



All-Party Parliamentary Group on Science and Technology in Agriculture

Notes of a Zoom Meeting held on Monday 22 March 2021

Hosted by NIAB, Cambridge

PM's Task Force on Innovation, Growth and Regulatory Reform

How can we use post-Brexit Regulatory Freedom to unleash UK Agri-Science Innovation

In attendance:

Members:

Julian Sturdy MP (Chair)
George Freeman MP
Lord Cameron of Dillington
Lord Taylor of Holbeach
Lord Curry or Kirkharle
Earl of Lindsay
Lord Inglewood
Lord Trees
Philip Dunne MP
Mark Logan MP
Owen Paterson MP
Viscount Ridley
Baroness Jones of Whitchurch
Lord Waverley

Stakeholders:

Paul Billings, Germinal; David Hill, farmer; Jonathan Gill, Harper Adams; Ian Munnery, SESVanderHave; Jack Ward, British Growers Assn; Liz Scott, NIAB; Joe Brennan, UK Flour Millers; Prof Sir David Baulcombe, Cambridge Univ; Graham Brookes, PG Economics; Sam Brooke, BSPB; Milika Buurman, Elsoms; Luke Gibbs, Syngenta; Prof Johnathan Napier, Rothamsted Research; Alastair Leake, GWCT; Neil Bragg, AHDB; Ed Barker, AIC; Catherine Barrett, AIC; Vladimir Nekrasov, Rothamsted Research; Bill Parker, AHDB; Ian Graham, York Univ; Jim Godfrey, NIAB; Catrina Prince, House of Lords; David Alvis, CFG; Julian Little, JLC; Robin Wood, Elsoms; Tom Bradshaw, NFU; Richard Harrison, NIAB; Norman Coward, CFG; Tom Allen-Stevens, BOFIN; Louise Courts, Defra; Emma Green, British Sugar; Huw Jones, Aberystwyth Univ; James Clarke, ADAS; Saskia Hervey, Earlham Institute; Vicky Foster, BBRO; Max Hubbard, Defra; Leah Segal, Defra; Helen Ferrier, NFU; Frances Gawthrop, Tozers; David Watson, Bidwells; Mariam Kazem-Malaki, Sense About Science; Graham Jellis, AFCP; George Skilling, STFC; Geoff McBride, STFC; Prof Jonathan Jones, TSL; Hugh Oliver-Bellasis, farmer; Nick Major, ForFarmers; Dave Bench, CPA; Dr Tina Barsby, NIAB; Andrew Loftus, CFG; Nick von Westenholz, NFU; Fraser Black, CHAP; Paul Temple, farmer; Marion MacPherson, Bayer CropScience; Mark Buckingham, Bayer CropScience; Hendrik zu Knyphausen, Hummingbird Technologies; Will Hayter, Cabinet Office; Camilla Harrison-Allen, Cabinet Office; Bill Clark, NIAB; Daniel Pearsall, Group Co-ordinator.

1. Introduction

APPG chair Julian Sturdy MP welcomed members, guest speakers and stakeholders and introduced the session as an opportunity to feed in thoughts and ideas on post-Brexit regulatory reform in the agri-science sector to the Prime Minister's Task Force on Innovation, Growth and Regulatory Reform (TIGRR) on which former APPG chair George Freeman MP was leading on the bioscience, agritech and cleantech sectors.

George Freeman MP (GF) thanked the APPG for hosting the session and explained the remit of the Task Force, led by three backbench MPs Sir Iain Duncan Smith, Theresa Villiers and himself, which had been appointed in February by Boris Johnson – free from departmental constraints and supported by a team of 15 top civil servants in the Cabinet office - to scope out and propose options for how the UK can take advantage of its new regulatory freedoms outside the EU to drive innovation and accelerate the adoption of new technologies, scale up productive ideas and start-up businesses, reduce market barriers and cement the UK's position as a global science and technology superpower. GF indicated that after 74 roundtable meetings in the past 2 months the team was now beginning to put together its report and recommendations, so the APPG session was extremely timely to input ideas from practical commercial agriculture.

GF indicated that the economic shock of the Covid pandemic would require a massive recovery effort, and the PM recognised that science and innovation would be at the heart of that. The Task Force was seeking bold thinking, radical new ideas with the potential to unleash the UK's economic and growth potential.

GF added that the work of TIGRR would have a strong focus on unlocking whole new industries, like ending the EU ban on GMOs and opening up the entire agricultural genetic trait field. He believed the public could now be brought on board with concepts like developing drought resistant crops for Africa, growing smart crops for nutraceuticals and functional foods, as well as looking for example at ideas like producing industrial hemp for cannabinoid medicines, likely to be a £40bn industry in 10 years with the Canadians currently in the lead.

GF explained that the work of the Task Force would also cover more effective implementation of important regulatory frameworks for agri-environment schemes, as well as sustainability metrics to help optimise productivity not only of food but also of other valued public goods such as biodiversity, carbon sequestration, clean air, clean water, habitats etc, and whether the UK could lead the world in the science of agrimetrics, defining what a 'sustainable' pint of milk or bag of flour actually is – not based on emotion but on the science of measuring resource use and environmental impact per unit of production.

2. Guest speakers

Nick Major, Agricultural Industries Confederation (AIC)

On behalf of agri-supply trade organisation AIC, Nick Major (NM) highlighted four areas of activity in relation to post-Brexit regulation and innovation in animal feed:

- (i) Reduce the need for imported feed materials such as soya and at the same time provide UK arable farmers with a wider range of crop options by growing more high protein crops – eg peas, beans, rye, lupins – using new technologies such as gene editing to fast-track the development of improved varieties for domestic production.
- (ii) Remove burdensome EU legislative requirements on feed additives such as vitamins, amino acids and trace elements, currently a barrier to industry bringing innovative additives to market and often blocking potential sustainability and environmental benefits, eg methane mitigation.

- (iii) Amend retained EU legislation to enable the development of novel or alternative proteins for use in animal feed, such as insects, algae and other single cell proteins that could provide huge potential for the bioeconomy.
- (iv) Legislating on the segregation and classification of food waste so that more can be safely used as feed material so helping to address the circular economy and food waste.

Jack Ward, British Growers Association

Representing an association of producer organisations operating in the fresh produce industry, Jack Ward (JW) highlighting the exciting opportunity post-Brexit to close the UK's £6bn deficit in fresh produce, and presented a chart detailing the potential opportunities and barriers in each crop sector.

But JW singled out three key areas which would support economic growth and innovation across the fresh produce sector:

- (i) crop protection – with the shift from traditional chemistry to more biological controls, JW highlighted the need to develop a regulatory system which supports and encourages the development of more sustainable forms of crop protection;
- (ii) automation – given the increasing challenges of labour availability in the fresh produce sector, JW underline the need to accelerate R&D underpinning the practical application of automation in the horticulture sector;
- (iii) R&D infrastructure – turning to horticulture R&D more broadly, JW suggested that applied research of relevance to the fresh produce had been chronically neglected and under-funded for the past 20 years or more, highlighting Plant and Food Research NZ as a potential model to learn from.

Dave Bench, Crop Protection Association (CPA)

Dave Bench highlighted the immediate post-Brexit challenges to the supply of plant protection products to growers and identified the following key areas where action now by Government would make a difference:

- (i) A direction from the Defra Secretary of State to the Chemicals Regulation Division of the Health and Safety Executive, instructing the regulator to take advantage of the UK's regulatory autonomy and operate the regulatory system in an efficient and effective way, focused on the needs of GB & NI growers and avoiding the bureaucratic pitfalls of the EU regime we have now left. This would include interpreting guidance appropriately for UK conditions, using weight of scientific evidence.
- (ii) Provision of the resources necessary for the regulator to deal with the significantly increased post Brexit workload, essential if regulatory decisions are to be taken swiftly and predictably - allowing innovative new products onto the market faster.
- (iii) Delivery of a streamlined substance renewal programme, which could be done easily by only addressing those parts of the risk assessment that need to be reviewed, leaving those areas where there are no new requirements or other reasons to reconsider since the last review. DB indicated that this is exactly what is envisaged in the law, but to date the EU approach has persisted in going far beyond what is necessary and sensible.

DB added that these actions were all possible immediately, without changing the underlying legislation, and without affecting the high level of protection that the regime delivers for human health and the environment. The fundamental framework and standards for the regulation of

PPPs are broadly sound. What has been the cause of much frustration over many years is the slow and technocratic approach to implementing the framework within the EU institutions, the proliferation of complex guidance, and the politicisation of decision making. The UK now has an opportunity to break free of that poor implementation and re-establish a reputation for swift, predictable, evidence-based decision making.

Dr Tina Barsby, NIAB

Tina Barsby (TB) highlighted two key policy areas which the UK now had the freedom to pursue post-Brexit to unlock significant progress towards a more sustainable and productive primary agriculture sector:

- (i) Sustainability metrics - 10 years since Professor Sir John Beddington's Foresight report on global food security urged the UK Government to take a lead in promoting 'sustainable intensification' in agriculture, TB indicated that little progress had been made at UK level to define, measure or monitor what that means in practice. She suggested that the UK now has a unique opportunity to embed data science and sustainability metrics at the heart of a domestic policy agenda focused on securing the optimum balance between food production, climate resilience, resource use and environmental impact. She noted that access to metrics capable of objectively and consistently monitoring a broad range of sustainability parameters in relation to output would be essential to define the concept of sustainable efficient production in practice, to set targets, measure progress and develop coherent R&D programmes. It would also provide the basis to understand and disseminate advice on best practice throughout the industry – perhaps beginning with a few Key Performance Indicators as recommended by Sir Peter Kendal's agricultural productivity working group feeding into the Food and Drink Sector Council. TB added that the opportunity to do this already exists within the Agriculture Act, which includes new provisions on data sharing, on providing farmers with the equipment and technology to generate and collect data, and on the development of policies to support improved productivity and resilience in agriculture.
- (ii) Protein crops for UK – TB highlighted opportunities, using new breeding technologies, to transform the performance of leguminous crops such as faba beans and soybeans under UK growing conditions. These are neglected crops in terms of private sector plant breeding, and yet the economic, environmental and climate change opportunities of these Nitrogen-fixing break crops, as a potential source of home-grown, plant-based protein for both livestock and human consumption, are virtually limitless. As a clear case of market failure, this was an opportunity for Government to step in for the public good – through a Government-backed pre-breeding or even full-scale legume breeding programme - to help improve the performance of these crops in terms of physical yield and resistance to pests and diseases, as well as their quality and nutritional profile to provide a sustainable, plant-based source of essential proteins and oils.

Andrew Loftus, Commercial Farmers Group (CFG)

On behalf of the CFG, Andrew Loftus (AL) presented the case for an alternative method of accounting for methane emissions in relation to livestock production. AL explained that while the current accounting method for GHG emissions (GWP100) measures emissions by warming potential, it does not accurately reflect the contribution of different GHGs to warming over time – a critical factor.

An alternative model (GWP*) developed by UK scientists at the Oxford Martin School, University of Oxford, better accounts for these effects and so more accurately reflects the true warming impact of individual GHGs, in particular those of short-lived climate pollutants such as methane. AL suggested that reliance on the GWP100 methodology to date has created a polarised 'them and us' stand-off in the UK around the sustainability of ruminant agriculture, which is causing

confusion and hampering progress. Adopting dual-accounting GWP100 and GWP* – a simple exercise – could:

- i) help UK farmers better understand the true impact of their activities thus increase engagement on opportunities to mitigate climate impact;
- ii) shift the debate from inaction and seeking blame, to ‘unblocking’ the pathway towards actively seeking solutions across UK industries and society as a whole;
- iii) support new opportunities for collaborative approaches between UK agriculture and Government;
- iv) offer UK Government a post-Brexit opportunity to demonstrate (domestically and internationally) innovative and science-based fresh thinking.

Nick von Westenholz, NFU

Speaking for the NFU as Director for international Trade, Nick von Westenholz (NvW) welcomed the Task Force’s ambition to unlock growth and innovation through post-Brexit regulatory reform, but cautioned that the normal processes of impact assessment and understanding the rationale for regulatory change should not be overlooked. This was particularly the case in relation to trade and the UK’s evolving relationship with the EU, and ensuring that any regulatory reforms implemented by the UK did not inadvertently block access to a potential market of 500 million customers.

Ian Munnery, SESVanderHave

Focusing on the plant breeding and seeds sector, Ian Munnery (IM) highlighted the need to address a disparity between major and minor crops in terms of breeding investment which, given the limited size of the UK market, had not supported innovation in smaller niche crops.

That did not mean, however, that given the right signals and support the UK could not lead in the generation of added value traits, including climate resilience traits such as saline tolerance and drought tolerance in sugar beet, which could be deployed elsewhere – and even more effectively with advanced breeding methods such as gene editing.

IM emphasised the urgent need to make the research funding and grant application process less complex and time-consuming, and also questioned whether the UK should be re-allocating overseas aid budgets to support strategically significant innovation in food and agriculture through public-private partnerships focused on developing world opportunities.

Other reform opportunities included the R&D tax credit system, which like the grant system is hugely convoluted and also creates disparities between larger and smaller businesses.

Ultimately IM suggested that despite the UK’s relatively small footprint as a market, its potential contribution as an exporter of scientific solutions and innovative technology was very significant. However, it would require interim support and creative approaches from Government to kickstart the necessary investment from the private sector to realise those growth opportunities.

Fraser Black, CHAP

On behalf of CHAP, Fraser Black (FB) highlighted three potential areas for regulatory and policy reform with the potential to drive sustainable growth and innovation in the agriculture and horticulture sectors:

- (i) Biorationals – FB described the opportunity to develop biopesticides and biostimulants as alternatives to synthetic chemical fertilisers and pesticides, but innovation in this sector was hindered by inefficient legislation designed for traditional PPPs not biologicals, highlighting the need for specific legislation for biorationals and bespoke infrastructure to accelerate testing, validation, certification and demonstration.
- (ii) On-farm clean growth – FB identified the opportunity to help farms diversify, reduce waste, improve margins and support UK food resilience through a new mixed farming model combining new technologies (Anaerobic Digestion, Combined Heat & Power and Controlled Environment Agriculture) to utilise farm waste streams to generate energy and recover nutrients as new revenue streams.
- (iii) Healthier eating options – FB highlighted the need to initiate an alternative protein strategy to help shift consumer dietary habits towards new healthier protein sources, rebalancing domestic protein production from animal to plant, substituting feed imports (eg soya) to meet demand, improve health and reduce healthcare costs.

Paul Temple, Global Farmer Network

Reflecting on the degree to which EU membership had frustrated UK farmers' access to the agricultural technologies and innovations readily available to producers elsewhere, Paul Temple (PT) highlighted the need for the UK to adopt a global perspective and to align our regulatory approach with progressive agricultural economies around the world.

He underlined the need to see new technology in action through trials and on farm demonstration, noting that the urgent pressures of climate change meant that there was more reason than ever to embrace new technology, and for there to be a greater connection and joined up policy approach across Government departments than ever before.

PT added that the standard three-year R&D projects and budget calls were not long enough to support meaningful programmes of research and development in agriculture, which needed longer time horizons of 10 years or more.

Marion McPherson, Bayer Crop Science

Underlining Bayer's global commitment to sustainability, to data science and metrics, and to reducing the environmental footprint of agriculture and food production through the company's products, technologies and services, Marion McPherson (MM) welcomed the UK Prime Minister's commitment to liberating Britain from the EU's anti-science rules, and the subsequent launch of the Defra consultation proposing to set aside the 2018 ECJ ruling classifying gene edited products as GMOs.

MM indicated that the current direction of travel for UK policy in relation to agricultural science and innovation was extremely encouraging, not only in fostering greater international regulatory alignment but also making the UK a more attractive place to invest and to develop research collaborations.

Hendrik zu Knyphausen, Hummingbird Technologies

Focusing on the opportunities of drone technology in agriculture to improve efficiency and sustainability, Hendrik zu Knyphausen (HK) suggested that the use of agricultural drones in the UK is associated with high cost, and as a result is not accessible to 80% of farmers, primarily due to over-precautionary regulation. He highlighted the example of fragmented farms rather than ring-fenced farms, which under current BVLOS (Beyond Visual Line of Sight) regulations meant much higher costs due to multiple take-off and landing operations. HK confirmed that the technology to enable safe autonomous flying, flying multiple drones at the same time, or BVLOS

operation is already available, although further investment into safety technology is blocked or discouraged by excessive regulation.

HK highlighted a cost comparison with other countries where Hummingbird operates, such as Brazil and Ukraine, where the costs of operating drones are up to five times lower than in the UK, and where 1500ha/day could be covered compared with 300ha/day in the UK using exactly the same equipment.

Concluding, HK indicated that unwarranted regulatory constraints in the UK are out of step with technological developments, holding back further investment and innovation, preventing uptake of more sustainable approaches to crop production and placing British farmers and growers at a competitive disadvantage.

3. Concluding remarks

Concluding the session, GF thanked the APPG and all guest speakers for the range and diversity of suggestions, including the need for bespoke new legislation in relation to biologicals, the opportunity to develop new markets in alternative proteins and legume crops, and the need to accelerate regulatory approvals processes in line with other non-EU countries. He underlined the importance of providing specific details, whether in terms of model regulatory frameworks to learn from, or how the changes proposed might be implemented in practice.

He also expressed disappointment at the apparent failure via the Agri-Tech Strategy to develop a consistent set of rigorous, science-based metrics to determine agricultural sustainability, and the missed opportunity to lead the world in this field.