



All-Party Parliamentary Group on Science and Technology in Agriculture

Notes of a Meeting held on Tuesday 24 January 2023

Meeting Room S, Portcullis House and via Zoom

Report launch - Moovin' on up - (How) can we use new technologies to improve productivity on Britain's livestock farms?

In attendance:

Members:

Lord Trees (chair)
Earl of Caithness
Lord Carrington
Lord Cameron of Dillington
Baroness Jones of Whitchurch
Duke of Montrose
Lord Taylor of Holbeach

Guest speakers:

James Read, Director - Policy & Communications Lead, UK & Ireland, MSD Animal Health
Aveek Bhattacharya, Chief Economist, The Social Market Foundation
Johnny Mackey, Associate Director, Ruminants, MSD Animal Health UK

Stakeholders:

Ian Cox, Innovate UK; Prof Jim Dunwell, Univ of Reading; John Royle, NFU; Prof Huw Jones, Aberystwyth Univ; Prof Eileen Wall, SRUC; Prof Wayne Powell, SRUC; Linda Millyard, BBSRC – UKRI; Caroline Liddell, Defra; Rick Brintjes, Defra; Joss Wallace, Defra; Ramiro Alberio, Univ of Nottingham; Rhys Roberts, ADAS; Louise Manning, Univ of Lincoln; Prof Helen Sang, Roslin Institute; George Collison, Collison Assoc; Becky Smith, NFU; Maya Cheyne, MSD; Ploy Radford, MSD; Alex Challoner, Cavendish; Harriet Davenport, House of Lords; Grace O'Gorman, CIEL; Cameron Hughes, CLA; Prof Brendon Noble, Westminster Univ; Chris Jackson, UK TAG; Olivia Choudry, Cavendish; Tom Bradley, Cavendish; Ros Lloyd, NIAB; Daniel Pearsall, Group Co-ordinator.

1. Introduction

Standing in as chair, Lord Trees (ST) tendered apologies on behalf of APPG chair Julian Sturdy MP. He welcomed members, guest speakers and stakeholders to the meeting and briefly introduced the topic for discussion, centred around a report produced by think-tank The Social Market Foundation, supported by MSD Animal Health, exploring the potential for new technologies to improve productivity on Britain's livestock farms. ST observed that productivity growth in British agriculture lags behind other countries, and that many livestock farms have seen relatively little productivity growth in the last 30 years. Many beef and sheep producers consistently run their agricultural enterprises at a loss and are sustained by subsidies and diversified income. Alongside the potential for precision farming technologies explored in the report – including digital innovations such as electronic IDs and weighing systems, GPS collars and farm management apps – ST noted that the meeting was particularly timely in view of the

passage of the Genetic Technology (Precision Breeding) Bill through the House of Lords, and the potential for new breeding technologies and improved genetics to support not only gains in productivity and resource use efficiency, but also in animal health and welfare.

2. Guest speakers

(Copies of guest speakers' slides are available to download via the Meetings section of the All-Party Group web-site www.appg-agscience.org.uk)

James Read, Director - Policy & Communications Lead, UK & Ireland, MSD Animal Health

Setting the background to the report, James Read (JR) introduced MSD Animal Health, the animal health division in the UK of Merck & Co, with activities across biopharmaceuticals (vaccines and medicines), technologies for animal health monitoring and identification, and with an increasing involvement in data and its use to help support improvements in livestock health, performance and welfare. JR explained that the Social Market Foundation report was commissioned by MSD to explore the range of precision livestock farming (PLF) technologies now available, their potential to help meet future demand for protein using fewer, healthier animals and with a smaller environmental footprint, to gauge current farmer attitudes towards the adoption of PLF technologies, and to make recommendations going forward.

Aveek Bhattacharya, Chief Economist, The Social Market Foundation

Aveek Bhattacharya (AB) introduced the Social Market Foundation as a cross-party think-tank based in Westminster, covering a very wide range of topics. While not a farming specialist, he suggested that part of the value of the report and SMF's involvement lay in providing an outside perspective and fresh insight into some of the key issues and challenges facing UK livestock agriculture.

Those pressures ranged from productivity, with Britain lagging behind the gains made by other countries, especially in relation to livestock; environmental issues, with biodiversity and net zero targets demanding change to the status quo in terms of farm practice; animal health/welfare and demands for continual improvements; and food security issues scaling the policy agenda in the wake of Russia's invasion of Ukraine and the cost-of-living crisis.

AB suggested that these combined pressures present major challenges for farmers and policymakers, and he outlined how more widespread adoption of precision livestock technologies might offer a partial solution, for example by improving labour productivity, animal productivity and input use efficiency, animal health and welfare, environmental impact and on-farm safety.

Examples of PLF technologies described by AB included monitoring collars on cattle, automated milking systems, computerised feeding systems, farm management software and apps, and electronic ID tags, all of which gather real-time data in relation to individual animals and help farmers make more informed management decisions.

But despite these potential benefits, AB noted that uptake of PLF technologies on UK livestock farms is relatively low, especially on smaller farms, with even the most basic applications still not reaching more than 50% of farms.

The SMF study sought to understand what drives farmers to invest in new technologies and the benefits they have experienced, as well as considering the potential barriers to uptake for non-adopters, and what policies and actions might be needed to overcome them.

AB explained that the research involved qualitative interviews in early 2022 with 10 livestock farmers in England (50%), Scotland (30%) and Wales (20%), including 2 non-adopters, 6 adopters and 2 outliers. He also noted that the research was conducted prior to the outbreak of

war in Ukraine, and that the subsequent sharp increase in inflation and input costs could only be expected to reinforce the findings.

Research findings

AB summarised the findings of the research under the following five key themes:

Farmers are open to using new technologies and are seeing the benefits

PLF technologies are recognised to have a wide range of benefits, including to animal welfare, labour productivity and farm safety. But it was noted that some technologies were under-utilised or limited to certain aspects of the farm's practice, not realising the full potential benefits.

Optimism about the potential of technology is highest amongst younger farmers

Older generations were generally viewed as more resistant to change and hesitant towards investing in new technologies. Younger farmers want greater control over farm decision-making and see investment in technologies as crucial to future success.

Proof of success from trusted, local sources of information is the best kind of evidence to encourage technology adoption

The farming press, social media, local colleges and livestock markets were all commonly cited sources of information about new technologies. However, 'over the farm-gate' advice and practical demonstrations of the application and benefits of new technologies are valued most.

Uncertainty about the future of farming is holding back investment in technology

A lack of clarity over farm support policy reforms, alongside other systemic pressures, is leading to short-term decision-making.

Cost barriers are the bottom line for farmers looking to invest in new technology

Insufficient physical/digital infrastructure, resistance from older generations and a lack of skills were all given as examples of barriers to investment, but cost is the most pervasive. Some participants thought government productivity improvements grants were not structured to help smaller farms.

Recommendations

AB summarised the report's five key policy recommendations as follows:

Improve funding incentives for farmers to invest in precision technologies

As the transition to a 'public money for public goods' approach continues, subsidies should be shifted towards productivity-enhancing grants. The current package of grants could be optimised further to support smaller-scale farmers. At present, the government plans to keep the share of farming support aimed at raising productivity constant at 9% - that figure should rise.

Facilitate better knowledge exchange

The planned What Works centre for agriculture and horticulture should be established within the next 12 months. Agri-R&D spending should rise from its current low base. Government and industry should partner to improve peer-to-peer support groups and farm demonstration networks.

Create better data sharing infrastructure

Farmers often do not get routine access to data to improve practices. The launch of the Livestock Information Service is a positive development but data-sharing and benchmarking need to become normalised throughout the livestock sector.

Use regulation to promote change

Compulsory bovine EID tagging – already implemented in Wales – should be introduced throughout the rest of the UK.

Rejuvenate farm management

The Westminster government's lump sum exit scheme for England is a welcome policy innovation, but further avenues should be explored to make farming more enticing and accessible for younger generations. Defra should be as ambitious as possible with its new entrant to farming pilot (and any future programme). There is a post-Brexit opportunity to alter the young farmer payment scheme to help shift the generational balance towards young farmers.

Johnny Mackey, Associate Director, Ruminants, MSD Animal Health UK

As a livestock farmer for 20 years in partnership with his wife, Johnny Mackey (JM) outlined the benefits of PLF technologies which enable him to keep in constant contact with the health of his livestock, even when away from the farm, through electronic data sent to his phone via an ear-tag version of the monitoring collars.

The primary benefit is the health and welfare of his stock, and the technology has helped save the lives of animals and has virtually eliminated antibiotic use by monitoring the health status of individual animals.

JM suggested that while farm assurance provides an important indicator of on-farm management standards, it only provides a one-day-per-year snapshot compared to the year-round monitoring and data offered by PLF technologies.

JM added that, on his farm, the technology had more than paid for itself by saving cows' lives, identifying bulls not working, reducing vet and med costs etc.

JM emphasised the pressures on the livestock farming industry to do more to reduce GHG emissions, and he suggested that the combined pressure to hit net zero while responding to the productivity challenge would require the adoption of new technology. He indicated that MSD was keen to work with policymakers and other stakeholders to develop the right policy and support frameworks to drive uptake of technologies which can support on-farm improvements in animal health, welfare and productivity while reducing climate and environmental impact.

3. Questions and discussion

The following key points arose during questions and discussion.

Members endorsed the report's findings in relation to older generations being more hesitant about new technology and more resistant to change, particularly in the ruminant livestock sector, and the importance of identifying policies and initiatives which will empower younger generations and reduce barriers to new entrants.

Members agreed with the analysis that encouraging technology uptake, sharing data, improving skills and rejuvenating management – rather than punitive measures and restrictions such as reducing livestock numbers as has happened in the Netherlands - provide the most effective way to deliver net zero objectives alongside the productivity challenge in the livestock sector.

Asked whether tracking and monitoring technology was available for sheep – not yet, in the pipeline, but still a number of years away.

Average return on investment for farmers investing in these technologies for cattle is 18-24 months.

Introduction of compulsory Electronic Identification (EID) tagging in sheep 12 years ago was seen as a tax by farmers because the tags were more expensive. However, in productivity terms

it was a missed opportunity for farmers to use the potential of EID technology to improve performance recording and so optimise the genetic potential of individual animals. It would be important not to repeat those mistakes with the introduction of mandatory EID in cattle by ensuring the infrastructure is in place for effective data use, sharing and analysis to support improvements in production efficiency, reproduction rates and GHG emissions.

Embracing technology could also help mitigate the shortage of large animal vets in the industry, and the potential to engage with the veterinary profession to support uptake of PLF technologies was highlighted.

Uptake of new technology differs significantly depending on the livestock species – eg broiler poultry flocks are restocked every seven weeks allowing rapid uptake of improved genetics and new technology. By contrast the biological lag phase for a suckler beef herd is a major barrier to uptake of new genetics and technology, and this is often overlooked by policymakers.

Concluding the meeting, ST thanked guest speakers, members and stakeholders for their contribution to an informative and thought-provoking session highlighting the potentially transformative contribution of precision livestock farming technologies, as well as the potential barriers to more widespread uptake, and how these might be addressed, including by the decisions of policymakers.