Low Impact climate smart vegetable production with reduced pesticide residues in food, soil and water

Welcome to the final seminar for the LowImpact project 8 December 2022

Current challenges in agricultural production practices include negative impacts on soil health, environmental and food safety. The LowImpact project have developed pesticide screening and biochar tools to reduce the impacts of potato and carrot production in Norwegian and Chinese soil and climate conditions. This seminar will present key results and recommendations from the LowImpact project alongside presentations of the current backdrop of science and regulations for pesticides, food and environmental safety in Europe.

PROGRAM

09:00-09:15: Welcome and short introduction about the LowImpact project, Marianne Stenrød, NIBIO

09:15-09:30: Opening speeches
Division Director Arne Hermansen, NIBIO Division for Biotechnology and plant health
Deputy Director Fang Tian, Department of international cooperation of IPPCAAS

Agriculture, pesticides, and food and environmental safety – the European regulatory and scientific backdrop

09:30-10:00: Assessment of the effect of pesticides on soil microorganisms, Prof. Fabrice Martin-Laurent, INRAE, UMR Agroecologie

10:00-10:30: Pesticide residue analysis for food safety in Europe, Prof. Amadeo Rodriguez Fernandez-Alba, University of Almeria, EU Reference laboratory for fruit and vegetables

15 min break

LowImpact - Lessons learnt for Chinese soils and climate

10:45-11:15: Degradation and effect of biochar on pesticides, Prof. Xingang Liu, IPP-CAAS

11:15-11:35: Methane and Nitrogen Cycling in Paddy Soil Mediated by Soil Microorganisms under pesticide Stress, Dr. Xiaohu Wu, IPP-CAAS

11:35-11:55: Recommendations and future prospects, Research professor Jihong Liu-Clarke, NIBIO & Prof. Xingang Liu, IPP-CAAS

12:00-13:00: LUNCH break

LowImpact - Lessons learnt and recommendations for Norwegian conditions

13:00-13:30: New screening tools for the assessment of fate of pesticides in soils in vegetable production, MSc. Marit Almvik, NIBIO

13:30-13:45: Modelling pesticide persistence in soil, Dr. Roger Holten, NIBIO

13:45-14:15: Production and characterization of corn cob biochar and its role in agronomy applications, Dr. Liang Wang, SINTEF ER

15 min break

14:30-15:00: Interactive effects of biochar and pesticides on GHG emission in soil, Dr. Christophe Moni, NIBIO

15:00-15:30: The short-term effects of pesticides and biochar amendment on active soil bacteria, Dr. Anders Aas, NIBIO

15:30-15:45: Concluding remarks

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THE PRESENTERS

Fabrice Martin-Laurent is Director of Research at the French National Institute for Agriculture, Food and Environment (INRAE). His areas of research include pesticides, antibiotics, and microbial ecotoxicology. He has expertise in the use of molecular microbiology tools for assessment of pesticides fate and effects in the soil microbes.

Amadeo Rodrigues Fernández-Alba is a professor in analytical chemistry at the University of Almeria, and head of the European Reference Laboratory for pesticide residues in fruit and vegetables. His research is focused on food and environmental analysis and he has expertise in the latest technologies and techniques for accurate pesticide monitoring to ensure food safety.

Xingang Liu is a professor at the Chinese academy for Agricultural Sciences, Institute for Plant Protection (IPP-CAAS) department of Pesticide sciences. His area of research includes pesticide residue analysis, pesticide fate studies and tools for pesticide remediation.

Xiaohu Wu is a professor at the Chinese academy for Agricultural Sciences, Institute for Plant Protection (IPP-CAAS) department of Pesticide sciences. His research is focused on the interactions between pesticides and soil microorganisms.

Jihong Liu Clarke is a research professor and coordinator for China relations at NIBIO. She is a molecular plant biologist with a research focus on plant derived vaccines and has a long standing collaboration with Chinese research institutes and universities with RCN-NSFC, Norwegian Ministry of Foreign Affairs and EU-China flagship H2020 funded projects.

Marit Almvik is a research scientist at NIBIO department for Pesticides and natural products chemistry. Her research is focused on the study of the fate of pesticides in the environment; their degradation and transport in soil and water, and to develop analytical methods for pesticides and their metabolites in soil and water using LC-MS/MS and LC-HRMS technology.

Roger Holten is a research scientist (PhD) at NIBIO department for Pesticides and natural products chemistry. His research is centered around the use of different exposure models to evaluate the risk of leaching, surface runoff or persistence of pesticides in soil in cold climate conditions.

Liang Wang is a research scientist (PhD) at SINTEF Energy Research department of Thermal energy. His expertise and research are focused on the production and characterization of biochar from different feedstocks for different dedicated applications

Christophe Moni is a research scientist at NIBIO department for Biogeochemistry and soil quality. His research focus is on studying and modeling GHG emissions from soil and responses to environmental conditions.

Anders Aas is a research scientist at NIBIO department for Biogeochemistry and soil quality. He is a molecular biologist with a research focus on exploring the composition of soil microbial communities and their response to stress factors.

Marianne Stenrød is a research manager and scientist at NIBIO department for Pesticides and natural products chemistry. Her research is focused on pesticide exposure and effects in soil and water in cold climate conditions.