

Presenter: **Rocco Addorisio** - Correspondence: Silvia Coderoni <scoderoni@unite.it>

Stakeholders' needs and barriers to adoption of advanced digital tracking tools (40835)

Silvia Coderoni, Rocco Addorisio, Nicola Casolani, Emilio Chiodo, Giulia Maesano, Maria Angela Perito, Maurizio Canavari

Presenter: **Yasamin Afrasiabian** - Correspondence: Yasamin Afrasiabian <yasamin.afraziabian@tum.de>

Machine learning based prediction of soil total nitrogen by using hyper-spectral data in laboratory (40490)

Yasamin Afrasiabian, Vijhay Krissna Mahenthren, Kang Yu

Presenter: **Ana Aizpurua** - Correspondence: Ana Aizpurua <aaizpurua@neiker.eus>

Does the use of multi-year data improve wheat yield prediction? (40611)

Ana Aizpurua, Ander Castellón, Asier Uribeetxebarria

Presenter: **Gianluca Allegro** - Correspondence: Gabriele Valentini <gabriele.valentini4@unibo.it>

A novel fruit-zone cooling system to face multiple summer stress in Pignoletto cv. (40782)

Gabriele Valentini, Gianluca Allegro, Chiara Pastore, Riccardo Mazzoleni, Massimo Noferini, Ilaria Filippetti

Presenter: **Christian Andreasen** - Correspondence: Christian Andreasen <can@plen.ku.dk>

Site-Specific Yield Prediction of Red Fescue (*Festuca rubra* L.) (40493)

Christian Andreasen, Jesper Rasmussen, Zahra Bitarafan

Presenter: **Dionisio Andujar** - Correspondence: Dionisio Andujar <d.andujar@csic.es>

Development of an On-line Object Detection Neural Network for weed detection in Tomato Crops (40494)

Hugo Moreno, Juan López-Correa, Angela Ribeiro, Dionisio Andújar

Presenter: **Vita Antoniuk** - Correspondence: Vita Antoniuk <vita.antoniuk@agro.au.dk>

Enhancing nitrogen management through remote sensing and self-driving robots for precise nitrogen application to reduce leaching (40709)

Vita Antoniuk, Jingru Yin, Kiril Manevski, Mathias Neumann Andersen, Davide Cammarano

Presenter: **Abdullah Al Araf** - Correspondence: Abdullah Al Araf <arafalabdullah3800@gmail.com>

Farmers Friendly Digital Portable Soil Testing Device (40675)

Abdullah Al Araf, Rahat Uddin, Rezaul Khan, Muhammad Arshadul Hoque, MD Kamruzzaman

Presenter: **Amanda Ashworth** - Correspondence: Amanda Ashworth <Amanda.Ashworth@usda.gov>

Tractor Guidance Improves Environmental and Economic Gains for Pasture and Smallholder Farmers (40885)

Amanda Ashworth, Phillip Owens, Tulsı Kharel, Michael Popp

Presenter: **Beatrice Baldoni** - Correspondence: Beatrice Baldoni <beatrice.baldoni@hotmail.it>

Legal challenges about the use of drones in PA (40879)

Beatrice Baldoni

Presenter: **Lorenzo Barbanti** - Correspondence: Lorenzo Barbanti <lorenzo.barbanti@unibo.it>

Soil prospection and aerial imagery in management zone delineation in a hazelnut grove in Italy (40534)

Roberta Martelli, Vincenzo Civitarese, Lorenzo Barbanti, Abid Ali, Giulio Sperandio, Andrea Acampora, Davide Misturini, Alberto Assirelli

Presenter: **José M. Bengochea-Guevara** - Correspondence: Angela Ribeiro <angela.ribeiro@csic.es>

Small robot for localized spraying using ISOBUS protocol (40667)

José M. Bengochea-Guevara, Fernando Jimenez-Pinto, Dionisio Andújar, Héctor Montes, Laura Garrido-Rey, Angela Ribeiro

Presenter: **Veronika Beranová** - Correspondence: Veronika Beranová <veronika.beranova@uniba.sk>

Monitoring of insect pests and their interactions with the environmental conditions in vineyards (40599)

Veronika Beranová, Rita Ábrahám, Adam Šupčík

Presenter: **Francesco Bettucci** - Correspondence: Francesco Bettucci <francesco.bettucci@gmail.com>

Working times classification through CAN-BUS data analysis (40891)

Francesco Bettucci, Marco Sozzi, Alberto Carraro, Qi Gao, Francesco Marinello, Luigi Sartori

Presenter: **Subodh Bhandari** - Correspondence: Subodh Bhandari <sbhandari@cpp.edu>

Autonomous coordination between UAVs and UGVs for weed detection and removal (40755)

Subodh Bhandari, Amar Raheja, Noah Renella, Rick Ramirez, Dennis Ureyu, Joshua Samuel

Presenter: **Alessandro Biglia** - Correspondence: Massimiliano Varani <massimiliano.varani@unibo.it>

Preliminary Study for the Development of Variable-Tillage Implements for Precision Farming (40833)

Massimiliano Varani, Michele Mattetti, Alessandro Biglia, Lorenzo Comba, Davide Ricauda Aimonino

Presenter: **Jose Blasco** - Correspondence: Jose Blasco <blasco_josiva@gva.es>

40852 - Allometric relationships for biomass estimation of persimmon trees using a field robot, LiDAR and photogrammetry (40852)

Alejandro Rodríguez, Morales Julia, Beatriz Rey, Cubero Sergio, Quiñones Ana, Blasco Jose

Presenter: **Eric Bönecke** - Correspondence: Eric Bönecke <boenecke@igzev.de>

Yield and texture based management zones in a heterogeneous Old Morainic landscape (40729)

Eric Bönecke, Ingmar Schröter, Swen Meyer, Charlotte Kling, Sebastian Vogel, Sandra Post, Eckart Kramer, Jörg Rühlmann

Presenter: **Betty Bonnardel** - Correspondence: Betty Bonnardel <betty@farmer-charlie.com>

Data and Connectivity to Foster Smallholder and Urban Farming. Farmer Charlie (40601)

Betty Bonnardel, Gabriella Cursoli

Presenter: **Irene Borra-Serrano** - Correspondence: Irene Borra-Serrano <irene.borra@ica.csic.es>

Evaluation of a low-cost drone sensor to discriminate water stress levels in ornamental plants. (40716)

Irene Borra-Serrano, José M. Peña, Joe M. Maja, James S. Owen, James Robbins, Ana I. de Castro

Presenter: **Thirimachos Bourlai** - Correspondence: George Vellidis <yiorgos@uga.edu>

Developing a continuum of education and training pathways in integrative precision agriculture (40715)

George Vellidis, Thirimachos Bourlai, Jaime Camelio, Chris Rhodes, Harald Scherm

Presenter: **Klara Bradacova** - Correspondence: Klara Bradacova <klara.bradacova@uni-hohenheim.de>

Inoculation with biostimulants for improved plant performance under stress conditions (40870)

Klara Bradacova, Markus Goebel, Markus Weinmann, Guenter Neumann, Torsten Mueller

Presenter: **Vito Buono** - Correspondence: Vito Buono <buono@sys-man.it>

E-Crops DSS: software architecture, technologies, main functions and examples of application (40894)

Vito Buono, Michela Del Prete, Emiliana Del Prete, Giulio D'Amato, Mariadomenica Corsi, Piero Toscano, Filippo Salvatore Di Gennaro, Margherita De Peppo, Francesco Fabiano Montesano, Piero Manna, Beniamino Gioli

Presenter: **Maria Cabrera Dengra** - Correspondence: Maria Cabrera Dengra <maria.cabden@gmail.com>

Machine Learning regression for Leaf Nitrogen Content Prediction throughout the entire lifecycle of Sugarbeet crops in Spain (40836)

Maria Cabrera Dengra, Laura Moreno, Rafael Fortes, Feliu Serra, Carlos Ferraz, Juan Manuel Arroyo, Alejandro Mendizabal

Presenter: **Luca Camanzi** - Correspondence: Luca Camanzi <luca.camanzi@unibo.it>

Blockchain Implementations in Precision Agriculture (40814)

Sina Ahmadi Kaliji, Luca Camanzi, Ashkan Pakseresht, Massimiliano Fantini

Presenter: **Jorge A. Cardona-Gil** - Correspondence: Jorge A. Cardona-Gil <jorgeandres.cardona@upb.edu.co>

Extended Classroom in Precision Agriculture as a Tool for Engineering Education (40515)

Jorge A. Cardona-Gil, Marisol Osorio, Carlos A. Hincapié, David Vallejo-Gómez

Presenter: **Patricia Chueca** - Correspondence: Patricia Chueca <chueca_pat@gva.es>

Importance of Unmanned Aerial Vehicles Settings for Spray Bait Treatments on Citrus Orchards (40786)

Patricia Chueca, Alberto Fonte, Roberto Beltrán, Héctor Izquierdo, Jaime Cuquerella, Cruz Garcerá

Presenter: **Luis Conceição** - Correspondence: Luis Conceição <luis_conceicao@ippportalegre.pt>

Efficiency of a smart spraying technology in a fodder crop production (40743)

Luis Conceição, Luis Silva, Luis Loures, Susana Dias, Benvindo Maças

Presenter: **Ana I. de Castro Megías** - Correspondence: Ana I. de Castro Megías <ana.decastro@csic.es>

DIGINVASIVE: a digital system to map invasive weed plants (40736)

Ana I. de Castro, Gustavo A. Mesías-Ruiz, Josep María Llenes, José Dorado, Jordi Recasens, Joe M. Maja, José Manuel Peña

Presenter: **Daniel Eberz-Eder** - Correspondence: Daniel Eberz-Eder <daniel.eberz@dlr.rlp.de>

Resilient Smart Farming a conceptual and technological opportunity to strengthen resilience (40603)

Daniel Eberz-Eder, Franz Kuntke, Gerwin Brill

Presenter: **Hansanee Fernando** - Correspondence: Steve Shirtliffe <steve.shirtliffe@usask.ca>

Quantifying within-field spatial variability in Canola Flowering for Yield Estimation (40699)

Hansanee Fernando, Thuan Ha, Kwabena Nketia, Steve Shirtliffe

Presenter: **Matteo Francia** - Correspondence: Matteo Francia <m.francia@unibo.it>

Data Models in Precision Agriculture: From IoT to Big Data Analytics (40799)

Matteo Francia, Matteo Golfarelli

Presenter: **Qi Gao** - Correspondence: Qi Gao <qj.gao@studenti.unipd.it>

A Processing Method for Adhesive Droplets on Images of Water-sensitive Papers (40855)

Qi Gao, Marco Sozzi, Alberto Carraro, Alessandro Zanchin, Francesco Bettucci, Francesco Marinello

Presenter: **Nikolaos Georgiadis** - Correspondence: Nikolaos Georgiadis <georgiadis@augmenta.ag>

Multispectral camera system performing real-time VRA applications toward sustainable wheat production (40563)

Nikolaos Georgiadis, Vlasis Maggidis, Christina Vogiatzi, Konstantinos Papachristos, Evangelia-Maria Giatsiou, Christos Cavalaris, Christos Antonopoulos

Presenter: **Christian Germain** - Correspondence: Cécile Laurent <cecile@fruitionsciences.com>

Complementarity between manual measurements and image analysis for grape yield estimation. (40573)

Cecile Laurent, Aymeric Deshayes, Keresztes Barna, Da Costa Jean-Pierre, Thibaut Scholasch, Christian Germain

Presenter: **Maddie Grady** - Correspondence: Maddie Grady <maddie.grady@planet.com>

Assessment of high cadence remote sensing data for providing phenology of key crops in Germany (40900)

Maddie Grady, Akhil Singh Rana, Tim Davis, Caglar Senaras, Annett Wania, Rasmus Houborg, de Jeu Richard

Presenter: **John Grove** - Correspondence: John Grove <jgrove@uky.edu>

Ongoing Qualitative Observations and Field Scale Maize Yield Prediction (40764)

John Grove, Eugenia Pena-Yewtukhiw

Presenter: **Emily Guest** - Correspondence: Emily Guest <emily.guest@adas.co.uk>

New methods for rapidly measuring the effect of agronomic treatments on grass growth (40642)

Emily Guest, Katie Evans, Ben Hockridge, Katie Hammersley, Pete Berry

Presenter: **Thuan Ha** - Correspondence: Thuan Ha <thuan.ha@usask.ca>

Sub-field Scale Soil Salinity Prediction using Machine Learning Algorithms with Remotely Sensed Data in the Prairie Area of Saskatchewan, Canada. (40738)

Thuan Ha, Kwabena Nketia, Hansanee Fernando, Eric Johnson, Steve Shirliffe

Presenter: **Sara Heshmati** - Correspondence: Sara Heshmati <Sara.heshmati@uni-hohenheim.de>

Site-specific nitrogen management in winter wheat (40765)

Sara Heshmati, Emir Memic, Simone Graeff-Hoenninger

Presenter: **Clémence Huck** - Correspondence: Clémence Huck <clemence.huck@inrae.fr>

Assessing the environmental footprint of digital agriculture: research perspectives (40410)

Clémence Huck, Alexia Gobrecht, Thibault Salou, Eleonore Loiseau, Véronique Bellon-Maurel

Presenter: **Camilo Ignacio Jaramillo Barrios** - Correspondence: Camilo Ignacio Jaramillo Barrios <cijaramillo@agrosavia.co>

Efficient site-specific management approach using multispectral, soil, and rice based cropping data (40903)

Camilo Ignacio Jaramillo Barrios, Sofiane Ouazaa, Nesrine Chaali, Oscar Barrero Mendoza

Presenter: **Janusz Krupanek** - Correspondence: Janusz Krupanek <j.krupanek@ietu.pl>

Eco-innovative weeding with laser. New oppportunities for improving sustainability in agriculture (40663)

Janusz Krupanek, Beata Michaliszyn-Gabryś, Wanda Jarosz

Presenter: **Kaylie Krys** - Correspondence: Kaylie Krys <kmk806@usask.ca>

Determining What Counts: Applying UAV imagery to estimate canola emergence (40691)

Kaylie Krys, Steve Shirtliffe, Erik Andvaag, Ian Stavness, Anjika Attanayake, Eric Johnson, Hema Duddu

Presenter: **Matteo Landolfo** - Correspondence: Matteo Landolfo <matteo.landolfo6@unibo.it>

Machine Learning image classifier: autonomous fertilization management of indoor baby leaf lettuce (40575)

Matteo Landolfo, Vito Cerasola, Giuseppina Pennisi, Francesco Orsini

Presenter: **Pamela Lattanzi** - Correspondence: Pamela Lattanzi <pamela.lattanzi@unimc.it>

The aerial application of pesticides by drones: challenges and regulatory issues (40884)

Pamela Lattanzi, Serena Mariani

Presenter: **Bernat Lavaquiol** - Correspondence: Bernat Lavaquiol <bernat.lavaquiol@udl.cat>

Uncertainty analysis of a LiDAR-based MTLs point clouds using a high-resolution ground-truth (40731)

Bernat Lavaquiol, Jordi Llorens, Ricardo Sanz, Àlex Escolà

Presenter: **Seongkyu Lee** - Correspondence: Seongkyu Lee <geoslegend@gmail.com>

Development of a prototype mobile app for crop weight estimation using AI techniques (40911)

Seongkyu Lee, Seungyeon Hong

Presenter: **Elisabetta Leo** - Correspondence: Elisabetta Leo <elisabetta.leo@si-ita.it>

On the use of the driver-in-the-loop simulator approach to demonstrate the benefits of precision agriculture (40565)

Elisabetta Leo, Claudio Maroni, Marco Pezzola, Carlo Bisaglia, Maurizio Cutini, Elio Romano

Presenter: **Vlasios Maggidis** - Correspondence: Vlasios Maggidis <vlasias@augmenta.ag>

Optimal input efficiency in cotton using multispectral camera system performing real-time VRA (40564)

Vlasios Maggidis, Nikos Georgiadis, Christina Vogiatzi, Konstantinos Papachristos, Evangelos Adamopoulos, Evangelia-Maria Giatsiou, Karamoutis Christos, Kavalaris Christos

Presenter: **Bijesh Maharjan** - Correspondence: Bijesh Maharjan <bmaharjan@unl.edu>

Cropland Reference Ecological Unit for Comparative Soil Studies (40455)

Bijesh Maharjan, Saurav Das

Presenter: **Joe Mari Maja** - Correspondence: Joe Mari Maja <jmaja@clermson.edu>

Development of a new Cotton Defoliation Sprayer using Unmanned Ground Vehicle (40854)

Joe Mari Maja, Jyoti Neupane, Matthew Cutulle, Michael Marshall, Jun Luo, Gilbert Miller, Edward Barnes

Presenter: **Paweł Majewski** - Correspondence: Paweł Majewski <pawel.majewski@pwr.edu.pl>

A Non-invasive Method of Monitoring the Growth of Individual Melons using UAVs and Machine Learning (40479)

Paweł Majewski, Katarzyna Adamczewska-Sowińska, Józef Sowiński, Jacek Reiner

Presenter: **José A. Martínez-Casasnovas** - Correspondence: José A. Martínez-Casasnovas <joseantonio.martinez@udl.cat>

Low-cost terrestrial photogrammetry for orchard sideways 3D reconstruction (40753)

José A. Martínez-Casasnovas, Miquel Rosell-Tarragó, Joan R. Rosell-Polo, Ricardo Sanz, Eduard Gregorio, Jordi Gené-Mola, Jordi Llorens, Jaume Arnó, José M. Plata, Alexandre Escolà

Presenter: **Virginia Maß** - Correspondence: Virginia Maß <vmass@atb-potsdam.de>

Development of a high-throughput monitoring system for fire blight in fruit orchards (40712)

Virginia Maß, Pendar Alirezazadeh, Johannes Seidl-Schulz, Matthias Leipnitz, Eric Fritzsche, Martin Geyer, Michael Pflanz, Stefanie Reim

Presenter: **Riccardo Mazzoleni** - Correspondence: Riccardo Mazzoleni <riccardo.mazzoleni2@unibo.it>

Innovative proximal soil moisture sensor for supporting irrigation scheduling in a walnut orchard (40832)

Riccardo Mazzoleni, Silu Fu, Stefano Gianessi, Gabriele Baroni

Presenter: **Jonathan McFadden** - Correspondence: Jonathan McFadden <jonathan.mcfadden@usda.gov>

Facilitating Economic Analyses of Digital Agriculture: The Role of National Statistical Offices (NSOs) and Data Collection at Scale (40698)

Jonathan McFadden

Presenter: **Francisco Javier Mesas-Carrascosa** - Correspondence: Francisco Javier Mesas-Carrascosa <fjmesas@uco.es>

Detection of Conyza spp in a hedgerow olive orchard by deep learning convolutional neural networks (40787)

Fernando Juan Pérez-Porras, Jorge Torres-Sánchez, Francisca López-Granados, Francisco Javier Mesas-Carrascosa

Presenter: **Gustavo Mesías-Ruiz** - Correspondence: Gustavo Mesías-Ruiz <gmesias@ica.csic.es>

Cognitive computing for classification of six weed species in tomato and maize crops. (40641)

Gustavo Mesías-Ruiz, José Dorado, de Castro Ana, José Peña

Presenter: **Gabor Milics** - Correspondence: Gabor Milics <milics.gabor@uni-mate.hu>

Data fusion for the decision-making process for a digitized experimental farm in Hungary (40898)

Gabor MILICS, Istvan Mihaly KULMANY, Marton VONA, Csaba CENTERI, Sandor ZSEBO, Viktoria VONA

Presenter: **Martin Mittermayer** - Correspondence: Martin Mittermayer <martin.mittermayer@tum.de>

Application of precision farming technologies in organic farming (40704)

Martin Mittermayer, Kurt Heil, Johannes Schuster, Ludwig Hagn, Kurt-Jürgen Hülsbergen

Presenter: **Davide Modina** - Correspondence: Davide Modina <davide.modina@unimi.it>

VARIABLE RATE DRIP IRRIGATION IN VINEYARD: A CASE OF STUDY IN FRANCIACORTA AREA. (40644)

Davide Modina, Francesca Schiavoni, Enrico Rivetti, Martino Bolognini, Davide Bianchi, Gabriele Cola, Lucio Brancadoro

Presenter: **Francesco Morari** - Correspondence: Stefano Gobbo <stefano.gobbo.5@phd.unipd.it>

In-season crop model autocalibration for variable rate nitrogen fertilization in winter wheat (40781)

Stefano Gobbo, Francesco Morari, Roberto Ferrise, Massimiliano De Antoni Migliorati, Lorenzo Furlan, Luigi Sartori

Presenter: **francesco morari** - Correspondence: francesco morari <francesco.morari@unipd.it>

Application of model-based dynamic prescription maps for optimizing variable rate irrigation (40756)

Francesco Morari, Davide Gabrieli, Lorenzo Furlan, Jacopo Furlanetto, Davide Misturini, Josè Sobrino, Drazen Skokovic, Chiara Corbari

Presenter: **Eiji Morimoto** - Correspondence: Eiji Morimoto <morimoto@gold.kobe-u.ac.jp>

Development of depth-of-tillage control system with data linkage (40421)

Eiji Morimoto, Jaehwan Lee

Presenter: **Kaede Morita** - Correspondence: Kaede Morita <kaede.morita.km@gmail.com>

A mobile phone-based tomato maturity monitoring system using identification markers (40404)

Kaede Morita, Hiromi Nakamura, Jun Rekimoto

Presenter: **Jing Nie** - Correspondence: Yang Li <liyang328@shzu.edu.cn>

High-efficiency harvesting of jujube by air suction harvester: suction pipe gas MHD acceleration control (40609)

Jing Nie, Yi Wang, Yang Li, Xuewei Chao, Jingbin Li, Longpeng Ding

Presenter: **Rodrigo Ortega** - Correspondence: Hugo Poblete <hpoblete@sofruco.cl>

Yield prediction in different fruit species using systematic sampling (40908)

Hugo Poblete, Rodrigo Ortega

Presenter: **Phillip Owens** - Correspondence: Phillip Owens <phillip.owens@usda.gov>

Utilizing functional soil maps for precision management for Smallholder Farmers (40880)

Phillip Owens, Amanda Ashworth, Axel Schmidt, Zamir Libohova

Presenter: **Stefan Pätzold** - Correspondence: Stefan Pätzold <s.paetzold@uni-bonn.de>

Evaluating management, environment and spectrometer type impacts on soil texture prediction via gamma spectrometry (40647)

Stefan Pätzold, Matthias Leenen, Tobias Heggemann, Gerhard Welp, Ralf Wehrle

Presenter: **José M. Peña** - Correspondence: José M. Peña <jmpena@ica.csic.es>

Transfer and zero-shot learning for weed species detection with small datasets and unseen classes (40683)

Nicolas Belissent, José M. Peña, Gustavo A. Mesías-Ruiz, John Shawe-Taylor, Maria Pérez-Ortiz

Presenter: **Manuel Pérez-Ruiz** - Correspondence: Manuel Pérez-Ruiz <manuelperez@us.es>

Multilayer data and artificial intelligence for the delineation of corn management zones (40853)

Diego Gallardo-Romero, Enrique Apolo-Apolo, Jorge Martínez-Guanter, Manuel Pérez-Ruiz

Presenter: **Gerassimos Peteinatos** - Correspondence: Gerassimos Peteinatos <g.peteinatos@elgo.gr>

Implementing image vision and actuation for online weed management with the aid of ISOBUS (40901)

Gerassimos Peteinatos, Dionisio Andujar, Manuel Perez-Ruiz, Sara , Esparza Sengáriz, Roland Gerhards

Presenter: **Mirko Piani** - Correspondence: Mirko Piani <mirko.piani2@unibo.it>

Automated apple orchard blossom mapping from drone image analysis (40553)

Mirko Piani, Gianmarco Bortolotti, Dario Mengoli, Luigi Manfrini

Presenter: **Giulia Piovaccari** - Correspondence: Giulia Piovaccari <giulia.piovaccari2@unibo.it>

Performance of a Smart Autonomous Vehicle in vineyard pesticide application (40623)

Giulia Piovaccari, Dario Mengoli, Valda Rondelli

Presenter: **Alexander Pivchenko** - Correspondence: Alexander Pivchenko <alexander.pivchenko@mail.huji.ac.il>

Development of multimodal machine learning model for wheat traits assessment under climate change (40627)

Alexander Pivchenko, Roy Sadeh, Roy Ben-David, Zvi Peleg, Fadi Kizel, Ittai Herrmann

Presenter: **Sandra Post** - Correspondence: Sandra Post <sandra.post@hnee.de>

Improving estimates of plant-available phosphorus through sensor data fusion at field scale (40467)

Sandra Post, Hamed Tavakoli, Markus Ostermann, Marta Marek, Mohamed Bourouah, Jörg Rühlmann, Eric Bönecke, Eckart Kramer, Sebastian Vogel

Presenter: **weilong qin** - Correspondence: weilong qin <weilong.qin@tum.de>

UAV multi-temporal thermal imaging to evaluate wheat drought resistance (40673)

weilong qin, Jian WANG, longfei ma, naiyue hu, zhimin wang, kang yu

Presenter: **Sebastian Ramm** - Correspondence: Sebastian Ramm <sebastian.ramm@fh-kiel.de>

Data to Decisions: Efficient Implementation of Eco- Schemes, a Use Case for AI in Agriculture (40732)

Sebastian Ramm, Lucas Johannsen, Yves Reckleben

Presenter: **Florian Rançon** - Correspondence: Florian Rançon <florian.rancon@agro-bordeaux.fr>

Vinelapse: an autonomous grapevine observation image sensor (40535)

Florian Rançon, Barna Keresztes, Gael Fontaine, Aymeric Deshayes, Jean-Pierre Da Costa, Christian Germain

Presenter: **Mafalda Reis Pereira** - Correspondence: Mário Cunha <mccunha@fc.up.pt>

Early assessment of tomato bacterial spot through proximal hyperspectral sensing (40561)

Mafalda Reis Pereira, Fernando Tavares, Filipe Neves dos Santos, Mário Cunha

Presenter: **Angela Ribeiro** - Correspondence: Angela Ribeiro <angela.ribeiro@csic.es>

Detection of damaged white grape bunches (40674)

Angela Ribeiro, Jose Bengochea-Guevara, Héctor Montes, Emilio Rodriguez, Dolores Fernández-Ortuño, Dionisio Andújar

Presenter: **Erik Rihter** - Correspondence: Jurij Rakun <jurij.rakun@um.si>

Multichannel LiDAR supported Simultaneous Localization and Mapping In Complex Natural Environment (40723)

Erik Rihter, Peter Bernad, Miran Lakota, Jurij Rakun

Presenter: **Massimo Rippa** - Correspondence: Massimo Rippa <m.rippa@isasi.cnr.it>

Early detection of Botrytis cinerea infection in plants by pulsed thermography (40567)

Massimo Rippa, Rossella Curcio, Carmine Del Regno, Elisa Cappetta, Assunta Russo, Alfredo Ambrosone, Michelina Ruocco, Pasquale Mormile

Presenter: **Daran Rudnick** - Correspondence: Daran Rudnick <daran.rudnick@unl.edu>

Enhancing Production Efficiency and Farm Profitability through Participatory Research (40658)

Daran Rudnick, Amy Kremen, Chuck Burr, Tsz Him Lo, Timothy Martin, Hope Nakabuye, Abia Katimbo, Matt Stockton, Chris Proctor, Mary Foltz, Mark Burbach, Stephanie Kennedy, Saleh Taghvaeian, Sumit Sharma

Presenter: **Victor Rueda-Ayala** - Correspondence: Victor Rueda-Ayala <rueda.victor@agroscope.admin.ch>

Low-cost 3D modelling of crop-weed interactions (40625)

Victor Rueda-Ayala, Hugo Moreno, Christian Rueda-Ayala, Max Fuchs, Judith Wirth, Dionisio Andújar

Presenter: **Roy Sadeh** - Correspondence: Roy Sadeh <roy.sadeh@mail.huji.ac.il>

High-throughput spectral phenotyping of drought response in spring wheat (40588)

Roy Sadeh, Foad Kheir, Alex Pivchenko, Michael Mathenge, Roi Ben-David, Zvi Peleg, Ittai Herrmann

Presenter: **Luis Sánchez-Fernández** - Correspondence: Manuel Pérez-Ruiz <manuelperez@us.es>

Can UAV spraying system assist in precision crop protection? (40890)

Luis Sánchez-Fernández, María Barrera, Jorge Martínez-Guanter, Carmen Sánchez-Franco, Esther García, Luis Asin, Amaya Ortiz, Manuel Pérez-Ruiz

Presenter: **Daniele Sarri** - Correspondence: Daniele Sarri <daniele.sarri@unifi.it>

Human-machine interface and farm digitalization for the spraying optimization in viticulture (40862)

Daniele Sarri, Luigi Pinto, Andrea Pagliai, Carolina Perna, Riccardo Lisci, Renato Rossi, Marco Vieri

Presenter: **Karsten Scholle** - Correspondence: Karsten Scholle <kscholle@futonics.de>

High power 2 μm wavelength fiber laser for precision weeding (40514)

Karsten Scholle, Mihael Schäfer, Malte Kaule, Andreas Gieselmann, Peter Fuhrberg

Presenter: **Johannes Schuster** - Correspondence: Johannes Schuster <johannes.schuster@tum.de>

Investigations of spatial nitrate leaching, the basis of innovative approaches in groundwater protection (40748)

Johannes Schuster, Ludwig Hagn, Martin Mittermayer, Kurt-Jürgen Hülsbergen

Presenter: **Elia Scudiero** - Correspondence: Elia Scudiero <elia.scudiero@ucr.edu>

High-resolution soil moisture mapping in micro-irrigated orchards by on-the-go microwave radiometry (40544)

Elia Scudiero, Amninder Singh, Gopal Mahajan, Dimitrios Chatziparaschis, Konstantinos Karydis, Derek Houtz, Todd, H. Skaggs

Presenter: **Vaishali Sharda** - Correspondence: Vaishali Sharda <vsharda@ksu.edu>

Use of remote sensing and machine learning techniques to study the impact of climate extremes of crop evapotranspiration (40749)

Kelechi Igwe, vaishali Sharda, Trevor Hefley

Presenter: **Ajay Sharda** - Correspondence: Ajay Sharda <asharda@ksu.edu>

Seed Spacing Estimation using CNNs and Seed Localization Sensing System (40777)

Rahul Cheppally, Ajay Sharda, Guanghui Wang

Presenter: **Olivia Spykman** - Correspondence: Olivia Spykman <olivia.spykman@lfl.bayern.de>

Future Crop Farming (40600)

Olivia Spykman, Florian Ebertseder, Johannes Burmeister, Klaus Gehring, Anna Henkel

Presenter: **Bruno Tisseyre** - Correspondence: Yoann Valloo <yoann.valloo@supagro.fr>

Is it possible to use current auto steering system in viticulture? (40500)

Yoann Valloo, Thomas Crestey, Jean-Philippe Gras, Celia Crouzet, Bruno Tisseyre

Presenter: **Duc Tran** - Correspondence: Duc Tran <diminhduc.tran@ugent.be>

How do farmers prefer laser-weeding? A pan-European survey (40508)

Duc Tran, Margo Degieter, Joachim Schouteten, Xavier Gellynck, Hans De Steur

Presenter: **Nikos Tsoulias** - Correspondence: Nikos Tsoulias <ntsoulias@atb-potsdam.de>

Quantifying temperature on apple surface by means of thermal point cloud (40661)

Nikos Tsoulias, László , Baranyai, Manuela Zude-Sasse

Presenter: **Hiroki Umeda** - Correspondence: Hiroki Umeda <umeda.hiroki@nihon-u.ac.jp>

Precision agricultural management of rice terraces using UAV in Japan (40703)

Hiroki Umeda, Ayaka Nakashima, Katsuhiko Sasada, Yoshinori Kawagoe

Presenter: **Claudiu-Daniel Utoiu** - Correspondence: Claudiu-Daniel Utoiu <claudiu.utoiu@gmail.com>

Using shape and color to identify weeds. A review for Eastern and Central Europe (40912)

Claudiu-Daniel Utoiu, Bogdan Dragancea, Elena Utoiu, Mihai Gidea

Presenter: **João Valente** - Correspondence: João Valente <joao.valente@wur.nl>

Automatic detection of woody crop diseases combining aerial-ground robots and network sensors: An upscaling remote sensing approach (40585)

Sergio Vélez, Mar Ariza-Sentís, João Valente, José Maria Bengochea-Guevara, María Nuria Conejero, Hector Montes, Angela Ribeiro, Mónica Cueva, Víctor Nistal, Damián Prieto, Miguel González, Sergio Álvarez, Emilio Rodríguez

Presenter: **Constantino Valero** - Correspondence: Constantino Valero <constantino.valero@upm.es>

Optimization algorithms for plant segmentation of point clouds onboard agricultural robots (40657)

Anne Krus, Constantino Valero, Christyan Cruz, Antonio Barrientos, Jaime del Cerro

Presenter: **Sergio Vélez** - Correspondence: Sergio Vélez <sergio.velezmartin@wur.nl>

LIDAR and Multispectral 3D data fusion for identifying fungal disease traits in vineyards (40648)

Sergio Vélez, João Pedro Calisto, Mar Ariza-Sentís, João Valente

Presenter: **Francesco Visentin** - Correspondence: Francesco Visentin <francesco.visentin@univr.it>

An AI-empowered, Autonomous Weed Removal Robotic Platform for Precision Agriculture (40850)

Simone Cremasco, Francesco Visentin, Marco Sozzi, Luca Signorini, Moira Signorini, Francesco Marinello, Riccardo Muradore

Presenter: **Giuliano Vitali** - Correspondence: Giuliano Vitali <giuliano.vitali@unibo.it>

An IoT electronic fence for agri-robots (40798)

Giuliano Vitali, Marco Arru, Roemi Fernandez, Lattanzi Pamela, Cristiano Fragassa

Presenter: **Ana Vojnović** - Correspondence: Ana Vojnović <ana.vojnovic@kis.si>

Identification of potato cultivars using multispectral imaging (40569)

Ana Vojnović, Uroš Žibrat, Janez Lapajne, Matej Knapič, Peter Dolničar, Vladimir Meglič

Presenter: **Jie Wang** - Correspondence: Jie Wang <jiewj.wang@tum.de>

Satellite Remote Sensing Detects the Legacy Effects of Crop Rotation on Subsequent Crops (40671)

Jie Wang, Yu Gao, Min Zu, Timo Oksanen, Kang Yu

Presenter: **Ralf Wehrle** - Correspondence: Ralf Wehrle <r.wehrle@uni-bonn.de>

Comparing machine learning approaches for the prediction of clay content via proximal gamma spectrometry under varying geopedological conditions (40624)

Ralf Wehrle, Stefan Pätzold

Presenter: **Elisa Wölbart** - Correspondence: Daniel Eberz-Eder <daniel.eberz@drl.rlp.de>

Farmwissen an innovative concept and platform for competence enhancement in Smart Farming (40620)

Daniel Eberz-Eder, Elisa Wölbart, Jona Hinze, Svea Schaffner, Jan-Henrik Ferdinand, Lukas Wald

Presenter: **Merve Wollweber** - Correspondence: Michael Hustedt <m.hustedt@lzh.de>

Laser safety during laser-based weed control with autonomous vehicles (40678)

Michael Hustedt, Jannes August, Hendrik Sandmann, Malte Worzischek, Merve Wollweber, Nick Schwarz, Jörg Hermsdorf, Stefan Kaierle

Presenter: **Wang Xin** - Correspondence: Wang Xin <xin1.wang@wur.nl>

Active vision and multi-view perception to efficiently tomato target part in high clutter scenario (40694)

Xin Wang, Akshay Burusa, David Rincón, Eldert J. Henten, Gert Kootstra

Presenter: **Huihui Zhang** - Correspondence: Huihui Zhang <huihui.zhang@usda.gov>

Predicting maize grain yield using UAV-based remote sensing across varieties, row spacings, and irrigation (40518)

Huihui Zhang, John Altenhofen, Kevin Yemoto

Presenter: **Jingcheng Zhang** - Correspondence: Jingcheng Zhang <jingc.zhang@tum.de>

Development and validation of a method for detection of four NTX-related pesticides in plant foods (40637)

Jingcheng Zhang, Lixiang Pan, Hongyan Zhang, Xiaoxiao Feng

Presenter: **Uroš Žibrat** - Correspondence: Uroš Žibrat <uros.zibrat@kis.si>

Detection of Citrus bark cracking viroid (CBCVd) on hop (*Humulus lupulus*) using multispectral imaging (40568)

Uroš Žibrat, Matej Knapič, Sebastjan Radišek
