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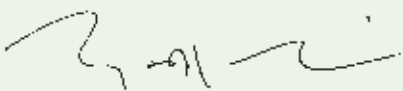
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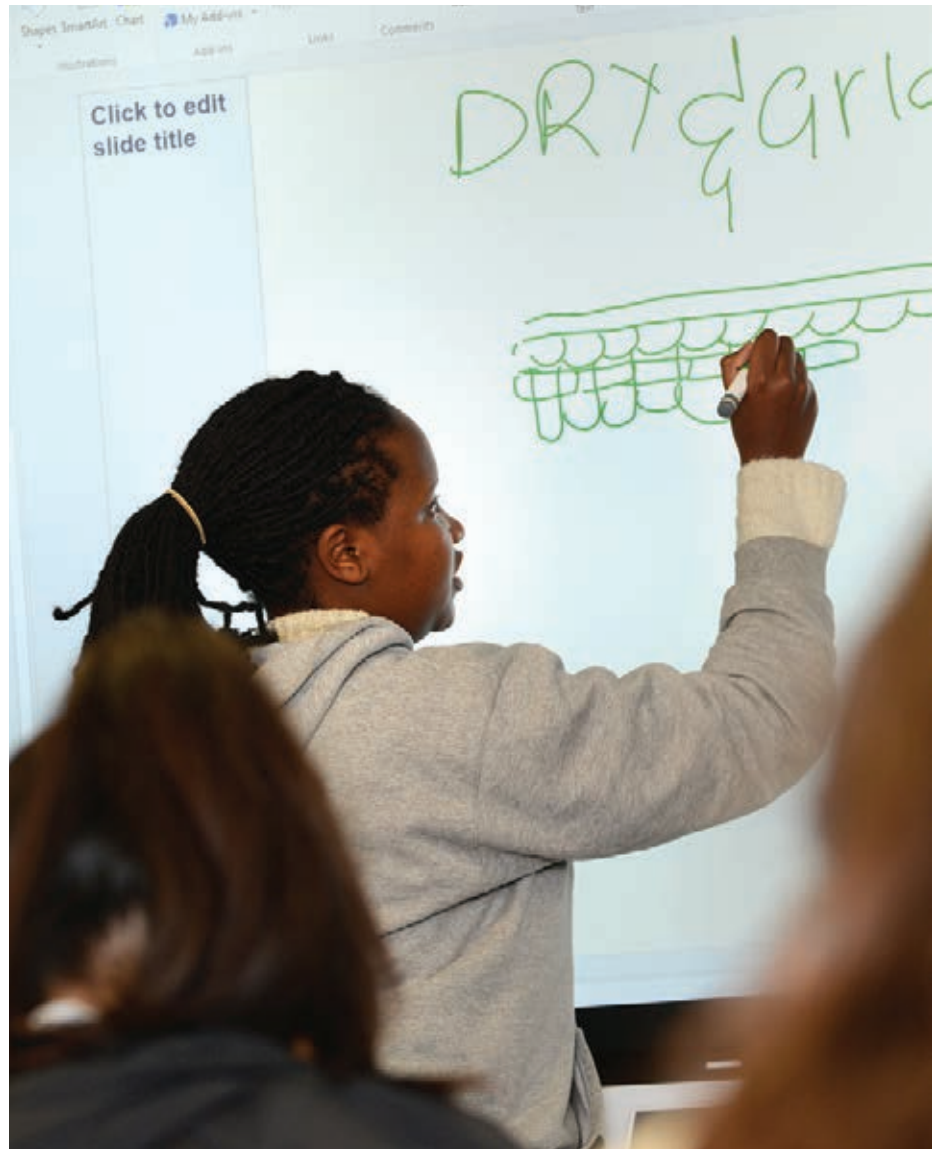
Welcome to our very first newsletter. It's been a big year for the Academy, which you can read all about within these pages. I'm incredibly proud of what we've achieved since our launch in January 2018, and everything we have planned for the coming months and years.

Global challenges don't come in neat disciplinary parcels. I am excited about creating new interdisciplinary research collaborations that seek imaginative solutions to pressing challenges of developing more sustainable agri-food systems and reducing food insecurity; inspiring and equipping UG and PG students with the interdisciplinary skills, and contributing to tackling these challenges.



**Professor Geoff Simm**

Director of the Global Academy of Agriculture and Food Security, and Chair of Global Agriculture and Food Security



## Global Academy undergraduate programmes

**Dr Susan Jarvis**

**BSc Programme Director and Senior Lecturer in Animal Science**

We are nearing the end of our first academic year of BSc Agricultural Science degrees. It has been exciting and rewarding to get the degrees started and see our new students join, learn and share their experiences with us.

The degrees are designed to develop, inspire and empower future leaders with the passion, ambition and critical thinking to address complex global and national agri-food system challenges, and are offered in four streams:

- BSc (Hons) Agricultural Science - Global Agriculture and Food Security
- BSc (Hons) Agricultural Science - Animal Science
- BSc (Hons) Agricultural Science - Crop and Soil Science
- BSc (Hons) Agricultural Economics



Our first year has been building foundation knowledge in food production, from cell biology and biological processes to complex interactions within plant- and animal-based food production systems. We have started the discussion around economics of food production systems in relation to demand and supply, market structures and industry organisation.

Reports from employers emphasise that 21st century graduates need more transferable skills such as business, data handling and communication skills. Our Professional Skills for Agri-Food Scientists run in all 4 years of our degree programmes to address this issue, helping our students to prepare for future careers.

One of my most rewarding experiences as a teacher on the programme has been seeing students synthesise their learning and present on challenging Agri-Food topics in an excellent, comprehensive way.

Well done to our students... bring on Year Two!



Recent major international reports have stressed the urgency with which we must tackle dangerous climate change and loss of biodiversity and the role that our future food systems must play in addressing these and diet-related health challenges. There has never been a more important time to study and research these issues.

Find out more about our leading undergraduate and postgraduate degree programmes at:

**[www.ed.ac.uk/global-agriculture-food-security/admissions](http://www.ed.ac.uk/global-agriculture-food-security/admissions)**



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It's been a really exciting first year – we have appointed a world class, highly motivated team of staff, we have our first cohort of energised, multinational students, and are building strategic partnerships to ensure impact in the Global North & South.

## First birthday for the Global Academy

Opened by Bill Gates and Government Minister Penny Mordaunt on 26 January 2018, the Global Academy of Agriculture and Food Security was established to tackle prevalent questions around sustainability, food and health. It is one of five academies within the University of Edinburgh, all of which focus on the delivery of global impact through collaborative action.

The Academy sits within the Royal (Dick) School of Veterinary Studies at the Easter Bush Campus, along with closely aligned partners such as the Roslin Institute, the Bill and Melinda Gates Foundation funded Centre for Tropical Livestock Genetics and Health and Supporting Evidence Based Interventions programmes, and the Jeanne Marchig International Centre for Animal Welfare Education.

In its first year, the Academy has achieved a great deal. In addition to a considerable expansion in staff – academic, postdoctoral and professional services – it is now home to a dozen doctoral candidates and its first cohort of undergraduate and taught postgraduate students who are jointly taught with SRUC. Two further undergraduate programmes have been launched for 2019 entry. Eight new research projects are also underway, with a further 24 bids under review.

Professor Geoff Simm, Director of the Global Academy of Agriculture and Food Security, and Chair of Global Agriculture and Food Security, said:

“It's been a really exciting first year – we have appointed a world class, highly motivated team of staff, we have our first cohort of energised, multinational

students, and are building strategic partnerships to ensure impact in the Global North & South. Feeding the world’s growing population well, while protecting the natural systems on which we all depend, is one of the greatest challenges facing humanity. Over a third of the global population is affected by one or more forms of malnutrition – be that hunger, obesity or micronutrient deficiency. We look forward to growing the Academy as an interdisciplinary hub of expertise to support decision making to transform agri-food systems and food security through agenda-setting, impactful, inter-disciplinary research, teaching and translation to policy and practice, with our local and global partners.”

Agriculture and food security is one of the most significant, pressing concerns in the developing and developed world. The UN’s Sustainable Development Goals include crucial targets around hunger, climate and life on land, with sustainable agri-food systems supporting virtually all of the other goals. The work of the Academy will help address these goals.

THE UNIVERSITY OF EDINBURGH  
Global Academy of Agriculture and Food Security

**HAPPY BIRTHDAY TO US!**

<b>1</b> year old	<b>25</b> members of staff in post	<b>4</b> new undergraduate degree programmes	<b>1</b> new postgraduate programme	<b>8</b> new research projects	<b>24</b> further research bids under review
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Many congratulations to Dr Susan Jarvis on her award of Senior Fellowship of the Higher Education Academy – a great indicator of the expertise of our teachers

“ We look forward to growing the Academy as an interdisciplinary hub of expertise to support decision making to transform agri-food systems & food security through agenda-setting, impactful, inter-disciplinary research, teaching and translation to policy and practice, with our local and global partners.



# OUR THEMES

Agri-Food Systems Transformation

Data Driven I

## Agri-food Systems Transformation

**Professor Alan Duncan**  
**(Professor of Livestock and Development)**

Current global agri-food systems are not working effectively. Although there has been outstanding success in improving productivity and food distribution systems, global agriculture is responsible for a range of negative environmental impacts including GHG emissions, environmental pollution and soil degradation. In addition, agri-food systems must bear some responsibility for the ongoing double burden of malnutrition.

In this research theme we seek new approaches to transform the global agri-food system. We explore decision making at a range of scales from policy through to farm and consumer. At policy level this includes making the true costs of food systems explicit for decision makers. At the consumer level we look at cultural and economic influences on dietary choice. We adopt a food systems approach, making strong links between agricultural systems and consumer outcomes and focusing on how to create an enabling environment which ensures that food systems deliver to the UN Sustainable Development Goals.

## Food, People, Planet

**Dr Jonathan Hillier, Senior Lecturer**  
**(Mathematical Modelling & Global Food Systems)**

Our growing human population is both impacting on and impacted by our planet.

Food production influences so many of our earth system processes, and we know that our ecosystems and environments impact on our health and well-being. Our food production and consumption systems are therefore fundamental in terms of delivering human, animal and plant health, and animal health and welfare.

While we currently produce enough food to feed all humans on the planet, differing choices and access to food means hundreds of millions are starving, malnourished, or obese. At the same time the impacts of food production on our planet - for example on greenhouse gases, water use and biodiversity decline, are well-publicised.

The Food, People, Planet theme encompasses multiple elements – all the way from fundamental science on soil and microbes, via impacts of food production on our ecosystem and environment, to animal and human health, food choices, policies, and our governance and distribution systems. Through this holistic lens we seek to understand the multiple impacts of our activities, and what can be done to deliver sustainable and equitable food systems.



Food, People,  
Planet

Innovation

## Data Driven Innovation for Agriculture and Food Security

**Dr Lisa Boden, Senior Lecturer  
(Population Medicine and Animal Health Policy)**

Our third theme is Data Driven Innovation. We have a wide range of interests in this theme, and one of the longest-running is on the use of data to support animal health policy making. We have been working closely with industry and scientific partners to use data science, decision-support tools and technology to transform and future proof policy decisions to improve food security and animal health.

Our partnership with EPIC, Scottish Government's Centre of Expertise on animal disease outbreaks ([www.epicscotland.org](http://www.epicscotland.org)) is just one example of how these decision-tools are having an impact in the UK.

Last year, we welcomed Dr May Fujiwara to the Global Academy and to EPIC. She has been working with EPIC Deputy Director, Dr Lisa Boden, as a knowledge broker and risk assessor at the science-policy interface, providing qualitative risk assessments to underpin policy decisions within and outwith exotic animal disease emergencies.

Dr. Boden said, "The partnership between the Global Academy and EPIC is complementary; like EPIC, the Global Academy is a centre of gravity for interdisciplinary research to find solutions for grand challenges in planetary health as articulated in the Sustainable Development Goals. I will continue my research at the science-policy interface, focusing in particular on exploring aspects of contingency planning for animal disease outbreaks through a policy, legal and ethical lens. The Global Academy is the perfect place to do that and a great partner for EPIC."

Global Academy Director Prof. Geoff Simm commented: "The link with EPIC is exciting as these are not just scientific challenges. These are about people, governance, policy and about how we explore solutions and how we implement them. I think the Scottish Government Centres of Expertise have been widely applauded as a mechanism to improve the research, policy and end user dialogue."

## Legume SELECT: prioritising legumes to support sustainable intensification of farming practices in East Africa

Professor Liz Baggs and Prof Alan Duncan

Smallholder farms in Sub-Saharan Africa dominate land use and supply most of the food for a rapidly growing population.

These farms are under intense pressure to raise yields to keep pace with food demand but they are also hotspots for environmental degradation. This is why there is so much current emphasis on 'sustainable intensification practices' which can both increase productivity but also contribute to environmental stewardship. Legumes are promising candidates since they supply high quality human food such as beans and pulses while at the same time contributing to long-term soil health by fixing atmospheric nitrogen.

The Global Academy recently launched a Global Challenges Research Fund project, Legume SELECT, which focuses on better targeting of multi-functional legumes in African smallholder systems. The project builds on earlier efforts to design a legume prioritisation tool, Legume CHOICE. This participatory tool is designed to be used in farming communities to support selection of the most promising legume options based on their suitability to the prevailing conditions in that community.



In the Legume SELECT project we will be taking the tool to a new level by improving the quality of the data underlying the prioritisation algorithm. We will do this by making detailed measurements of the contribution of a range of legumes to soil health, human food supply and feed for livestock. This will involve use of state-of-the-art isotopic labelling techniques and computer tomography methods to

visualise plant traits and understand underlying biological processes which link plant growth habits with the various benefits that legumes bring to smallholder farmers.

Legume SELECT will operate in Ethiopia, Kenya and the Democratic Republic of Congo, and early activities are already underway.

### Associate Members

Collaboration and interdisciplinarity are at the heart of what we do at the Global Academy. It is only by addressing food security across multiple disciplines that we can impact it in a meaningful way.

The Academy has Associate Members from a network of University of Edinburgh staff with expertise in a wide range of disciplines. They share our vision and ambitions, and want to work with us in research and teaching around the challenges of achieving food security and sustainable agri-food systems.

Our Associate Members hail from the Roslin Institute, Business School, School of Geosciences, School of Social and Political Science, School of Health in Social Science Clinical Psychology, Centre of African Studies, Usher Institute of Population Health Sciences and Informatics, Centre for Cardiovascular Science, School of Biological Sciences, and Edinburgh College of Art.





## British Society of Animal Science Conference

**Dr Susan Jarvis**  
**BSc Programme Director, Senior Lecturer in Animal Science**

Several Global Academy staff participated in the British Society of Animal Science 75th Annual Conference in Edinburgh recently, on the theme of 'Animal Science: Fit for the Future'.

Professor Colin Whittemore gave a keynote address encouraging animal scientists to look for new methodologies and be more innovative in their search for solutions to future challenges. The conference covered many key disciplines within animal science, but with an emphasis on many of the newer themes we focus on in our teaching and research: precision livestock farming, the use of computer vision and machine learning, sustainability, and the role of livestock in the circular bioeconomy.



Geoff Simm, Director of the Global Academy of Agriculture and Food Security, spoke in a BSAS panel debate 'Can we have our meat and eat it?' His view: Yes, but less of it globally and more equitably distributed and sustainably farmed.

## Malawi visit

In March 2019 Professor Geoff Simm visited existing and potential partners in Malawi with colleagues in the Global Health Academy and Edinburgh Global. The University has long-standing links with Malawi and during the trip held receptions for alumni in Lilongwe and Blantyre.



▲ Inspiring visit to Jacaranda School, Limbe, Malawi. Children learning about permaculture and drip irrigation. Jacaranda provides arts-based free education for orphans.



▲ Visiting partners at the Lilongwe University of Agriculture and Natural Resources.

## Student Story



### Luming Yang – Year 1 student

My First year in the Global Academy of Agriculture and Food Security: Honestly, it was only when I got the offer for the Agricultural Science (Global Agriculture and Food Security) degree that I started to notice the importance of agriculture in solving global issues, both environmentally and socially. Nearly all the SDGs are directly or indirectly related to agriculture to some degree. In my first year, I got so much help from all my professors and classmates on both academic life and the general student life in Edinburgh. I never regret joining the programme and I hope you will join too.

Agriculture is much more complex than just growing food or breeding animals, it is about environmental sustainability, society, politics and other global challenges. Many developing nations still have a high percent of their rural population working in the agriculture. By studying Agricultural Science, we can help to solve those environmental, social and political challenges in every developing country. The next half of the century will be our time, our generation, we will dominate this world and built a better one, starting from agriculture, and eventually extending much further beyond.

## Farming in Rural Punjab

In mid-March, Dr Fiona Borthwick (Programme Director of the MSc in Global Food Security and Nutrition) visited a group of farmers in rural Punjab who are working with the Nahba Foundation to improve the sustainability of their agricultural practices. The burning of harvest residue from wheat production has a significant impact on air quality in Northern India, and levels of water pollution associated with overuse of pesticides is also of concern.

Dr Borthwick was warmly welcomed by the Nahba Foundation as well as the farmers who showed her around their fields. They explained in detail some of the crop trials they were taking part in with the Punjab Agricultural University, such as pest-resistant mustard. They also discussed some of the issues they are facing, such as soil degradation, accessing markets and concerns over the long-term profitability of farming.

## Cornell Workshop



Dr Kirsteen Shields, Lecturer in International Law and Food Security, was recently in the US to present research on land and food governance, and to continue collaborations established during her Fulbright Fellowship at UC Berkeley in 2017.

Kirsteen was invited to participate in a three-day workshop at Cornell University, convened by Wendy Wolford, Nancy Peluso (Berkeley) and Michael Goldman (Minnesota), where she presented a case study of community rights and land reform in Scotland. The workshop coincided with the launch of a new book series on land by Cornell University Press.

Dr Shields also attended the American Association of Geographers (AAG) Annual Meeting in Washington DC, where she presented on 'Transforming food systems through land reform' and contributed to their working group on Geography and Human Rights.

## Events

The Global Academy hosts a series of exciting and thought-provoking seminars and events. We recently hosted experts on a diverse range of topics – see below for details.

26  
FEBRUARY

### **‘Visions for Change Lecture: Spotlight on Palm Oil’ (in collaboration with the Department for Social Responsibility and Sustainability)**

The event aimed to explore palm oil supply chains from a variety of perspectives. Although it is the most consumed vegetable oil in the world, found in roughly 50% of packaged supermarket products, it is also a highly controversial ingredient due to the impact its cultivation has had on deforestation and habitat destruction in Malaysia and Indonesia. With global demand for palm oil predicted to rise significantly in coming years, this event sought to explore how responsible individuals and institutions should respond to this complex issue.

27  
FEBRUARY

### **‘Contesting Land Use in a Neoliberal Age: A participatory GIS framework for farmers seeking land’**

Dr Adam Calo from the James Hutton Institute explored the issues surrounding the challenges faced by many farmers with regard to land access and ownership. Many new entrant farmers face land access barriers, threatening to dead-end an aspirational agricultural transition strategy. Dr Calo described some of his work towards creating the social power needed to secure tenure on the land.

20  
MARCH

### **‘Food Security vs Food Sovereignty: The Clash of Paradigms’**

Speaker Professor Olivier De Schutter, is a former UN Special Rapporteur on the right to food, Professor of International Human Rights Law at the University of Louvain, and Co-Chair of the International Panel of Experts on Sustainable Food Systems (IPES-Food). He is a leading expert in global policy debates to achieve sustainable and socially just food systems, and presented an excellent lecture to a large academic and public audience.

10  
MAY

### **‘Grounding and shaping desire for food and drink’**

Dr Esther Papies from the University of Glasgow discussed how desire for food and drink emerges, and how consumer desire to increase healthy and sustainable choices can be influenced. A prevailing theory of desire suggests that simulations of previous rewarding experiences play a key role in desire for food and drink, and Dr Papies presented recent research supporting this account, using behavioural, physiological, and neuro-imaging methods.

13  
MAY

### **‘Is The World Converging on a “Western Diet”?’**

Prof. Azzeddine Azzam from the University of Nebraska-Lincoln talked about the changes in caloric intake and diet category availability within and between various countries across the world over the last half century, highlighting the differences from health and economic perspectives.

22  
MAY

### **‘Land, Livelihoods and Migration in Mali’**

Dr Camilla Toulmin, of the International Institute for Environment and Development presented findings from a forty-year village-study in Mali, highlighting the social changes that have taken place over the study period.

27  
MAY

### **‘Building a Harmonised Database for Farming Systems Analysis in Sub-Saharan Africa and Beyond’**

Drs Mark van Wijk and Jim Hammond from the International Livestock Research Institute presented the context of farm system analysis in Sub-Saharan Africa, the challenges involved, and the state of data generally available. This took the form of analyses, discussion of topics including farming livelihoods, food security, nutrition, and climate change, and exploration of an online tool they designed to gather harmonised farm data through use in a wide variety of projects.

## Future Events

To find out about upcoming events at the Academy, visit our website:

[www.ed.ac.uk/global-agriculture-food-security/events](http://www.ed.ac.uk/global-agriculture-food-security/events)

## News bites



A new project titled 'Environmental and Economic Impacts of Improved Antibiotics Stewardship in Poultry Systems' has just been awarded under UKRI. Principal Investigator: Professor Dominic Moran. This represents a UK-Argentina joint call on anti-microbial resistance in the environment.



Dr Rafael Silva presented to the European Regional Focal Point for Animal Genetic Resources in Madrid in May. This drew on his work in the H2020 IMAGE project, which considers how we might optimise the collection of ex situ genetic resources for European livestock.



Professor Dominic Moran will join an OECD expert group meeting in June to consider the potential for developing abatement cost analysis for antimicrobial use in global livestock production.



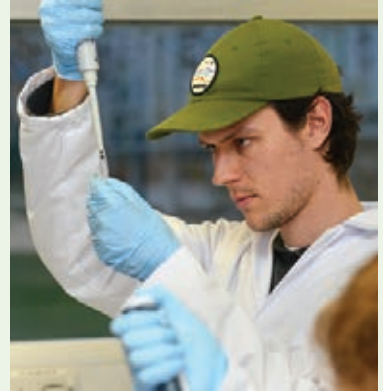
Dr Lisa Boden was invited to participate in a Cara (Council for Academics at Risk) Syria Programme workshop (Arts and Humanities Stream) in Istanbul, Turkey in March 2019. She was subsequently invited to speak about her experiences working with the Cara Syria Programme at the Cara Scotland and the North Conference – held in Dundee (Abertay University, 9 May 2019).

Dr, Shaher Abdullateef, Cara Syria member, reported on his residential visit to the Global Academy last October and the opportunities this afforded for developing collaborative links between Cara Syria, the Global Academy and our wider partners.



A 'Nature' paper on US-China relations' impact on the Amazon Rainforest, co-authored by Dr Peter Alexander, Lecturer in Global Food Systems and Security at the Global Academy of Agriculture and Food Security, was reported on widely in the press. "This is a case study of why it will be extremely difficult for the world to meet the Paris target to keep warming within 1.5C [above pre-industrial levels]. We're moving in the wrong direction," Peter is quoted as commenting.

## Student Story



### Dylan Edgar – Year 1 student

My first year studying with the Global Academy of Agriculture and Food Security has easily exceeded my expectations. We've covered a multitude of diverse and fascinating topics, from isoquants to totipotency, eutrophication to the implications of Brexit. We've visited dairies, soil pits and fish farms, dissected lungs and livers and have been taught by over 30 captivating lecturers. The highlight of my year was a tour of an organic livestock farm in Perthshire, where the sheer scale and complexity of what it takes to run a farm was laid bare. Overall, this first year has gone from strength to strength and I look forward to what's to come.

If you wish to contribute to our newsletter or want to find out more about the degree programmes and how to apply, please get in touch:

- ☎ 0131 651 7305
- ✉ [globalagriculture@ed.ac.uk](mailto:globalagriculture@ed.ac.uk)
- 🌐 [www.ed.ac.uk/agrifood](http://www.ed.ac.uk/agrifood)

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