PROGRAMME

ECPA Edinburgh 2017

11th European Conference on Precision Agriculture

Monday 17 July 2017 Pentland

Welcome and Plenary 1

10:00-11:00

Chair Tony Waterhouse

10:00		Welcome - Prof Wayne Powell, SRUC Chief Executive and Principal
10:15	1	Responsible research and innovation in PA R von Schomberg, Teamleader Science Policy; Scientific/Policy officer at European Commission

11:00-11:30 Coffee/Tea

Session 1

Monday 17 July 2017 Pentland East

Satellite Application

11:30-12:54

Chair - Christelle Gee

11:30	2.368	User requirements for a satellite-based advisory platform E Anastasiou, Z Tsiropoulos, S Fountas, A Osann, D Protic, M Simeonidou, L Xenidis
11:42	3.372	Potential of freely available remote sensing visible images to support growers in delineating within field zones T Crestey, L Pichon, B Tisseyre
11:54	4.377	Using Sentinel-2 images to implement Precision Agriculture techniques in large arable fields. First results of a case study. A Escolà, N Badia, J Arnó, J A Martínez-Casasnovas
12:06	5.383	How remote sensing is offering complementing and diverging opportunities for precision agriculture users and researcher. R Jackson, R C Gaynor, A Bentley, J Hickey, I Mackay, E S Ober,
12:18	6.388	Identification of high-variation fields based on open satellite imagery J H Jeppesen, R H Jacobsen, R N Jørgensen, A Halberg, T S Toftegaard
12:30	7.394	Monitoring crop growth and key agronomic parameters through multitemporal observations and time series analysis from remote sensing big data K Karantzalos, A Karmas, A Tzotsos
12:42	8.400	Water and nutrient management: the Austria case study of the FATIMA H2020 project F Vuolo, L Essl, L Zappa, T Sandén, H Spiegel

Monday 17 July 2017 Pentland West

Precision Horticulture

11:30-12:54

Chair - Bruno Tisseyre

11:30 9.466 Evaluation of apple flowering intensity using color image processing for tree specific chemical thinning
O Krikeb, V Alchanatis, O Crane, A Naor

11:42 10.471 Comparing efficiency of different sampling schemes to estimate yield and quality parameters in fruit orchards
J Arnó, JA Martínez-Casasnovas, A Uribeetxebarria, A Escolà, J R Rosell-Polo

11:54 11.477 Orange tree canopy volume estimation by manual and LiDAR-based methods
A F Colaco, R G Trevisan, J P Molin, J R Rosell-Polo, A Escola

12:06 12.481 Mapping properties of an asynchronous crop: the example of time interval between flowering and maturity of banana
J Lamour, O Naud, M Léchaudel, B Tisseyre

12:18 13.487 Over-the-row harvester damage evaluation in super-high-density olive orchard by on-board sensing techniques
J Martinez-Guanter, M Garrido-Lzard, J Agüera, C Valero, M Perez-Ruiz

12:30 14.492 Combined use of remote sensing and soil sensors to detect variability in orchards with previous changes in land use and landforms: consequences for management
J A Martínez-Casasnovas, E Daniele, A Uribeetxebarria, À Escolà, J R Rosell-Polo, L Sartori, J Arnó

12:42 15.498 Evaluating satellite remote sensing as a method for measuring yield variability in Avocado and Macadamia tree crops
A Robson, M M Rahman, J Muir, A Saint, C Simpson, C Searle

Monday 17 July 2017 Prestonfield

Crop Disease

11:30-12:42

Chair - Gerassimos Peteinatos

11:30 16.233 Plant growth regulators on winter wheat - yield benefits of variable rate application
S Griffin, J Hollis

11:42 17.238 Plant disease detection by hyperspectral imaging: from the lab to the field
A-K Mahlein, M T Kuska, S Thomas, D Bohnenkamp, E Alisaac, J Behmann, M Wahabzada, K Kersting

11:54 18.244 Potato disease classification using convolution neural networks
D Oppenheim, G Shani

12:06 19.255 Site-specific application of plant protection products in Precision Farming by direct injection
J Pohl, D Rautmann, H Nordmeyer, D von Hörsten

12:18 20.259 Use of remote sensing technology in the assessment of resistance of maize to tar spot complex
F A Rodrigues Jr, P Defourny, B Gérard, F San Vicente, A Loladze

12:30 21.264 Comparison and selection of vegetation indices for detection of Sclerotinia Stem Rot on oilseed rape leaves using ground-based hyperspectral imaging
C Zhang, F Liu, X P Feng, Y He, Y D Bao, L W He

13:00- 14:00 Lunch

Session 2

Monday 17 July 2017 Pentland East

N Management

14:00-15:48

Chair - Yuxin Miao

14:00	22.288	Early stage variable rate nitrogen fertilization of silage maize driven by multi-temporal clustering of archive satellite data R Casa, F Pelosi, S Pascucci, F Fontana, F Castaldi, S Pignatti, M Pepe
14:12	23.293	Guiding cover crop establishment to scavenge residual soil nitrate nitrogen using site-specific approaches J M Grove, E M Pena-Yewtukhiw
14:24	24.299	Measuring canopy size and nitrogen content in oilseed rape for variable plant growth regulator and Nitrogen fertiliser application S L Kendall, K Storer, P M Berry
14:36	25.303	Spatial variation in nitrogen requirements of cereals, and their interpretation D R Kindred, R Sylvester-Bradley, A E Milne, B Marchant, D Hatley, S L Kendall, S Clarke, K Storer, P M Berry
14:48	26.308	Precision N management for field vegetables in organic soils: a short review L Longchamps, N Tremblay
15:00	27.312	GIS-based spatial nitrogen management model for maize E Memic, S Graeff, W Claupein, WD Batchelor
15:12	28.317	Impacts of variable rate nitrogen (VRN) on nitrate-N Losses in tile drained maize from Minnesota, USA. G Wilson, A Laacouri, J Galzki, D Mulla
15:24	29.322	Mapping optimun nitrogen crop uptake J Villodre, I Campos, H López-Corcoles, J González-Piqueras, L González, V Bodas, S Sánchez-Prieto, A Osann, A Calera
15:36	30.328	Evaluation of the CERES-Rice model for precision nitrogen management for rice in Northeast China J Zhang, Y Miao, W D Batchelor

Monday 17 July 2017 Pentland West

Geostatiscs and Data

14:00-15:36

Chair: Bret Whelan

14:00	31.583	Development of a sensor fusion method for crop row tracking operations B Benet, R Lenain, V Rousseau
14:12	32.59	Spatial variability of soil fertility in an integrated crop livestock forest system A C C Bernardi, G M Bettiol, G G Mazzuco, S N Esteves, P P A Oliveira, J R M Pezzopane
14:24	33.594	A geostatistical approach for modelling and combining spatial data with different support A Castrignanò, R Quarto, A Venezia, G Buttafuoco

14:36 34.600 Simulating yield datasets : an opportunity to improve data filtering algorithms
C Leroux, H Jones, A Clenet, B Dreux, M Becu, B Tisseyre

14:48 35.606 Evaluation of trafficked error paths of trailers in sugarcane fields
B P Passalaqua, J P Molin

15:00 36.610 Delineation of management zones based on the Rasch model in an olive orchard
F J Rebollo, F J Moral, C Campillo, J R Marques da Silva, J M Serrano, J M Pérez-Rodríguez

15:12 37.615 Creating a statistically representative set of Danish agricultural field shapes to robustly test route planning algorithms
N Skou-Nielsen, A Villa-Henriksen, O Green, G T C Edwards

15:24 38.620 How significantly different are your within field zones?
B Tisseyre, C Leroux

Monday 17 July 2017 Prestonfield

Crop Sensors 1

14:00-15:36

Chair - Spyros Fountas

14:00 39.162 Relating active optical sensor measurements to barley yield
R Hackett

14:12 40.172 The prediction of crop biomass, grain yield and grain quality using fluorescence sensing in cereals
J Holland, D Cammarano, G Poile, M Conyers

14:24 41.189 Multi-sensor imaging retrofit system to test precision agriculture machine-based applications
P Menesatti, F Pallotino, S Figorilli, F Antonucci, R Tomasone, C Costa

14:36 42.193 On using the precise sensor
E Perez-Fernandez, M J Aitkenhead, C A Shand, A H J Robertson

14:48 43.199 An optical yield monitor for peanuts – proof of concept and evaluation
E Porter, G Vellidis, V Liakos, W Porter, B Branch

15:00 44.216 Early stage sugarcane biomass accumulation prediction by proximal sensing and crop parameters
M G Rocha, L R Amaral, C F M Dencowski

15:12 45.224 The use of RGB cameras in defining crop development in legumes
I Travlos, A Mikroulis, E Anastasiou, S Fountas, D Bilalis, Z Tsiropoulos, A Balafoutis

15:24 46.229 Specific and non-specific changes in optical characteristics of spring wheat leaves under nitrogen and water deficiency
V Yakushev, E Kanash, D Rusakov, S Blokhina

15:30-16:30 Coffee and Posters viewing

Session 3

Monday 17 July 2017 Pentland East

Soil Sensing

16:30-17:42
Chair - Raj Khosla

16:30 47.406 Proximal sensing of soil biological activity for precision agriculture
V Adamchuk, F Reumont, J Kaur, J Whalen, N Adamchuk-Chala

16:42 48.412 Application of a wireless sensor network for multi-depth soil moisture monitoring at farm scale in New Zealand's hill country
I Hajdu, I Yule

16:54 49.418 Characterizing spatial variability in soil water content for precision irrigation management
A de Lara, R Khosla, L Longchamps

17:06 50.423 Sensing in the visible spectrum and beyond for terrain estimation in precision agriculture
A Milella, M Nielsen, G Reina

17:18 51.430 Local adaptation of a national digital soil map for use in precision agriculture
K Piikki, M Söderström, H Stadig

17:30 52.433 Inversion of soil electrical conductivity data to estimate layered soil properties
K A Sudduth, N R Kitchen, S T Drummond

Monday 17 July 2017 Pentland West

Crop Models and Economics

16:30-17:42
Chair - Davide Cammarano

16:30 53.662 The sensitivity of economic gains from high-speed planting
C R Dillon, J Shockley, T Mark

16:42 54.668 A whole farm analysis of the implications of variable maturity groups on harvest logistics and net returns
B Martin, C Dillon, T Mark, T Davis

16:54 55.672 A tool based on remotely sensed LAI, yield maps and a crop model to recommend variable rate nitrogen fertilization for wheat
F Bourdin, F J Morell, D Combemale, P Clastre, M Guerif, A Chanzy

17:06 56.678 Conceptual spatial crop modelling of potato production
H Chen, I Leinonen, B Marshall, J A Taylor

17:18 57.684 Can temperatures from an online weather forecast service be suitable for modelling growth stages using a CERES-Wheat type phenology model?
M Launspach, J A Taylor, J Wilson

17:30 58.689 Connecting crop models with highly resolved sensor observations to improve site-specific fertilisation
E Wallor, K-C Kersebaum, K Lorenz, R Gebbers

Monday 17 July 2017 Prestonfield

PA in Practice 1

16:30-17:42

Chair - George Vellidis

16:30	59.694	Translational learnings from Australia: How SPAA plays a role in increasing the adoption of Precision Agriculture N Dimos, R Schaefer, E Leonard, J Koch, N Postlewaite
16:42	60.703	Precision agriculture in China: exploring awareness, understanding, attitudes and perceptions of agricultural experts and end-users in China H Kendall, P Naughton, B Clark, J Taylor, Z Li, C Zhao, G Yang, J Chen, L Frewer
16:54	61.708	Farmer's adoption path of precision agriculture technology N J Miller, T W Griffin, J Bergtold, I A Ciampitti, A Sharda
17:06	62.718	A web-based GIS decision support tool for determining corn Aflatoxin Risk: a case study data from Southern Georgia, USA F Navarro, B Ingram, R Kerry, B V Ortiz, B T Scully
17:18	63.728	Agronōmics: transforming crop science through digital technologies R Sylvester-Bradley, D R Kindred, B Marchant, S Rudolph, S Roques, A Calatayud, S Clarke, V Gillingham
17:30	64.743	A strategy to instigate SSCM in Australian potato production B M Whelan, F Mulcahy

18:30- 20:00 Reception at the National Museum

Session 4

Tuesday 18 July 2017 Pentland West

Precision Irrigation

08:30-10:06
Chair - Rob Bramley

08:30 65.540 Temporal dynamics of alfalfa water use efficiency under hyper arid conditions of Saudi Arabia
K A Al-Gaadi, R Madugundu, E Tola

08:42 66.546 Future approaches to facilitate large-scale adoption of thermal based images as key input in the production of dynamic irrigation management zones
Y Cohen, N Agam, I Klapp, A Karnieli, O Beeri, V Alchanatis, N Sochen

08:54 67.551 Optimization of an automatic irrigation system for precision irrigation of blueberries grown in sandy soil
G Egea, J Muñiz, A Diaz-Espejo

09:06 68.557 Dynamic variable rate irrigation - A tool for greatly improving water use efficiency
V Liakos, W Porter, X Liang, M Tucker, A McLendon, G Vellidis

09:18 69.564 Technological and agronomic assessment of a Variable Rate Irrigation system integrated with soil sensor technologies
M Martello, A Berti, G Lusiani, A Lorigiola, F Morari

09:30 70.569 VRDI- variable rate Drip irrigation in Vineyard
I Nadav, A Schweitzer

09:42 71.574 Improving vineyard water use efficiency and yield with variable rate irrigation in California
L A Sanchez, B Sams, M M Alsina, N Hinds, L J Klein, N Dokoozlian

09:54 72.578 Hyperspectral imagery as supporting tool in precision irrigation in karst landscape
M Zovko, U Žibrat, M Knapč, M Bubalo, M Romić, D Romić

Tuesday 18 July 2017 Pentland East

Crop Sensors 2

08:30-10:06
Chair - Slava Adamchuk

08:30 73.150 Multispectral band selection for imaging sensor design for vineyard disease detection: case of Flavenscence Dorée
H Al Saddik, J C Simon, O Brousse, F Cointault

08:42 74.250 Measuring crop canopy– the development of a dynamic system for precision fruit crop spraying
T Palleja Cabre, J Llorens, A J Landers

08:54 75.167 Sweet pepper maturity evaluation
B Harel, P Kurster, Y Parmet, Y Edan

09:06 76.178 Accuracy assessment of a mobile terrestrial laser scanner for tree crops
F H S Karp, A F Colaço, R G Trevisan, J P Molin

09:18 77.183 Robotic real-time 3D object reconstruction using multiple laser range finders
P Lepej, M Lakota, J Rakun

09:30 78.204 Clustering of laser scanner perception points of maize plants
D Reiser, M Vázquez-Arellano, M Garrido Izard, D S Paraforos, G Sharipov, H W Griepentrog

09:42 79.210 3D monitoring of woody crops using an unmanned ground vehicle
A Ribeiro, J M Bengochea-Guevara, J Conesa-Muñoz, N Nuñez, K Cantuña, D Andújar

09:54 80.220 Automated measurement of maize stalk diameter and plant spacing
J S Schepers, K H Holland, D D Francis

Tuesday 18 July 2017 Prestonfield

Precision Tillage and Weed Management

08:30-10:06
Chair - Kirstin Piiki

08:30 81.267 Mapping *Cynodon dactylon* in vineyard using UAV images for site-specific weed control
A I de Castro, J M Peña, J Torres-Sánchez, F Jiménez-Brenes, F López-Granados

08:42 82.277 Efficacy of variable rate soil-applied herbicides based on soil electrical conductivity and organic matter differences
G Gundy, J A Dille, A R Asebedo

08:54 83.283 In field identification of herbicide resistant *Apera spica-venti* using chlorophyll fluorescence
P Wang, G G Peteinatos, R Gerhards

09:06 84.439 Conservative Precision Agriculture: an assessment of technical feasibility and energy efficiency within the LIFE+ AGRICARE project
D Cillis, A Pezzuolo, F Marinello, B Basso, N Colonna, L Furlan, L Sartori

09:18 85.444 Plough section control for optimized uniformity in primary tillage
S K Nielsen, L J Munkholm, M H Aarestrup, M H Kristensen, O Green

09:30 86.450 Effects of precision potato planting using GPS-based cultivation
Y Reckleben, T Grau, S Schulz, H G Trumpf

09:42 87.455 Modelling and simulation of a no-till seeder vertical motion dynamics for precise seeding depth
G Sharipov, D S Paraforos, H W Griepentrog

09:54 88.461 A multi sensor data fusion approach for creating variable depth tillage zones.
D Whattoff, A Mouazen, T Waine

10:05-10:50 Coffee/Tea and Poster Viewing - South Hall

Session 5

Tuesday 18 July 2017 Pentland West

Precision Viticulture

10:50-12:14
Chair - Alex Escola

10:50 89.505 Potential of on-board colour imaging for in-field detection and counting of grape bunches at early fruiting stages
F Abdelghafour, B Keresztes, C Germain, J P Da Costa

11:02 90.510 Spatiotemporal stability of management zones in a table grapes vineyard in Greece
E Anastasiou, Z Tsiropoulos, T Balafoutis, S Fountas, C Templalexis, D Lentzou, G Xanthopoulos

11:14 91.515 Using ancillary yield data to improve sampling and grape yield estimation of the current season
M Araya-Alman, C Acevedo-Opazo, S Guillaume, H Valde´s-Gomez, N Verdugo-Vasquez, Y Moreno, B Tisseyre

11:26 92.520 On-the-go thermal imaging for water status assessment in commercial vineyards
S Gutierrez, M P Diago, J Fernandez-Novales, J Tardaguila

11:38 93.525 Application of the Kinect sensor for three dimensional characterization of vine canopy
F Marinello, A Pezzuolo, F Meggio, J A Martínez-Casasnovas, T Yezekyan, L Sartori

11:50 94.530 Two methods for processing yield maps from multiple sensors in large vineyards in California
B Sams, C Litchfield, L Sanchez, N Dokoozlian

12:02 95.534 Assessment of an empirical spatio-temporal model of the grapevine phenology at the within-field scale
N Verdugo-Vásquez, C Acevedo-Opazo, H Valdés-Gómez, I García de Cortázar-Atauri, B Tisseyre

Tuesday 18 July 2017 Pentland East

N Sensing

10:50-12:14
Nicolas Tremblay

10:50 96.343 Proximal fluorescence sensing for in-season diagnosis of rice nitrogen status
S Huang, Y Miao, F Yuan, Q Cao, H Ye, V Lenz-Wiedemann, R Khosla, G Bareth

11:02 97.333 Monitoring wheat fields by RapidScan: accuracy and limitations
D J Bonfil

11:14 98.338 Monitoring crop N status by using red edge-based indices
J Gonzalez-Piqueras, H López-Corcoles, S Sánchez, J Villodre, V Bodas, I Campos, A Osann, A Calera

11:26 99.349 Using portable RapidSCAN active canopy sensor for rice nitrogen status diagnosis
J Lu, Y Miao, W Shi, J Li, J Wan, X Gao, J Zhang, H Zha

11:38 100.353 A spectral correction method for multi-scattering effects in close range hyperspectral imagery of vegetation scenes: application to nitrogen content assessment in wheat
G Rabatel, N Al Makdessi, M Ecarnot, P Roumet

11:50 101.359 Evaluation of the Chlorophyll Meter and GreenSeeker for the assessment of rice nitrogen status
Ke Zhang, Xiaokang Ge, Xia Liu, Zeyu Zhang, Yan Liang, Yongchao Tian, Qiang Cao, Weixing Cao, Yan Zhu, Xiaojun Liu

12:02 102.364 Evaluating a Crop Circle active sensor-based in-season nitrogen management algorithm in different winter wheat cropping systems
L Zhou, G Chen, Y Miao, H Zhang, Z Chen, L Xu, L Guo

Tuesday 18 July 2017 Prestonfield

Ag-engineering and Robotics

10:50-12:02
Chair - Ankush Prashar

10:50 103.842 RoboWeedSupport - Detection of weed locations in leaf occluded cereal crops using a fully convolutional neural network
M Dyrmann, R N Jørgensen, H S Midtiby

11:02 104.848 Modelling environment for an electrical driven selective sprayer robot in orchards
A Linz, D Brunner, J Fehrmann, T Herlitzius, R Keicher, A Ruckelshausen, H-P Schwarz

11:14 105.854 Virtual reality based mobile robot navigation in greenhouse environment
M Saiful Azimi , Z A Shukri, M Zaharuddin

11:26 106.860 RoboWeedSupport - Presentation of a cloud based system bridging the gap between in-field weed inspections and decision support systems
P Rydahl, N-P Jensen, M Dyrmann, P H Nielsen, R N Jørgensen

11:38 107.865 Evaluation of relevant sprayer parameters for use with precision irrigation in landscape
S Shahidian, J M R Serrano, R Hakimi

11:50 108.870 Design and development of a navigation system for agricultural aerial spraying
M J Zhang, R R Zhang, G Xu, L P Chen

12:15-13:15 Lunch

Tuesday 18 July 2017 Pentland

Plenary 2

Chair - Richard Dewhurst

13:15 109 Big Data and PA
M Smith, Connected Digital Services at Microsoft

14:00 110 Precision Pastures - pasture and soil monitoring techniques for use with grazing ruminants
I Yule, Professor at Massey University

14:45- 15:20 Coffee/Tea

Tuesday 18 July 2017 Prestonfield

Industry Showcase

Chair - Clive Blacker
15:20-17:32

This session will start with the opportunity for our sponsors and exhibitors to each give a short presentation on their capabilities. It will be followed by an interactive exercise where the industry partners will be able to highlight issues that impede precision agriculture translational and academic partners will be able to feed into these issues to ultimately promote uptake.

Session 6

Tuesday 18 July 2017 South Hall

Precision Pastures

Joint session with ECPA and Precision Management of Grassland and Grazing Livestock
15:20-17:08
Chair - Rob Merrall

15:20	111.749	Profitability of controlled traffic in grass silage production – economic modelling and machinery systems H Alvemar, H Andersson, H H Pedersen
15:32	112.754	Estimating pasture biomass with active optical sensors K Andersson, M Trotter, A Robson, D Schneider, L Frizell, A Saint, D Lamb, C Blore
15:44	113.758	Development of methods for remotely sensing grass growth to enable precision application of nitrogen fertiliser P M Berry, H F Holmes, C Blacker
15:56	114.764	Mapping within-field biomass variability: a remote sensing-based approach I Campos, L Gonzalez, J Villodre, M Calera, J Campoy, N Jimenez, C Plaza, A Calera
16:08	115.770	Hyperspectral aerial imaging for grassland yield estimation J Geipel, A Korsaeth
16:20	116.776	Potential for controlled traffic farming (CTF) in grass silage production: Agronomics, system design and economics P R Hargreaves, S Peets, W T C Chamen, D R White, P A Misiewicz, R J Godwin
16:32	117.782	A Review of precision agriculture as an aid to nutrient management in intensive grassland areas in North West Europe S Higgins, J Schellberg, J S Bailey
16:44	118.787	Interactions between landscape defined management zones and grazing management system E Pena-Yewtukhiw, D Mata-Padrino, J H Grove
16:56	119.792	Capability of crop canopy sensing to predict crop parameters of cut grass swards aiming at early season variable rate nitrogen top dressings G Portz, M L Gnyp, J Jasper
17:08	120.796	Proximal sensing for monitoring the productivity of a permanent Mediterranean pasture: influence of rainfall patterns J Serrano, S Shahidian, J Marques da Silva, F Moral, F Rebollo

18:30-19:30 Drinks Reception - Assembly Rooms - 53 George Street EH2 2 LR
19:30 Conference Dinner

Wednesday 19 July 2017 Pentland

ECPA Plenary 3

09:00-10:30

Chair - James Taylor

09:00 121 20 years of Precision Agriculture
K Sudduth - USDA,
M Moore - AGCO,
N August - The Douglas Bomford Trust

10:30-11:20 Coffee and Poster viewing - Southall

Session 7

Wednesday 19 July 2017 Pentland East

UAVs

11:00-12:44

Chair - Bruno Tisseyre

11:20 122.802 Using Unmanned Aircraft Systems for Early Detection of Soybean Diseases
C Brodbeck, E Sikora, D Delaney, G Pate, J Johnson

11:32 123.807 Applications of unmanned aerial vehicles in weed science
J M Prince Czarnecki, S Samiappan, L Wasson, J D McCurdy, D B Reynolds, W P Williams, R J Moorhead

11:44 124.812 Identification of the onset of disease within a potato crop using a UAV equipped with un-modified and modified commercial off-the-shelf digital cameras
S Gibson-Poole, S Humphris, I Toth, A Hamilton

11:56 125.817 Evaluation of spectral-based and canopy-based vegetation indices from UAV and Sentinel 2 im ages to assess spatial variability and ground vine parameters
A Matese, S F Di Gennaro, C Miranda, A Berton, G Santesteban

12:08 126.823 A systemic approach to identify relevant information provided by UAV in precision viticulture
L Pichon, G Besqueut, B Tisseyre

12:20 127.828 Expedited generation of terrain digital classes in flat areas from UAV images for precision agriculture purposes
M C Pineda, C Perdomo, R Caballero, A Valera, J A Martínez-Casasnovas, J Viloria

12:32 128.833 Retrieving wheat Biomass by using a hyper-spectral device on UAV
L Xia, R R Zhang, L P Chen, Y Wen, F Zhao, J J Hou

Wednesday 19 July — Pentland West

Information Systems and DSS

11:00-12:32

Chair - Manuela Zude-Sasse

11:20 129.630 Yield mapping at different scales to improve fertilizer decision making in the Australian sugar industry
R G V Bramley, J Ouzman, D L Gobbett

11:32 130.625 An uncertainty-based comprehensive decision-support system for site-specific crop management
V Adamchuk, R Lacroix, S Shinde, N Tremblay, H Huang

11:44 131.656 Implementation of Ag Data Agricultural Services for Precision Agriculture
Y Shahar, C Blacker, R Kavanagh, P James, J Taylor

11:56 132.640 Determining corn aflatoxin risk within counties in Southern Georgia using remotely sensed data, USA
R Kerry, B R Ingram, F Navarro, B V Ortiz, B T Scully

12:08 133.645 Prototype Environment for integrating and sharing Farm Things and associated data
J Nikander, R Linkolehto, M Jäger, L Pesonen, A Ronkainen, A Suokannas

12:20 134.650 Automating the process of importing data into an FMIS using information from tractor's CAN-Bus communication
D S Paraforos, V Vassiliadis, D Kortenbruck, K Stamkopoulos, V Ziogas, A A Sapounas, H W Griepentrog

Wednesday 19 July 2017 — Prestonfield

Precision Agriculture in Practice 2

11:00-12:20

Chair - Terry Griffin

11:20 135.724 Educating producers on the profitability of precision agriculture technologies
J Shockley, T Mark, C Dillon

11:32 136.734 Crop Production of the future - possible with a new approach?
L.-M. Urso, J. K. Wegener, D. von Hörsten, T.-F. Minßen, C.-C. Gaus, J-P Pohl

11:44 137.738 From a precision agriculutre consortium to a dual Master's degree in sustainable agriculture
G Vellidis, F Morari, A Battisti, A Berti, M Borin, J Broder, M Cabrera, R Cattarinussi, D Franklin, V McMaken, D Shilling, W Vencill

11:56 138.713 Design of Smart Agriculture Japan Model
E Morimoto, K Hayashi

12:08 139.698 Precision agriculture in Latvia in the last 20 years
A Gailums

12:20-13:30 Lunch

Wednesday 19 July 2017 — Pentland

ECPA Forum

Chair - James Taylor and Tony Waterhouse
13:30-14:30

Wednesday 19 July 2017 — Pentland/Prestonfield

14:30-16:30
Workshops

POSTERS

All posters (numbered sequentually from 154) will be situated in South Hall throughout the conference. Authors will stand by their posters during the sessions as indicated.

Monday 17 July 2017 — South Hall

Poster Session 1 - Tea and Coffee

15:30-16:30

164 A new approach towards a smart mechanical weeding
P Liberati, A Assirelli

168 Are vegetation index maps derived from sUAS-mounted multi-spectral sensors an accurate predictor of yield in potatoes?
E MacDonald, A Fenech

169 Can electrically driven finger weeders improve intra-row weed control?
J Machleb, G Peteinatos, M Sökefeld, R Gerhards

173 Damage assessment of rice yield affected by drought utilizing remote sensing in Indonesia
C Hongo, C Ogasawara , E Tamura, G Sigit

174 Decision support systems for fruit growing: Perfrutto and Irriframe: integration for the optimized management of the production and irrigation
L Manfrini, M Zibordi, B Morandi, K Bresilla, A Boini, G Perulli, S Anconelli, L Corelli Grappadelli

176 Detecting emerging weeds in the field with UAV-based imagery
J A Dille, A R Asebedo, G J Gundy

178 Discrete element analysis and optimization of a mechanical seed metering device
X L Bao, Q H Wang, Z H Zhu, C X Shu

191 In-situ Monitoring of Fruit Development
M Zude-Sasse, JKäthner, D Fleury

192 Installation and startup of advanced techniques for variable rate irrigation in olive orchard: The VAROS project approach
M Perez-Ruiz, J Martinez, J Agüera, G Egea

193 Integrating Variable Rate Nitrogen and Variable Rate Irrigation Management
T Shaver, R Ferguson, D Rudnick, H Lo

195 IIntra-row weed detection in wheat at early growing stafe using imaging systems
C Gee, S Villette

196 Mapping Crop Coefficient using hi-frequency satellite imaging for weekly Irrigation Scheduling
O Beeri, S Mey-Tal, J Raz

197 Mapping of vine vegetative growth variability in a vineyard from DO Bizkaiko Txakolina using a hand held reflectance sensor
A Aizpurua

208 Precision weed monitoring based on computer vision classifier
M Pflanz, H Nordmeyer,M Schirrmann

209 Preliminary study about the detachment force need for the mechanical thinning of green peach fruits
G Caracciolo, M Cacchi, S Sirri, A Assirelli

211 Remote sensing approaches to characterize ground cover residue using Satellite based images
D Cillis, A Pezzuolo, F Marinello, B Basso, N Colonna, L Furlan, L Sartori

212 Remotely evapo-transpiration mapping: from imagery to cotton and processed tomato irrigation recommendation
O Beeri, S Mey-Tal, J Raz

220 The Binomial Irrigation and Vegetation on Vine Management
J Blanco, J M Terrón, F J Moral, D Uriarte, L A Mancha, J R Marques da Silva

221 The design of electronic automatic trap networks in the application of precision agriculture: Monitoring fruit fly pests in melon agroecosystems
B Shaked, P Rempoulakis, C Shenderey, A Barel, Y Cohen, D Nestel, V Alchanatis

225 The potential of UAV-borne remote sensing for early detection of potato late blight
K Piikki, S Söderström, E Alexanderson, E Liljeroth, M Holmberg

227 Toward an operational procedure to automatically extract information on crop biomass from UAV-based RGB imagery
K Khun, P Vigneault, N Tremblay, E Fallon, M Y Bouroubi, F Cavayas, C Codjia

228 Understanding in-field variation of lettuce crop through spatial and seasonal mapping of soil factors and yields at a field scale
Y Boubou, I Grove, J Monaghan

230 Using a field scale crop water productivity layer to develop variable rate irrigation zones
J Svedin, R Kerry, N Hansen, B Hopkins

237 Variable Rate Irrigation for Cotton and Maize
P J Bauer, K C Stone

242 Assessing crop water demand of tomatoes using Earth Observation data in Central Italy
S Vanino , P Nino, C De Michele, E Anzano, G D'Urso G, S Fabiani, R Napoli R

243 Using high-resolution remote sensing images for decision making in cork oak forests management
R Braga

248 Weed Indentification in soybean crops by hyperspectral data and principal component analysis
F J Navarrete, A G Lencina , H AAcciaresi, Ch Weber

163 A first attempt at applying precision farming to insect rearing
A Assirelli, G Cabassi, L Marinoni, N Pricca, A Saviane , S Cappellozza

167 Applied Research on Lightweight Aggregate Concrete in Lining Canals of Hetao Irrigation District in Inner Mongolia, China
Shen Xiangdong, Gao Chu, Dong Wei Xue Huijun

170 Cartographic aspects in Precision Farming
T Chudy

172 Crop Canopy Sensor Use with Irrigated Maize: Profit and Environmental Impacts
R Ferguson, J Luck, L Thompson, J Parrish, J Crowther, T Mieno, K Glewen, B Krienke, D Krull, N Mueller, T Ingram, T Shaver, G Slater

179 Effects of Different Degradable Films Mulching on Soil Water, Temperature and Maize Growth
lixia Shen

182 First results of ISARIA - new sensor for variable rate nitrogen application
J Galambošová, M Macák, V Rataj, J Lechner, B Limbrunner

183 From conventional to precision farming: a case study on the management of the transition
C Bisaglia, M Brambilla, E Romano, G oscano, M Cutini

188 Improving yield prediction accuracy in decision support models using remote sensing during vegetation period
G Milics, M Neményi, A J Kovács, A Nyéki

203 Performance Analysis of Electromagnetic Soil Water Sensors in a Loam Soil
J Singh, T H Lo, D R Rudnick, T J Dorr, C A Burr, R Werle, T M Shaver, F Munoz-Arriola

204 Portable X-fluorescence spectroscopy for soil texture assessment in tropical and temperate soils
R Gebbers, M Eitelwein

205 Precision Agriculture Adoption Trends in the USA
S Philips

206 Precision Archaeology: where precision agriculture meets archaeology
H Webber

207 Precision Modelling of Distributed Greenhouse Climate
T Bartzanas, D Fidaros, C Baxevanou, N Katsoulas, C Kittas

210 Quantification of environmental impact of agricultural emissions through precision dispersion modelling
F Marinello, A Pezzuolo, F Meggio, J A Martínez-Casasnovas, L Sartori

213 Sensitivity of different chlorophyll meters to estimate leaf chlorophyll in sweet pepper
F M Padilla, M T Peña-Fleitas, R de Souza, M Gallardo, C Giménez, R B Thompson, R.B.

214 Sharing Data from Field-Scale Trials
T F Morris, N Tremblay.

216 Soil electric resistivity in different water levels in an integrated crop-livestock-forest system
A C de Campos Bernardi, T Pitrat, L Marcelino Rabello, J R Macedo Pezzopane, C Bosi, G Guillen Mazzuco, G Maranhão Bettiol

154 A preliminary evaluation of a simple model for the estimation of mountain forage biomass using Sentinel 2 data
R Primi, P P Danieli, B Ronchi

155 Calving behaviour monitoring through Digitanimal platform in dairy cows: Preliminary results
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159 Towards the estimation of vole damage on grassland by aerial multispectral imaging
J-N Paoli, J-N, H Piernavieja. G Jones, S Villette, T Maillot, C Gée

160 Non-destructive monitoring of grassland canopy height using a UAV
I Borra-Serrano, T De Swaef, H Muylle, K Mertens, D Nuyttens, J Vangeyte, E Willner, M Hegarty, M Barre, J-P Sampoux, W Saeys, B Somers, I Roldán-Ruiz

161 Potential for Controlled Traffic Farming (CTF) in Grassland
C W T Chamen, R J Godwin, S Peets, D R White,P A Misiewicz, P R Hargreaves

162 GPS cows: Improving digital literacy & engagement in rural students through an applied Agri-tech learning resource
M Trotter, K Lacey, M Krehlik,C Harris, D Kilpatrick,J Milne, P Donnan, P Lenane, T Nagle, A Briggs, R Petersen, G Saul, J Young, T Butler, D Bailey, D Swain

165 A Path planning algorithm based on GNSS-controlled precise land leveling autopilot system
Liu Gang, Xia Youxiang, Kang Xi, Jing Yunpeng, Li Xiao

166 A photosynthesis prediction model at various growth stages of tomato in greenhouse
Man Zhang Ting Li, Yuhan Ji, Jian Yin, Minzan Li

171 Comparison of signals coming from a modified digital camera and a professional multispectral camera for in-field airborne applications
M Corti , G Cabassi, D Cavalli, A Vigoni, L Degano, L Marinoni, L Bechini, P Marino Gallina

175 Decision support tools for spring N fertilisation of winter oilseed rape
L Engström, K Piikki, J Wetterlind

177 Detector development for water content measurement
Xiang Chen, Minzan Li, Hong Sun, Man Zhang, Wei Yang, Lihua Zheng

180 Evaluation of single sensor data for soil texture as component of Sensor Fusion for determining plant available phosphorus
A Mizgirev

181 EZZone – An Online Tool for Delineating Management Zones
C Lowrance, S Fountas, V Liakos, G Vellidis

184 High technology farming S3 platform in Europe regions lead by Tuscany region
D Sarri, F Fabbri, M Vieri, S Lombardo

185 Hyperspectral 3D plant models: acquisition and evaluation for the detection of plant diseases
J Behmann, R Roscher, J Dupuis, A-K Mahlein

186 Hyperspectral- and Deep Learning Semantic Labelling in Vineyards
M Nielsen, P Fröhlich, S Rilling, A Milella, G Reina

187 Identifying within-field risk areas for aflatoxin contamination of corn through surrogate variables
F Navarro, B Ingram, R Kerry, B V Ortiz, D Damianidis, B T Scully

189 Increasing Nitrogen use Efficiency by the use of Active Canopy Sensors for in season Nitrogen Fertilization in Mediterranean maize Cultivations
E Evangelou, C Tsadilas, S Stamatiadis, N Tserlikakis

190 In-Season Estimation of Rice Nitrogen Status Using an Active Crop Canopy Sensor in Different Area of China
Jifeng Ma, Youhua Wang , Yongchao Tian, Yan Zhiang Cao, Dunliang Liu Yuxin Miao, Xiaojun Liu

194 Intelligent soil sampling management system
Xingming Wang , Wei Yang, Minzan Li Minzan, Lihua Zheng

198 Multi-sensor approach for monitoring rosmarinic acid degradation during drying of lemon balm (Melissa officinalis L.)
D Argyropoulos, M Nagle, G Romano, J Müller

199 Multivariate geostatistical analysis of geophysical resistivity data for detailed soil mapping
A Castrignanò, M Dabas, C Ferré, G Cabassi, L Borrelli, R Comolli

200 Nondestructive optical crop sensing to monitor nitrogen content in woody ornamentals
J Bracke, S Adriaenssens, A Elsen, H Vandendriessche, M C Van Labeke

201 Objective estimation of the Citrus Colour Index using image analysis and OpenCV on Smartphones
N Aleixos, S Cubero,F Albert, D G Fernandez-Pacheco, J M Prats-Montalban, V Alegre, J Blasco

202 Optimizing nitrogen fertilization in corn fields using CropSpec proximal sensing sensor
C Schillaci, G Fastellini, M Diaz, S Iacono, M Acutis

215 Software development of STS Miniature spectrometer for crop monitoring system
Meng Cheng, Hong Sun, Minzan Li, Wei Yang, Lihua Zheng, Xiaoshuai Pei

218 SpotIT – Developing national Decision Support Systems into a combined Nordic-Baltic cereal leaf disease DSS
B Nordskog, T-E Skog, J Nikander, M Jalli, J Yuen, A Ronis, L Jørgensen, J E Ørum

222 The influence of soil texture and pressure head of the water supply on soil water allocation in negative pressure irrigation systems
Juan Xiao

226 The Smart-AKIS Network – Closing the Research and Innovation Divide in the area of Smart Faming Technology
A T Balafoutis, S Fountas, F van Evert, A Knierim, G Chatzikostas, S Aït-Amar, N Bellostas

229 Use of active-optical sensors to direct in-season N application in North Dakota in sugar beet, corn, spring wheat and sunflower
D W Franzen, L K Sharma, H Bu, E C Schultz, and A Denton

231 Using canopy sensing to improve nitrogen management of brassica vegetables
E Sagoo, AHuckle, J P Newell Price,C White, D Whattoff

ECPA 2017 Satellite
Precision Management of Grassland & Grazing Livestock

11:30 Registration McIntyre Centre
12:15-13:15 Lunch

Tuesday 18 July 2017 Pentland
Keynote
Chair - Richard Dewhurst

13:15 109 Big Data and Precision Agriculture
M Smith, Connected Digital Services at Microsoft

14:00 110.877 Precision Pastures - pasture and soil monitoring techniques for use with grazing ruminants
I Yule, Professor at Massey University

14:45- 15:20 Coffee/Tea

Tuesday 18 July 2017 South Hall
Precision Pastures
Joint session with ECPA and Precision Management of Grassland and Grazing Livestock
15:20-17:20
Chair - Rob Merrall

15:20 111.881 Profitability of controlled traffic in grass silage production – economic modelling and machinery systems
H Alvemar, H Andersson, H H Pedersen

15:32 112.882 Estimating pasture biomass with active optical sensors
K Andersson, M Trotter, A Robson, D Schneider, L Frizell, A Saint, D Lamb, C Blore

15:44 113.883 Development of methods for remotely sensing grass growth to enable precision application of nitrogen fertiliser
P M Berry, H F Holmes, C Blacker

15:56 114 Mapping within-field biomass variability: a remote sensing-based approach
I Campos, L Gonzalez, J Villodre, M Calera, J Campoy, N Jimenez, C Plaza, A Calera

16:08 115.883 Hyperspectral aerial imaging for grassland yield estimation
J Geipel, A Korsaeth

16:20 116.881 Potential for controlled traffic farming (CTF) in grass silage production: Agronomics, system design and economics
P R Hargreaves, S Peets, W T C Chamen, D R White, P A Misiewicz, R J Godwin

16:32 117.882 A Review of precision agriculture as an aid to nutrient management in intensive grassland areas in North West Europe
S Higgins, J Schellberg, J S Bailey

16:44 118.884 Interactions between landscape defined management zones and grazing management system
E Pena-Yewtukhiw, D Mata-Padrino, J H Grove

16:56 119.884 Capability of crop canopy sensing to predict crop parameters of cut grass swards aiming at early season variable rate nitrogen top dressings
G Portz, M L Gnyp, J Jasper

17:08 120.885 Proximal sensing for monitoring the productivity of a permanent Mediterranean pasture: influence of rainfall patterns
J Serrano, S Shahidian, J Marques da Silva, F Moral, F Rebollo

Wednesday 19 July 2017 South hall

Precision Grassland Management

09:00-12:15
Chair: Ian Yule

09:00 140.878 Prospects for smart soil management techniques in grazing systems - techniques and implications of spatial management of grassland soils
R M Rees, J Maire, N Cowan, S K Jones, U M Skiba

09:45 141.885 Soil electrical resistivity in different water contents in an integrated crop-livestock-forest system in Brazil
A Bernardi, T Pitrat, L Rabello, J R Pezzopane, C Bosi, G Mazzuco, G Bettiol

10:00 142.887 MitAgator - a GIS based spatial tool to manage nitrogen, phosphorus, sediment and E.coli losses from pasture
J D Blennerhassett, W Catto, O Knowles

10:15 143.888 Pastures from Space® Plus for teaching precision pasture management
A Cosby, R Flavel, S Gregory, T Botwright Acuña, W Fasso, M Trotter

10:30-11:20 Coffee/tea and Poster Viewing

11:20 144.889 Cultivar selection by cattle grazing tall fescue infected with novel endophytes
S L Kenyon, C A Roberts

11:35 145.879 Tracking and control of livestock in extensive systems.
C Umstatter

12:20 Lunch

Wednesday 19 July 2017 South hall

Precision Grazing Management

13:30-15:00
Chair: Richard Dewhurst

13:30 146.880 Precision monitoring systems for the performance and health of grazing livestock: remote and animal-mounted sensors for monitoring the feeding, performance and health of free-ranging animals
S M Rutter

14:15 147.890 Low-cost GPS collars: An alternative to commercial collars for tracking cattle during rangeland research
C Knight, D Bailey, A Cosby, M Trotter

14:30 148.892 Evaluating precision management of sheep in a hill farming system
C Morgan-Davies, N Lambe, A Waterhouse, F Kenyon, D McBean, H Wishart, A McLaren, D McCracken

14:45 149.891 The application of a weight-based targeted selective wormer treatment (TST) strategy on hill and upland sheep flocks
F Kenyon, C Morgan-Davies, N Lambe, H Wishart, A Waterhouse, D McBean, D McCracken

15:00-15:30 Coffee/tea

15:30 150.893 Evaluation of the RumiWatch technology for measuring detailed grazing activities of cows
J Werner, L Leso, C Umstatter, L Shalloo, B O'Brien

15:45 151.894 Effect of climatic conditions on nocturnal behavior of dairy cows grazing on Alpine pasture
A Romanzin, M Corazzin, S Bovolenta

16:00 152.895 Real time location tracking of sheep in grassland systems
S Kodam, C-A Duthie, A Waterhouse

16:15 153.896 Prediction of grass dry matter intake in grazing ewes using infrared thermal imaging
M Mc Manus, P Creighton, R Prendiville, T.M. Boland, M Williams

Tuesday/ Wednesday Posters South hall

Authors to stand by their posters Wednesday morning coffee break

154.897 A preliminary evaluation of a simple model for the estimation of mountain forage biomass using Sentinel 2 data
R Primi, P P Danieli, B Ronchi

155.898 Calving behaviour monitoring through Digitanimal platform in dairy cows: Preliminary results
C Santiago, C Callejero, I Gómez, F Vicente

156..899 Grasscheck: weather and grass growth monitoring to improve grassland management in Northern Ireland
N Valbuena-Parralejo, S Laidlaw, A Dale, S Gilkinson, A Boyle, I McCluggage, C Ferris, M Romero-Oiartzun, F Lively, D McConnell

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159.901 Towards the estimation of vole damage on grassland by aerial multispectral imaging
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160.902 Non-destructive monitoring of grassland canopy height using a UAV
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