

開催案内

東北大学大学院農学研究科

附属複合生態フィールド教育研究センター

第 15 回国際シンポジウム 「生物間相互作用と持続的農業生産」

15th International Symposium on Integrated Field Science Biological Interactions for Sustainable Agriculture

日時：2018 年 3 月 13 日～15 日

場所：東北大学大学院農学研究科（青葉山コモンズ）第一講義室
（13・14 日 シンポジウム、15 日 エクスカーション）

主催：東北大学大学院農学研究科附属複合生態フィールド教育研究センター

共催：東北大学大学院農学研究科・食と農免疫国際教育研究センター（CFAI）、同・生物多様性応用科学センター、信州大学・菌類・微生物ダイナミズム創発研究センター（CFMD）

後援：菌根研究会

東北大学・複合生態フィールド教育研究センターは、農学研究科と連携して、複合的視野から総合的なフィールド研究の展開を目指しています。その成果の国際的な発信と国際的な共同研究の展開のために、国内外の研究者を招へいして国際シンポジウムを開催しています。

本年度は、持続的な農業生産から見た生物間相互作用とその意義について、シンポジウムを開催します。生物間相互作用が生態系機能（多様性・物質循環）の駆動力となっており、その機能を活用することによって農業生産の持続性を高めることができると考えられています。そこで、本シンポジウムでは、第 1 部では、作物根に共生するアーバスキュラー菌根菌の機能・多様性などの土壌微生物を巡る生物間相互作用と持続的農業について、第 2 部では、環境へのインパクトを低減した持続的水稲栽培について、国内外の研究者に講演していただきます。また、関連する研究成果のポスター発表もあります。

是非、ご参加ください。参加費は無料です。

13 日夜には、仙台市内において **Welcome Reception** を予定しています（参加費 4 千円程度）。**Reception** への参加ご希望の方は 3 月 2 日までに、齋藤までご連絡ください。

シンポジウム実行委員長 齋藤雅典
複合生態フィールド教育研究センター 教授

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東北大学大学院農学研究科

附属複合生態フィールド教育研究センター

第15回 国際シンポジウム「生物間相互作用と持続的農業」

15th International Symposium on Integrated Field Science

**“Biological Interactions
for Sustainable Agriculture”**



March 13 – 14, 2018

Aobayama Commons, Lecture Room No.1

Tohoku University, Sendai, Japan

15th International Symposium on Integrated Field Science “Biological Interactions for Sustainable Agriculture”

Date: March 13-15, 2018

Venue: Graduate School of Agricultural Science, Tohoku University
(Aobayama campus), Sendai city, Miyagi, Japan

Sponsor and Organizer: Field Science Center, Graduate School of Agricultural Science, Tohoku University

Co-sponsors: International Education and Research Center for Food and Agricultural Immunology (CFAI), Applied Biodiversity Center, Graduate School of Agricultural Science, Tohoku University
Research Center for Fungal and Microbial Dynamism, Shinshu University

Corresponding organizer: Prof. Masarnori Saito
Laboratory of Environmental Crop Science
Field Science Center

Cover Photo: Spores of arbuscular mycorrhizal fungi
isolated from Lahar soil, Philippines (M. Saito)

Program

March 13 (Tue) (13:00 – 17:40)

11:00~		Registration
13:00	Makoto OSADA (Director of Field Science Center, Tohoku University)	Welcome address
13:10	Masanori SAITO (Field Science Center, Tohoku University)	Perspectives of the symposium
Part 1: Function and management of soil microorganisms in agro-ecosystems with special reference to arbuscular mycorrhizal fungi		
13:20	Jan JANSÁ (Institute of Microbiology, Academy of Sciences of the Czech Republic)	Utilization of organic nitrogen by arbuscular mycorrhizal hyphae in soil - zooming into the hyphosphere microbiome
13:50	Zakaria SOLAIMAN (School of Agriculture and Environment, University of Western Australia)	Use of biochar for sustainable agriculture
14:20	Yoshihiro KOBAYASHI (NARO Hokkaido Agric. Res. Cent.)	Toward the high-resolution functional analysis of arbuscular mycorrhizal symbiosis in field crops
14:50		Coffee break & Poster preview
15:20		Lightning talk for poster presentation
15:40	Baodong CHEN (Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences)	The role of AM symbiosis in plant adaptation to drought stress
16:10	Katsuharu SAITO (Shinshu University)	Molecular mechanisms underlying P translocation and metabolism in arbuscular mycorrhizal fungi
16:40	Turgut Yigit AKYOL (Graduate School of Life Science, Tohoku University)	Effect of Arbuscular Mycorrhizal Fungi Inoculation on the Root Fungal and Bacterial Communities of Bunching Onion
17:10	Daniel PÉREZ (Agrocode Bioscience S.L., Spain)	Application of the ultimate arbuscular mycorrhizal inoculant MYCOGEL® in Japan: results and prospects

*Welcome reception will be held in the evening on March 13.

March 14 (Wed) (9:30 – 13:00)

9:30 Poster presentation

Part 2: Frontiers of sustainable rice production system

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|-------|----------------|--|
| 10:30 | Lixiao NIE | The Possibility of Replacing Puddled Transplanted Flooded Rice with Direct-seeded rice in Central China: A review
(Huazhong Agricultural University) |
| 11:00 | Ryosuke TAJIMA | Root phenotyping with root modeling: towards sustainable rice production
(Field Science Center, Tohoku University) |
| 11:30 | Sugihiro ANDO | Analysis of disease-suppression effect of microorganisms included in nursery soils for organic farming of rice
(Graduate School of Agricultural Science, Tohoku University) |
| 12:00 | Toyoaki ITO | Recovery of tsunami-affected paddy soil using calcium materials for sustainable agriculture
(Field Science Center, Tohoku University) |
| 12:30 | Masanori SAITO | Closing remark |

March 15 (Thu)

Field trip (Nature and agriculture around Sendai city, Kawatabi Field Science Center)

Poster session

- P1 Mengjia FENG, Chika TADA and Ryo SUGAWARA
Methane fermentation of organic waste with different C/N ratios
- P2 Ayako FUKUNAGA ,Maki Nishikawa and Mari SASANUMA
Effect of arbuscular mycorrhizal fungi application on Welsh Onion growth and yield
- P3 Soh FURUYA, Chinatsu YONEZAWA, Naoki ISITSUKA and Shoichiro KOJIMA
An Experimental Study of Crop Discrimination Using Pi-SAR2 Data
- P4 Shintaro HARA and Masanori SAITO
Release of inorganic phosphate from Ferric phytate by bacteria isolated from arbuscular mycorrhizal fungal hyphosphere
- P5 Issei KAWAMURA, Daiki SAITO, Ayumi SADAIKE, Takayuki NAKAJIMA, Toyoaki ITO
Effect of mix cropping of determinate and indeterminate soybean lines on canopy structure in Kawatabi Field center in 2017
- P6 Wataru MATSUZAKI, Toru UNO, Ryosuke TAJIMA, Masanori SAITO and Toyoaki ITO
Environment-friendly Rice Cultivation with Reduction of Pesticide and Chemical Fertilizer Usage in Katsurao Village in Fukushima Prefecture, Japan
- P7 Yuto NAKANO, Wataru MATSUZAKI, Toru UNO, Ryosuke TAJIMA, Masanori SAITO and Toyoaki ITO
The effect of three major insecticides applied in nursery boxes on terrestrial arthropods in paddy fields of Miyagi Prefecture, Japan
- P8 Kensuke OHSHIMA, Toru UNO, Ryosuke TAJIMA, Toyoaki ITO and Masanori SAITO
Growth medium for seedling production of arbuscular mycorrhizal fungi-based cultivation of Welsh onion
- P9 Cristiano Dela PICCOLLA, Etelvino Henrique NOVOTNY, Ryosuke TAJIMA and Masanori SAITO
Effect of biochar pyrolysed at different temperatures on plant-AM fungi symbiosis in a soil with low phosphorus content
- P10 Daiki SAITO, Momoko OGAWA, Issei KAWAMURA, Ayumi SADAIKE, Koki HOMMA, Takayuki NAKAJIMA, Toyoaki ITO and Yoshihisa SUYAMA
Effect of Mix Cropping of Determinate and Indeterminate Lines on Sink-Source Balance in Soybean Grown in Kawatabi Field Center
- P11 Risa SUEKI, Toru UNO, Ryosuke TAJIMA, Toyoaki ITO and Masanori Saito
The relationship between seedling quality and root system of rice seedling in organic farming analyzing with root modeling
- P12 Kyoko SUGA, Toru UNO, Ryosuke TAJIMA, Toyoaki ITO and Masanori Saito
Analysis of differences in rice panicle structure between organic and conventional farmings using image analysis technique
- P13 Takae SUZUKI, Toru UNO, Ryosuke TAJIMA, Toyoaki ITO and Masanori SAITO
Optimum level of soil available phosphorus for AMF inoculation to Welsh onion in non-allophanic Andosol
- P14 Toru UNO, Ryosuke TAJIMA, Toyoaki ITO and Masanori SAITO
Effectiveness of winter-flooding in organic rice farming and some relating management practices
- P15 Weiqin WANG, Ye TAO and Lixiao NIE
Lower global warming potential and higher yield of wet direct-seeded rice in Central China
- P16 Tomohiro WATANABE, Toru UNO, Ryosuke TAJIMA, Toyoaki, ITO and Masanori SAITO
The relationship between deep rooting and nitrate leaching of wheat in subsoil acidity



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