25	All participants
Thu March 11, 2021, 10- 12 am CET	Organic contaminants and other risks		
	Welcome and brief recap from day 1	10	Else Bünemann, FiBL
	Organic and emerging contaminants in waste streams, bioresources, behaviour in the soil-plant system and risk assessment	35	Stephen Smith, Imperial College London
	Fate and impact of microplastics in the environment	25	Moritz Bigalke, Bern University
	Sanitisation of sewage and organic waste	25	Annika Nordin, SLU
	Discussion	25	All participants
Wed March 17,	How to recycle nutrients from household wastes and the food industry		

2021, 2-4 pm CET	Welcome and brief recap from previous days	10	Else Bünemann, FiBL
	Anaerobic digestion: opportunities for nutrient recovery from food and other societal waste including effects on soil quality	25	Kurt Möller, Hohenheim University
	Effects of anaerobic digestion and composting on antibiotics and associated ecotoxicological assessments	20	Elke Bloem, Julius Kühn Institute
	Benefits and challenges of marine-derived fertilisers	20	Anne-Kristin Loes, Norsoek
	Nutrient recovery from digestates	20	Erik Meers, Gent University
	Discussion	25	All participants
Mon April 12, 2021, 14-16 am CEST	How to recycle nutrients from human excreta		
	Welcome and brief recap from previous days	10	Else Bünemann, FiBL
	Nutrient recovery from human excreta	25	Robin Harder, SLU
	Antibiotic resistance genes in waste streams, recycled fertilizers and associated risk assessment	20	Kristian Koefoed Brandt, Copenhagen University
	P recycling from sewage sludge ash	20	Lukas Egle, Wien
	Urine-based fertilizers	20	Kai Udert, Eawag
	Discussion	25	All participants
	Socioeconomy and final discussion		

Thu April 22, 2021, 10-12 am CEST	Welcome and brief recap from previous days	10	Else Bünemann, FiBL
	Life-cycle assessment of recycling technologies	25	Ludwig Hermann, ProMan
	Acceptability of inputs for EU organic production: legal base, major stakeholders and processes	30	Bernhard Speiser, FiBL, and Frank Oudshoorn, SEGES
	Cases for debate	10	Anne-Kristin Loes, Norsoek
	Discussion: Required system changes, acceptability of recycled nutrients in organic farming; knowledge gaps	35	All participants
	Final synthesis and wrap-up	10	Else Bünemann, FiBL, and Jakob Magid, UCPH