



## Delivering Food Security on Limited Land: PROJECT NEWS

Project Newsletter Nr. 1 | NOVEMBER 2016

### PRINCIPAL INVESTIGATORS

Pete Smith, University of Aberdeen  
Deb Roberts, University of Aberdeen

### CO-INVESTIGATORS

James Gerber, University of Minnesota  
Paul West, University of Minnesota  
Mario Herrero, Commonwealth Scientific and Industrial Research Organisation (CSIRO)  
Jean-François Soussana, French National Institute for Agricultural Research (INRA)  
Bob Scholes, Wits University  
AK Nayak, Central Rice Research Institute  
Jean Ometto, Brazilian Space Agency (INPE)  
Nina Buchmann, Swiss Federal Institute of Technology (ETH Zurich)

### PROJECT DURATION

2015-2019

### SUPPORT

This project is grateful for the generous support from the national funding bodies, coordinated through the Belmont Forum and the FACCE-JPI Initiative.

### The Project

The “DEVIL” project is a partnership between the Scottish Food Security Alliance-Crops (SfSA-C) and leading research institutions from seven other countries. DEVIL combines state-of-the art food systems and land use models developed within this unique research consortium. For the first time, we will examine in detail the feedback loop interactions between land use change and food security dynamics. The integrated modelling system will allow us to examine the global feedbacks on land use and food supply and assess the differential impacts in three study regions (South America, Sub-Saharan Africa, and South Asia).

Please read on for a sampling of some DEVIL activities since the project kickoff in May 2015.

### Presentations

#### Global Food Security Conference

James Gerber (Univ. of Minnesota) and co-authors gave a talk entitled, “Trends in global yield gaps” at the conference in Ithaca, NY. The presentation was part of a session on *Measuring agricultural productivity from space (and the ground)*. [11-14 October 2015]

#### Swiss National Science Foundation

Nina Buchmann and Aimee Shreck (ETH Zurich) presented a poster about the project's stakeholder engagement activities, “Delivering food security on limited land: Engaging global stakeholders through knowledge exchange and education.” The event was the 3rd Programme Conference of the NRP 68 in Montreux, Switzerland. NRP 68 is a Swiss National Science Foundation research program. [12-13 November 2015]

#### Scottish Universities Insight Institute

Nuala Fitton and Pete Smith (Univ. of Aberdeen) presented the DEVIL project at a workshop for a programme called “Problems and solutions in food security – from surf to turf.” This programme is organised by the Scottish Food Security Alliance (SFSA) and uniquely brings together expertise in production, processing and distribution. The multi-sector and interdisciplinary programme involves academia as well as industry, policy and government institutes. [23 November 2015]

#### World Bank

Paul West (Univ. of Minnesota) gave a presentation of his DEVIL work to a meeting of the World Bank, in Washington, DC, which has a representative on the project's Scientific Advisory Board. His talk was entitled, “Food systems and climate change: understanding how yield gaps, management practices, land use planning, climate, and diet affect food availability, and greenhouse gas emissions.” [11 February 2016]





*"It is very exciting to bring together such an exceptional group of researchers, to work collaboratively to integrate food system and land use models and explore the complex feedbacks."*

**Pete Smith**

Lead PI and Project Coordinator

Photo: DEVIL Team at Annual Project Meeting, October 2016.

## AAAS

Project data were presented to the 2016 Annual Meeting of the American Association for the Advancement of Science in Washington, DC. Paul West participated in a session on Using Data to Enhance Food Productivity in Subsistence Farming with a presentation entitled, "Sustainable food production in data-limited areas: insights from global analyses." [12 February 2016]



## Global Land Project - Open Science Meeting

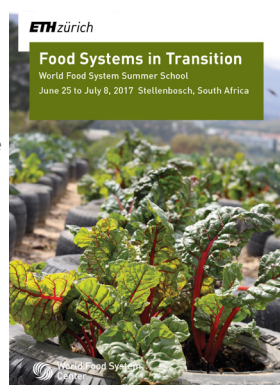
The Belmont Forum convened special sessions at the 2016 Global Land Project meeting highlighting projects funded through its Collaborate Research Action on Food Security and Land Use Change. DEVIL was strongly represented, with the project work represented in nine presentations at the meeting in Beijing, China. Session information and abstracts are available on the conference [website](#). [24-27 October 2016]

## Second Annual Project Meeting

In conjunction with the Global Land Project meeting, DEVIL convened its second project meeting. With nearly 20 researchers in attendance, the meeting was an important milestone as it marked the first time all of the partners had an opportunity to gather in person since the project began last year. Over two days, the regional teams exchanged about research challenges, milestones, and planned next steps.

## Summer School 2017

The first of two summer school courses being organized in the context of the DEVIL project will take place in Stellenbosch, South Africa from 25 June - 8 July 2017. The course, Sustainable Agriculture and the World Food System, is an experiential and immersion program open to students from diverse academic and geographical backgrounds. A call for applications will be launched in December 2016, with participation open to advanced Bachelor and Graduate students from universities around the world. The course is organized by the World Food System Center at ETH Zurich and information will be available at [www.deliveringfoodsecurity.org/summer-schools](http://www.deliveringfoodsecurity.org/summer-schools).



## Outputs and Resources

### Food Matters Website

*How does Agriculture Change our Climate?* This multi-media primer outlines how the agriculture sector plays a key role in reducing global emissions to avoid dangerous levels of climate change. It highlights trends and the primary sources of agricultural emissions, as well as a few solutions already in practice. The report was produced by the Institute on the Environment at the University of Minnesota and in collaboration with many DEVIL partners, including Paul West and James Gerber (University of Minnesota), Pete Smith (University of Aberdeen), Mario Herrero (CSIRO), Lini Wollenberg (CCAFS), and Francesco Tubiello (FAO).

### UN Academic Impact Series on Food Security and Climate Change

- "The Intimate Relationship between Food Security and Land" (by Pete Smith, 22 February 2016)
- "Global Models Must Meet Grassroots Action to Deliver Climate Solutions for Farmers" (Andy Challinor and Sonja Vermeulen, 29 February 2016)
- "Consumerism and Climate Change: How the Choices You Make Can Help Mitigate the Effects of Climate Change" (Laura Phillips, 7 March 2016)

### Peer Reviewed Publications (Selection)

Paustian, K, Lehmann, J, Ogle, S, Reay, D, Robertson, GP, Smith, P. 2016. Climate-smart soils. *Nature* 532: 39-57.

Gerber, JS, Carlson, KM, Makowski, D, Mueller, ND, Garcia de Cortazar-Atauri, I, Havlík, P, Herrero, M, Launay, M, O'Connell, CS, Smith, P and West, PC. 2016. Spatially explicit estimates of N<sub>2</sub>O emissions from croplands suggest climate mitigation opportunities from improved fertilizer management. *Glob Change Biol*, 22: 3383-3394.

Smith, P, Cotrufo, MF, Rumpel, C, Paustian, K, Kuikman, PJ, Elliott, JA, McDowell, R, Griffiths, RI, Asakawa, S, Bustamante, M, House, JI, Sobocká, J, Harper, R, Pan, G, West, PC, Gerber, JS, Clark, JM, Adhya, T, Scholes, RJ, and Scholes, MC. 2015. Biogeochemical cycles and biodiversity as key drivers of ecosystem services provided by soils. *SOIL Discuss* 2: 537-586.

## PARTNERS

