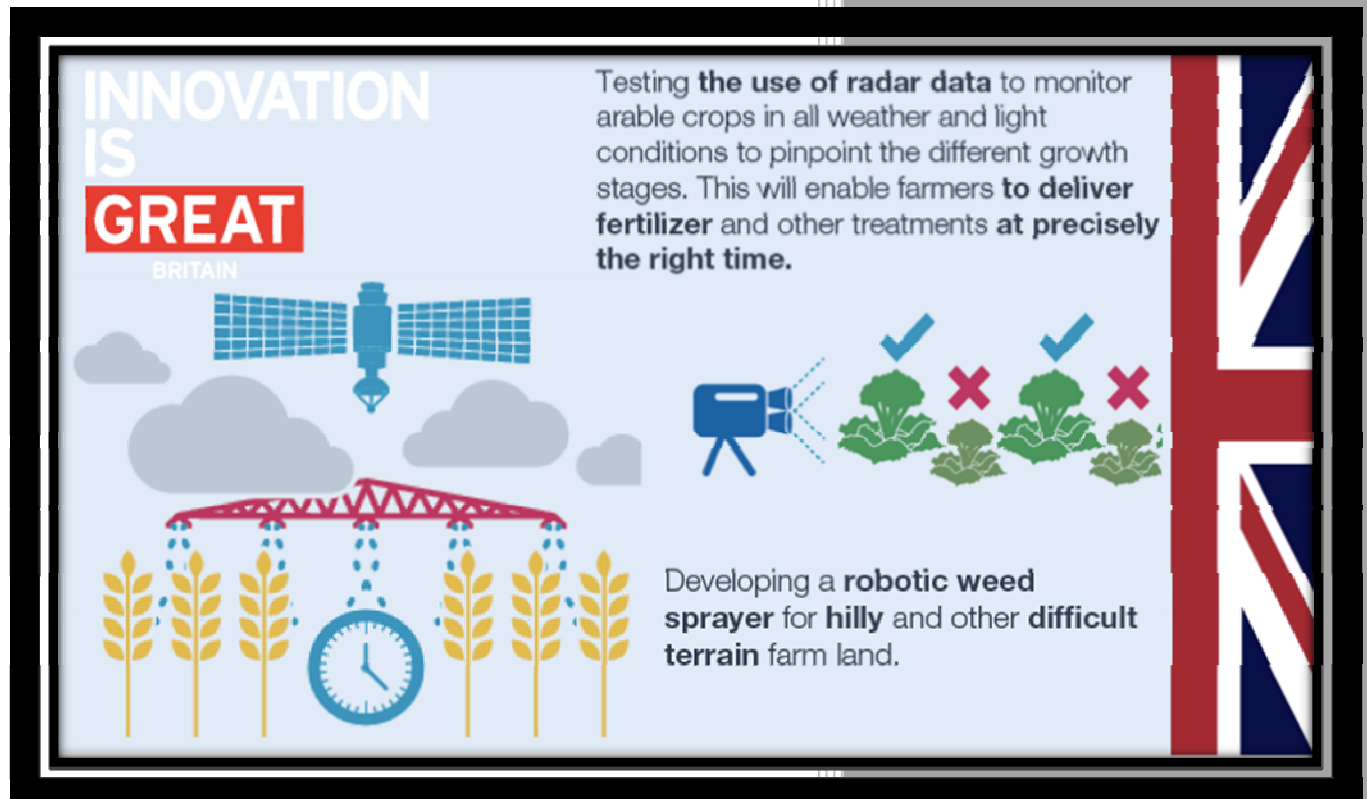


Smart Technologies for Sustainable Agriculture



18-20 January 2016

High Commission of Canada

London, UK

Canada House

1 Trafalgar Square, SW1Y 5BJ, London



UK Science
& Innovation
Network

Canada

In partnership with



Government of Canada
High Commission of Canada

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McGill
UNIVERSITY



Harper Adams
University



UK Trade
& Investment

CATAPULT
Satellite Applications

Cranfield
UNIVERSITY

Contacts:

Dr Mario Rivero-Huguet

UK Science and Innovation Network

mario.rivero-huguet@fco.gov.uk

Tel: +1 514 232 8602

Dr Caroline Martin

Trade Commissioner (Science &
Innovation) Canada House

Caroline.Martin@international.gc.ca

Tel : +44 (0)20 7004 6026

Dr Viacheslav Adamchuk

McGill University

viacheslav.adamchuk@mcgill.ca

Tel: +1 514 398 7657

Dr Sven Peets

Harper Adams University

speets@harper-adams.ac.uk

Tel : +44 (0)1952 81 5143



With the participation of



Agriculture and
Agri-Food Canada
Agriculture et
Agroalimentaire Canada



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UK-Canada Symposium on Smart Technologies for Agriculture – The Value of Precision Agriculture

INTRODUCTION

Precise Agriculture (also known as smart farming) refers to techniques that help farmers to increase crop productivity while conserving their resources. These technologies include automated navigation, proximal soil and crop sensing, remote sensing, variable rate application of agricultural inputs, modelling of agricultural processes, optimization of farm operation logistics, agro-robotics, etc. Given the heightened concern for global food security, it is a logical time to support partnerships in this sector between the UK and Canada. With a number of similarities in the way smart technologies are adopted in both Canada and the UK, it is important to increase collaborations awareness and share successful developments between the Canada and the UK. Different smart farming technologies, which are popular today, were developed in both countries at the beginning of the era of precision agriculture and different academic institutions as well as technology and service providers are world leaders in certain areas. Currently due to the emerging concern for global food security, there is growing public interest in technological innovations in agriculture.

For this reason, this symposium is organised to initiate a dialog, to seek ways to strengthen on-going technology developments, evaluate the potential for markets for precision agriculture in both countries as well as considering better ways to export UK/Canada-based products and services to other countries. In terms of future collaboration, four areas of common interest can be defined:

- **Training.** Professional training of farmers, contractors, advisers and researchers, would improve commercially available solutions. Furthermore workshops, such as this one, enhance information exchange, which stimulates novel thinking and the constructive evolution of existing practises as well as planning upcoming developments.
- **Joint research** and product development. Due to similarities in terms of crop production and the adoption of technology in parts of the UK and Canada, joint research programs would be very beneficial to further collaboration.
- A common **data exchange** hub. A shared data space to exchange measured crop response characteristics appears to be a well-suited first-in-line program that is of interest to researchers and service providers on both sides of the Atlantic.
- **Joint business** ventures. It would be attractive to study the potential joint business opportunities when technologies originating from one country compliment emerging practices elsewhere.



Based on the workshop results, it follows that the UK, Canada and other countries are faced with the need to explore suitable options in each of these four categories. Joint efforts may help preserve resources, add versatility and enhance the exchange of expert knowledge.

PROGRAMME

MONDAY 18 JANUARY

08:30 Registration and coffee

09:00 Welcoming Remarks from the High Commission of Canada

Opening Remarks by Chairs

- Professor Richard Godwin FEng, Visiting Professor, Harper Adams University; Emeritus Professor, Cranfield University
- Professor Viacheslav Adamchuk, Bioresource Engineering Department at McGill

09:10 Participant Introduction

09:30 Session I: Agricultural Automation and Robotics – Fiction or reality?

Moderator: Sven Peets, Harper Adams University

Panelists:

- Simon Blackmore, Harper Adams University
- Viacheslav Adamchuk, McGill University
- Qumar Zaman, University of Dalhousie
- Jordan Boyle, University of Leeds

11:00-11:30 BREAK

11:30 Session II: Sensing of Soil and Crop – Satellite, drone, or sensing on-the-go?

Moderator: Viacheslav Adamchuk, McGill University

Panelists:

- Toby Waine, Cranfield University
- Asim Biswas, McGill University
- Vladimir Stoilkovic, Satellites Application Catapult
- Alex Melnitchouck, Bayer CropScience Canada
- Abdul Mouazen, Cranfield University

13:00-14:00 NETWORKING LUNCH



14:00	Session III: Fertilizer and other agro-inputs – Varying for profitability or environment? Moderator: Richard Godwin, Harper Adams University Panelists: <ul style="list-style-type: none"> • Paul Miller, National Institute of Agricultural Botany • Bernie Zebath, Agriculture and Agri-Food Canada • Nicolas Tremblay, Agriculture and Agri-Food Canada • Shamal Mohammed, GeoInfo Fusion Ltd. • Bill Deen, University of Guelph
15:30-16:00	BREAK
16:00	Session IV: Irrigation, drainage and soil management Moderator: Paul Miller, National Institute of Agricultural Botany Panelists: <ul style="list-style-type: none"> • Mark Else, East Malling Research • Chandra Madramootoo , McGill University • Jean Caron, Université Laval • Richard Godwin, Harper Adams University
17:30	The Importance of Digital Agriculture for Future Global Food Security – Opportunities for Canada-UK collaboration. <ul style="list-style-type: none"> • Maurice Malone, Chief Executive - Global Institute for Food Security in Canada and former CEO Rothamsted Research
18:00-19:30	NETWORKING RECEPTION
TUESDAY 19 JANUARY	
08:30	Registration and coffee
09:00	Discussion highlights - John Stafford, Co-editor Precision Agriculture Journal
09:15	Integration and synthesis of discussions –Session I Business Opportunities Clive Blacker, Precision Agriculture Specialist, UKTI
09:45	Integration and synthesis of discussions – Session II Research opportunities



10:15	<p>Bill Deen, University of Guelph</p> <p>Integration and synthesis of discussions – Session III</p> <p>Education and Training opportunities</p> <p>Viacheslav Adamchuk, McGill University</p>
10:45	<p>Integration and synthesis of discussions – Session IV</p> <p>Data sharing opportunities</p> <p>Shamal Mohammed, GeoInfo Fusion Ltd.</p>
11:15	<p>Future Actions</p> <p>Richard Godwin, Harper Adams University</p>
11:30	<p>Closing Remarks from Chairs</p> <ul style="list-style-type: none"> • Professor Richard Godwin FEng, Visiting Professor, Harper Adams University; Emeritus Professor, Cranfield University • Professor Viacheslav Adamchuk, Bioresource Engineering Department at McGill <p>VISIT to CRANFIELD SOIL and AGRIFOOD INSTITUTE at CRANFIELD UNIVERSITY</p>
14:00 – 14:15	Arrival and coffee (Building 83: CMRI boardroom)
14:15 – 14:30	<p>Welcome to Cranfield University/AgriFood Institute.</p> <p>Prof. Leon Terry, Director of Cranfield Soil and Agrifood Institute</p>
14:30 – 15:30	<p>Technical presentations summarising PA activities at Cranfield University:</p> <ul style="list-style-type: none"> • Abdul Mouazen: <i>Recent advances in multi-sensor and data fusion for precision agriculture applications.</i> • Jerry Knox: <i>Challenges implementing precision irrigation in precision agriculture.</i> • Rebecca Whetton: <i>A practical approach to in-situ hyperspectral imaging of wheat crop canopies.</i> • Sergio Moreno Rojas: <i>Salad and vegetable crop monitoring using remote sensing</i>
15:30 – 16:30	Demonstration of Cranfield facilities
16:30 – 17:00	Discussion
17:00 – 19:30	Depart, onwards travel to Harper Adams University



20.00	Arrival at HA – dinner and welcome from Prof Peter Mills, Deputy Vice Chancellor.
WEDNESDAY 20 JANUARY	
	VISIT to NATIONAL CENTRE for PRECISION FARMING , HARPER ADAMS UNIVERSITY Newport, Shropshire
08:00	Breakfast and Welcome to Harper Adams Dr David Llewellyn – Vice Chancellor, Harper Adams (Private Dining Room)
09:00	Welcome to Harper Adams Prof. Simon Blackmore, Head of Engineering and Director of National Centre for Precision Farming (Meeting room: RFA Lecture Theatre)
09:15 -12:45	Technical presentations and discussions from : <ul style="list-style-type: none"> • Paula Misiewicz (soils) • Peter Kettlewell (crops) • Simon Blackmore (robotics)
13:00 – 14:00	Lunch
14:00	Departure



Participants

Surname	First Name	Institution
Adamchuk	Viacheslav	McGill University, Canada
Awan	Sajjad	Agriculture and Horticulture Development Board
Biswas	Asim	McGill University, Canada
Blacker	Clive	UK Trade & Investment
Blackmore	Simon	Harper Adams University
Boudreau	Jocelyn	Hortau, Canada
Boyle	Jordan	University of Leeds
Bradburne	Robert	Dept. of the Environment, Food and Rural Affairs
Caron	Jean	Laval University, Canada
Carruthers	Jonathan	Rothamsted Research
Chokmani	Karem	L'Institut national de la recherche scientifique (INRS), University of Quebec, Canada
Deen	Bill	University of Guelph, Canada
Diprose	Andrew	Ubiquitek
Durham	Sam	National Farmers Union
Eagling	Tristan	Knowledge Transfer Network
Else	Mark	East Malling Research
Fallecker	Stephane	Quebec Ministry of economic development, Innovation & Export Trade
Godwin	Richard	Harper Adams University
Grieve	Bruce	University of Manchester
Hamelin	Bettina	Natural Sciences & Engineering Research Council, Canada
Harris	Paul	Glacier Farm Media, Canada
Hector	Gareth	Glacier Farm Media, Canada
Hennessey	Emma	Deputy Head of UK Science & Innovation Network
Hutton	Paul	Cranfield Aerospace Ltd
Jackson	Sarah	Met Office
Lassonde	Maryse	Fonds de recherché du Québec, Canada
Lomas	Jack	SenSat
Madramootoo	Chandra	McGill University, Canada



Martin	Caroline	High Commission of Canada
McBride	Geoff	Science & Technology Facilities Council (STFC)
Meacham	Theresa	Biotechnology & Biological Sciences Research Council (BBSRC)
Melnitchouck	Alex	Bayer CropScience, Canada
Michaud	Aubert	Institut de Recherche et de Developpement Agroenvironnement
Miller	Paul	National Institute of Agricultural Botany
Mohammed	Shamal	GeoInfo Fusion Ltd
Moloney	Maurice	Global Institute for Food Security, Canada
Mouazen	Abdul	Cranfield University
Pawelec	Justine	Quebec Government Office, UK
Peets	Sven	Harper Adams University
Pridmore	Tony	University of Nottingham
Raymer	Paul	Practical Precision, Canada
Rivero-Huguet	Mario	UK Science and Innovation Network, Montreal
Stafford	John	Silsoe Solutions
Stoiljkovic	Vladimir	Satellite Applications Catapult
Sweeney	Stewart	Ontario Ministry of Agriculture, Food and Rural Affairs, Canada
Taylor	James	Newcastle University
Tiffin	Richard	University of Reading
Tremblay	Nicolas	Agriculture & Agri-Food Canada
Waine	Toby	Cranfield University
Warham	Elizabeth	UK Trade & Investment, Agri-Tech
Weston	Alan	SenSat
Whattoff	David	SOYL Precision Farming
Wood	Steve	Digital Catapult
Zaman	Qamar	Dalhousie University, Canada
Zebarth	Bernie	Agriculture & Agri-Food Canada

