

The golden age of agricultural innovation

by the UK Government, Scotland Office

Celebrating his first year in office, UK Government minister Lord Duncan will visit innovators and scientists leading the way in high-tech developments in agriculture at Scotland's biggest agricultural event. UK Government Minister Lord Duncan attended a series of engagements at the Royal Highland

Show as he reflects on his first year in office and the importance of scientific innovation in farming and agriculture to help grow this vital sector.

Speaking ahead of the show, Lord Duncan said, "Agriculture is part of the lifeblood of the UK. It feeds us, fuels us, pumps in billions of pounds to the UK economy, and supports nearly 400,000 jobs in Scotland alone. Indeed, 80 percent of Scotland's land mass is involved in agricultural production.

"It is also an area which is at the cutting edge of science and technology. Anyone who thinks that farming is tweedy and dusty would be astounded at the level of technology and scientific precision involved in modern day agriculture. "From robotics to genetics and feeding the world the UK is a pioneer in technological innovation.

"We know that this work in innovation is key to increasing

productivity and sustainability in agriculture and will allow the UK to continue to compete globally, meeting the growing demand for British food around the world.

"The UK Government is helping to pioneer Scottish scientists lead the way in tackling problems such as pests and disease. The Department for International Development is funding new cutting-edge research to allow farmers to grow crops that are more nutritious, more resistant to disease and better able to withstand severe floods or drought in Africa.

"This is being carried out by scientists at the University of Edinburgh, who are also leading ground-breaking work on devastating diseases which cause huge economic losses for African farmers.

"Dfid is also contributing £4m funding to the Centre for Tropical Livestock Genetics and Health, which is based in both Edinburgh and Nairobi and progresses scientific advances in genetics and genomics that help smallholder dairy and poultry farmers in sub-Saharan Africa.

"In February, Business Secretary Greg Clark announced £90 million of new funding through the UK Government's modern Industrial Strategy, to support agricultural technology through Artificial Intelligence, robotics and earth observation to improve supply chain resilience in the agri-food sector. He highlighted how new technology is boosting farmers' earning power and making agri-businesses more productive and profitable than ever before.

"The funding, delivered as part of the new the Industrial Strategy Challenge Fund, will make it easier for food and agri-business to embrace technology and innovation that will be critical to meeting the increasing food demands of a growing population, fuel rural growth and create high-skilled jobs.

"While at the Royal Highland Show I'll be having a 'superfood breakfast' at the James Hutton Institute tent, and hearing about their ground-breaking work in developing science to help feed the world – from right here in Scotland. They are key partners in the developing Tay Cities Deal – which will see the UK Government working in tandem with the Scottish Government and partners to develop projects which will impact the Tay Valley



and the world.

“It’s been one year since I became a UK Government minister, and in that time, I have put championing innovation and agriculture at the heart of my priorities, travelling the length and breadth of Scotland to visit farmers, scientists and stakeholders, and I look forward to seeing even more of the exciting future that agriculture has at the Royal Highland Show.”

Examples of UK Government work in supporting technological and scientific development in agriculture: UK Aid: Super-Crops

In January International Development Secretary Penny Mordaunt announced UK aid research, which is being carried out by international organisation, CGIAR, during a joint visit to the University of Edinburgh with Bill Gates into super-crops.

UK scientists are leading new cutting-edge research to allow farmers to grow crops that are more nutritious, more resistant to disease and better able to withstand severe floods or drought in Africa, in addition to developing medicines to protect farmers’ livestock from devastating disease.

At the University of Edinburgh, scientists are also leading ground-breaking work on diseases which cause huge economic losses for African farmers, including Animal African Trypanosomiasis (AAT), a disease which kills over three million cattle a year, has been estimated to cost over \$4bn a year in total to African economies and can cause sleeping sickness in people.

Ms Mordaunt also announced plans to develop the Centre for Tropical Livestock Genetics and Health, which is based in both Edinburgh and Nairobi.

DFID will support CGIAR with funding of £90m over three years. CGIAR’ was originally the acronym for the ‘Consultative Group on International Agricultural Research’. In 2008, CGIAR redefined itself as a global partnership. To reflect this transformation and yet retain its roots, ‘CGIAR’ was retained as a name. CGIAR is now a global research partnership for a food-secure future.

The role of CGIAR is to deliver new agricultural technologies to support food and nutrition security and growth. Access to high-yielding, drought, heat and disease-resistant crops and livestock underpins the livelihoods and incomes of poor farmers and is essential to combat hunger and reduce the risks of crop failure.

Technology developed by CGIAR was at the heart of the green revolution, tripling yields and lifting millions out of poverty and hunger. CGIAR-developed varieties of the 10 main food crops are now grown on over 200 million ha in developing countries.

This new funding will support the development and deployment of: crop varieties that are climate resilient, more resistant to heat, drought and flooding; crop varieties that are more nutritious, with elevated levels of essential micronutrients; agronomic practices that boost resilience and reduce the use of costly inputs; new livestock varieties, diagnostics, vaccines and medicines, to reduce the risks faced by livestock farmers.

The Centre for Tropical Livestock Genetics and Health (CTLGH) will receive £4 million through funding by DFID. It is a joint venture launched by three partners - the Roslin Institute of the University of Edinburgh, Scotland’s Rural College (SRUC) and CGIAR - International Livestock Research Institute (ILRI), who have created a new, multidisciplinary Centre for Tropical Livestock Genetics and Health, with two main nodes, one in Edinburgh and one in Nairobi.

The Centre will mobilise the most recent scientific advances in genetics and genomics that have led to substantial gains in livestock productivity in temperate zones and apply these to improve livestock productivity in tropical environments, for the



benefit of smallholder dairy and poultry farmers in sub-Saharan Africa.

Agri-Tech

Global demand for food is projected to grow 60 percent by 2050 - we want Britain, with its scientific know-how and flair for innovation and quality, to be in a superb position to take advantage.

Technological innovation is key to compete globally, unlocking the potential of farming by improving productivity and tackling problems such as pests and disease.

UK Government investment will help build on the strengths of the UK’s booming agri-food sector, which employs around 4 million people across the UK, and support it by:

Bringing together businesses, farmers and academics to take forward priority research projects through new Challenge Platforms;

Supporting Innovation Accelerators which will be responsible for exploring the commercial potential of new tech ideas at pace;

Demonstrating innovative agri-tech projects and how they will work in practice;

Launching a new bilateral research programme that will identify and accelerate shared international priorities and help build export opportunities for pioneering agricultural-technologies and innovations overseas.

UK farmers, agri-tech companies and research centres are already leading the way in this area, using technology like data, robotics and AI to help create new technologies and herald innovative new approaches, including:

The Agricultural Engineering and Precision Innovation (Agri-EPI) Centre is bringing together leading organisations in the food supply chain to become a world-leading centre for excellence in engineering and precision agriculture;

The mobile app and website CROPROTECT, developed by Rothamsted Research, is helping farmers to protect their crops with farmers and agronomists using it to exchange best practice and tips on smart management of pest, weed and diseases;

Ordnance Survey have used their satellites to accurately map 232,342 miles of England’s farmland hedges to create a new digital dataset and use planes with fixed state-of-the-art digital cameras to record thousands of individual photos that can map out farms and entire green landscapes.