

## **All-Party Parliamentary Group on Science & Technology in Agriculture**

**Notes of a meeting held on Tuesday 13 May 2014  
Committee Room 9, Palace of Westminster**

### **Building public support for UK agri-science**

#### **Present:**

#### **Members**

Earl of Lindsay (chair)  
Baroness Hayman  
Lord Boswell of Aynho

#### **Guest Speakers:**

Mark Lynas, author, environmentalist and former anti-GM campaigner  
Ian Blatchford, Director of the Science Museum  
Guy Smith, Essex farmer and NFU Vice President

#### **Stakeholders**

Sez Maxted, NIAB Trust; Harriet Pickles, Which?; Sarah Hugo, Fera; Mimi Tanimoto, UK Plant Sciences Federation; Harry Greenfield, APPG on Agro-Ecology; Gordon Jamieson, John Innes Centre; Anna Tiley, Society of Biology; Jack Ward, British Growers Association; Charlie Whitmarsh, Frontier Ag; E. Duxbury, POST; Rosanna Greenop, POST; Helen Ferrier, NFU; Huw Jones, Rothamsted Research; Sile Lane, Sense About Science; Martin Collison, Collison Associates; Brendon Noble, NALEP; Mark Tinsley, Commercial Farmers Group; Mark Buckingham, Monsanto; Tina Barsby, NIAB; Chris Atkinson, Natural Resources Institute; Ian Crute, AHDB; Penny Maplestone, BSPB; Andrew Mayer, BASF; William Neville, Burges Salmon; Jeremy Macklin, Hutchinsons; Richard Whitlock, Oxford Farming Conference; Steve Knight, USDA; Oliver Savory, NFU; Mike Bushell, Syngenta; Calum Murray, TSB; Ian Meikle, TSB; Christine Tacon, Groceries Code Adjudicator; Clare Wenner, AB Sugar; Stefana Ailioaie, Bayer CropScience; Neil Hipps, University of Kent; Fiona Fox, Science Media Centre; Ginny Pope, Gatsby Foundation; Daniel Pearsall, Group Co-ordinator

### **1. Welcome & Introduction**

Lord Lindsay (JL) welcomed Members and stakeholders to the meeting and introduced the session as the second in a short, focused series of meetings hosted by the All-Party Group to examine consumer attitudes to agri-science, and explore ways to build better public engagement, understanding and acceptance of the use of technology and innovation in farming and food production.

JL noted that this work programme was intended to support the implementation of the Government's Agri-Tech Strategy, responding to the challenge laid down by Science Minister David Willetts when he spoke to the All-Party Group in 2013 and asked why, when other industrial sectors were so keen to trumpet their hi-tech credentials, the UK's highly innovative agri-food sector continued to present itself in traditional and old-fashioned terms. Mr Willetts had encouraged the All-Party Group to explore ways to transform public opinion on the wide range of agricultural technologies available, and to champion the UK's role as a leading global centre for agri-food research and innovation.

JL reported that the Government's chief scientist Sir Mark Walport had been the guest speaker at the Group's first meeting in this programme, focusing in particular on the general principles behind effective public engagement on controversial scientific topics – for

example, don't treat the public as ignorant and assume they need 'educating'; focus on the objectives and challenges (eg food security/sustainable development/climate change) rather than specific solutions or technologies; and be as open as possible about the range of options available. Encouragingly, Sir Mark also considered that media communication and public acceptance of science in agriculture was in a much healthier state today than it had been 10 or 15 years ago.

Introducing the three guest speakers, JL suggested that this second meeting provided an excellent opportunity to move the discussion on from these framing principles to explore the range of factors influencing consumer attitudes to the use of science and technology in agriculture, from the campaigning activities of environmental NGOs and the farming industry to the broader role of public science communication and education.

## **2. Guest speakers**

### **Mark Lynas, author, environmentalist and former anti-GM campaigner**

Mark Lynas (ML) opened by referring to his previous involvement in anti-GM activism which included trashing experimental trials of GM maize, sugar beet and oilseed rape.

While the anti-GM movement remained very influential around the world, ML explained that his personal viewpoint on GM had changed after examining links with the climate change debate. After discovering that the same degree of scientific consensus existed behind climate change the safety of GM crops – supported by the same scientific institutions – he realised the fundamental inconsistency of accepting the scientific consensus where it related to climate change but not on biotechnology.

Since changing his mind on GM publicly at the Oxford Farming Conference in January 2013, causing something of a backlash among the NGO community, ML described some of the work he had been doing with the Bill and Melinda Gates Foundation to support GM crop development where public sector research could make a really significant difference to people's lives.

This included the development of virus-resistant GM cassava in countries such as Kenya, Tanzania and Uganda, which was a potentially life-saving innovation yet confined to heavily guarded experimental trials due to superstition and political resistance in those countries - strongly influenced by the scaremongering tactics of activist NGO groups which included charities such as ActionAid.

ML also highlighted the importance of the GM Golden Rice project in providing a potential route to address Vitamin A deficiency – responsible for killing 1.5 – 2 million people per year according to WHO. But anti-GM activists had set back the progress of this project after trashing a trial plot of Golden Rice in the Philippines last year.

ML had just returned from Bangladesh where he had been working with Cornell University and USAID on a project to bring pest-resistant GM Bt brinjal (aubergine) to market – a development which would enable farmers to avoid health issues caused by spraying insecticides up to 160 times during the brinjal growing season. But already the introduction of South Asia's first GMO food crop was being demonised by media campaigns and activists from abroad trying to prevent farmers having access to the technology.

ML noted that a number of GM projects involving UK public sector research also offered exciting potential - eg blight resistant potato to reduce fungicide use, and GM camelina as a

renewable source of healthy fish oils – but the prospects for commercial, on-farm development of both were limited due to the restrictive regulatory environment in Europe.

Against the backdrop of climate change, the recent yield plateau in global cereal productivity combined with continued rapid growth of the human population meant the world was entering an era of increased food scarcity. There was an urgent need to be less superstitious and more pro-science in relation to farming and food production.

In conclusion, ML noted that Paul Ehrlich's dire warnings in the late-1960s of the number of people about to starve did not come true because Norman Borlaug and his colleagues brought about the Green Revolution through advances in agricultural science. A new 'Gene' Revolution – focused on altering the biology of crops to make them more resilient to greater extremes of drought, flood and temperature - would be needed to address the looming food security crisis the world was now facing.

### **Ian Blatchford, Director of the Science Museum**

Ian Blatchford (IB) highlighted examples of successful galleries and exhibits recently opened by the Science Museum on issues such as climate change and the future of water.

Experience suggested that the most effective approach to science communication and engagement was to present scientific issues in a calm and objective way rather than to adopt a campaigning approach – it was also important to bring a human dimension to each exhibit and include personal stories as part of the narrative.

In 2008 the Science Museum had hosted an exhibit on GM technology which had been moderately successful but lacked a personal and interactive dimension – more like a trade show focusing on laboratory research without the human stories behind it.

IB suggested that science communication was at its best when it asked questions and engaged the public – every year the Science Museum welcomed 3.4 million visitors, including more schoolchildren than any other UK museum.

IB acknowledged that the Science Museum's existing agricultural exhibits - comprising examples of outdated machinery and a series of dioramas of agricultural landscapes, were not a cutting-edge experience and had not changed significantly since the 1960s. He noted that that they were nevertheless very popular with visitors, indicating a clear appetite for visitors to understand and engage with the agricultural landscape.

IB confirmed that following a recent seminar with Defra and the Met Office, the Science Museum was keen to respond to the issues highlighted in the Government's Agri-Tech Strategy, and was currently planning to devote a large space in the museum to an exhibit focusing on agricultural engineering and plant genetics. As yet the final narrative and timetable remained to be finalised but the Science Museum was intent on doing a lot more to reflect the renewed policy focus and interest in agricultural technology and innovation.

### **Guy Smith, Essex farmer and NFU Vice President**

Guy Smith (GS) opened by referring to a 1930s cartoon from *Punch* magazine showing a stereotypical depiction of a miserable, downtrodden farmer, and recalled similar images of flood-hit farmers broadcast throughout the recent winter.

To win public support, GS argued that the farming industry needed to project itself as forward-thinking, progressive and dynamic, not as insular, grumbling and backward.

Today's farming generation understood and accepted the importance of interacting with the public and, although farmers were not naturally outgoing and communicative, GS considered that the industry had made significant progress in presenting itself to the public over the past 10 years. This followed previous generations of farmers who did a fantastic job in responding to demands to increase production, but did so by rapidly changing farming practice and the landscape without explaining to the public what was happening.

Farming excited interest and curiosity among children in a way no other profession could, and school visits to local farms and national initiatives such as Open Farm Sunday were immensely powerful not only in promoting and explaining farming to the public, but also in countering half-baked opinions about agriculture and its links to key issues such as animal welfare, landscape and food.

But while a lot was happening on farms and in rural areas, connecting urban audiences with the realities of modern farming remained a key challenge - and a major opportunity for London's Science Museum. GS questioned why the museum's treatment of other exhibits such as the story of flight traced the history and technological development of aviation from early prototypes through to the latest aircraft, while the agriculture section remained firmly rooted in the 1940s. He added that he was not at all heartened to hear that the historical dioramas of agricultural landscapes were very popular with visitors because these simply perpetuated and reinforced outdated perceptions of the farming industry.

It was vitally important to present agriculture as a technically advanced and science-based industry to the next generation of aspiring science graduates. GS therefore warmly welcomed Ian Blatchford's announcement that the Science Museum was planning to improve and update its agricultural exhibit. Life on the modern farm was about robotics, telemetry, remote sensing, GPS and precision – for example a tractor simulator would provide hands-on and positive experience of modern farm machinery and engineering.

GS added that consumers instinctively believed – or liked to believe – that nature produces our food, not science, and that until that myth was rooted out there would be no progress towards technologies like GM in the UK. Fundamentals of the debate such as this needed to be addressed before the specifics.

### **3. Questions and Discussion**

The following key points arose during discussion:

ML agreed with GS that the naturalistic fallacy was the single biggest influence on public attitudes to modern farming – and the idea that Nature knows best and that our food should be as natural and traditional as possible was regrettably reinforced by industry advertising showing unrealistic portrayals of agriculture.

IB highlighted the contrast between public attitudes towards the role of science in food and health applications. Visitors to the Science Museum relished the most interventionist use of science in medical applications, yet it might not even occur to them that there was interesting science going on in agriculture.

GS noted that Carling had dropped a TV advert tracing the beer production process back to the farm because it drew a negative reaction from consumers who didn't like the idea that beer was produced from barley. It also highlighted the dilemma between presenting a 'dirty-handed honesty' image of farming, often traded on by the industry, instead of as a technically advanced sector of industry.

Lord Boswell suggested that it was important to acknowledge and discuss problems or shortcomings in scientific advances – eg build up of blackgrass resistance to weedkillers – rather than presenting an arrogant view of science as the silver bullet answer to all challenges.

ML saw no logical reason why GM crops could not be grown organically, but that in practice GMOs had become the lightning rod for a whole range of concerns, whether in relation to ownership of germplasm, corporate control or resistance management, none of which were specific to GM technology.

GS suggested that GM Roundup Ready wheat could be major tool for UK growers in tackling the problem of resistant blackgrass, but that if over-used it could lose its effectiveness and some other approach would be needed – this was the nature of agricultural innovation. He noted that the treatment of GM technology was polarised as ‘good’ or ‘bad’ and this differed significantly from the way other technologies were viewed – eg hydraulics or robotics – which would be considered according to their benefits for particular applications. He highlighted the need to move on from a polarised GM debate.

IB suggested that on controversial scientific issues the public tended to split into a small number of utterly convinced and an equally small number of utterly unconvinced, with the vast majority in the middle. Communicating science was often complex but it was important to tell an intelligent public the whole story as objectively and dispassionately as possible.

Baroness Hayman (former Government Minister responsible for GM over the period when Mark Lynas was trashing crops) suggested that the public’s reaction to risk was not always scientific or rational – as evidenced by the lack of any public backlash to reported links between using mobile phones and brain tumours. By contrast, GM was not perceived to present any consumer benefits – if Golden Rice had been the first product things may have been very different. Food was an emotive issue and it was regrettable that the organic movement had opted to fixate on a romanticised, chocolate box vision of the countryside. She was hopeful that attitudes were improving slightly, but referring back to her time as Minister responsible for GM, she highlighted the irrationality of the hysterical media and NGO reaction to the Advanta seed incident - in which batches of non-GM oilseed rape were inadvertently ‘contaminated’ with 0.5% GM seed - as an illustration of the strength of sentiment attached to the issue. At the time, this had led her to conclude that the only thing to do was to batten down the hatches and wait for a more rational time while safeguarding essential research. She also highlighted the conspiracy of silence over the use of GM enzymes in vegetarian cheddar, and the fact that beneficial GM applications in medicine could not be related to food.

Mike Bushell (Syngenta) suggested that GM wasn’t necessarily the best place to start when talking about agricultural technologies – GM crops were unlikely to be available to UK growers for another decade yet there were plenty of other technologies to focus on, eg rapid advances in conventional plant breeding methods, and the use of unmanned drones and sensors to revolutionise biological control methods.

Fiona Fox (Science Media Centre) considered that a range of different approaches would be needed to improve the public’s understanding and acceptance of science and technology in agriculture. Encouraging more mainstream farmers and scientists to confront opponents and correct misinformation through the media was also vital.

As a prospective GM crop trial grower at the height of the GM debate, GS highlighted the very organised campaigns and unpleasant tactics of groups such as Greenpeace, including a letter drop addressed to mothers in his village warning of health risks to their children – his own children were also targeted at school.

ML highlighted the need to challenge the zero-sum attitude to the use of technology in food, the either/or approach to organic vs GM, marker-assisted selection vs GM, when in practice a combination of approaches might be best. These polarised, entrenched positions needed to be addressed, but it would involve meeting people half way, and taking their genuine concerns and fears more seriously.

William Neville (Burgess Salmon) expressed concern at the suggestion that the debate was pitting science against nature rather than focusing on how human ingenuity, through science, was harnessing the power and diversity of nature to meet our needs.

Sile Lane (Sense About Science) suggested that focusing the debate more on the public good and the role of publicly funded science and technology in addressing key challenges might help to cut through currently polarised attitudes on issues such as GM.

IB suggested that the Science Museum's new agriculture gallery would focus more on the technology and engineering of farming rather than food, but as such would a platform to highlight and discuss a much broader range of related issues.

Asked how and whether the green movement could be helped to transition into a less militant place on agri-science issues, ML indicated his belief that much of the motivation underpinning the environmentalist movement was rooted in an idealistic and nostalgic view of nature – ie not solutions based and incompatible with modern, hi-tech advances. The decision taken by the organic lobby to exclude GM was based on the naturalistic fallacy that nature knows best – even though in practice some organic pesticides are more dangerous and toxic than synthetic products. These were deeply held views and values about natural vs artificial, famously described by Prince Charles as belonging to the realm of God alone, signalling the irreconcilability between environmentalism and modern life, and making life as a pro-science environmentalist rather isolated.

Chris Atkinson (NRI) referred to a recent UK study which found that the public were losing interest in the debate over man-induced climate change and tired of being bombarded with facts and figures – instead the study suggested that scientists needed to be more open about how science worked to generate evidence and better understanding, engaging and discussing with the public rather than talking at them.

Ian Crute (AHDB) welcomed IB's announcement that the Science Museum was planning a new exhibit focusing on agriculture, asking what the narrative would be and who would be involved. IB responded that the narrative had not been finally decided, any ideas or suggestions were welcome – but clearly there was a need to remind people of the importance of science in their food.

Richard Whitlock (OFC) suggested that risk management was fundamentally about choices. People took risks in their everyday lives – drinking too much, smoking, driving too fast – all involving much greater risk than consuming GM foods but seen as within their control. GM was perceived to be outside their control – a key step therefore would be to empower consumers by labelling all GM products, including meat and livestock products reared on GM feed. This view was opposed by GS (why flag something up on the label if of no consequence?) but strongly endorsed by ML (transparency always best option if people say they want to know).

Asked whether public attitudes were changing towards science in agriculture and food production, GS considered that making the case for GM today was much easier than in 1999-2000, on the tail-end of the BSE crisis. IB suggested that public discussion of science in agriculture and food was lagging behind other sectors, eg climate science. The agriculture sector needed to engage and remind the public about the importance of science in

producing our food, but at the same time needed to be confident and certain about what it wanted to say. ML felt the UK had moved further in its discussion of this issue than any other EU country.

Mark Buckingham (Monsanto) argued that the UK had made significant progress in securing a more balanced debate and discussion of agri-science issues, moving faster than any other European country and supported by the positive contribution of initiatives such as Foresight, Science Media Centre, Sense About Science etc. It was also important to recognise that GM was already in widespread use on a global basis – virtually all soya imported into Europe for animal feed was GM, and there were positive stories to tell about the use of GM in cotton in delivering benefits for the environment, farmers' health and the welfare of smallholder farming communities in the developing world – if only retailers could be encouraged to do so.

Neil Hipps (University of Kent) highlighted the important contribution of social scientists in understanding what influences public attitudes and behaviour, and how best to interact with the public and communicate complex scientific messages in a positive way.

Highlighting the positive difference between the UK and other European countries, Jeremy Macklin (Hutchinsons), noted that French schoolchildren were taught in class about the evils of pesticides and GM crops.

Concluding the meeting, panellists offered the following recommendations to move the debate forward:

GS proposed that the Science Museum exhibit should feature a modern simulator tractor kitted out with GPS telemetry and robotics to communicate to visitors that agriculture is a modern, progressive industry keen to attract the brightest minds of tomorrow ("not a bunch of half-wits picking spuds into a paper bag as the current exhibits suggest"). GS encouraged IB to talk to the major tractor manufacturers to get the process moving.

IB cautioned against focusing on very young children, suggesting instead that the gallery should be designed to appeal to young adults (12+) upwards.

ML noted that the GM debate had highlighted a huge gulf between consumers and farmers, a gulf rapidly filled with superstition, fear and conspiracy by well-organised campaigners. The onus was therefore with farmers to be better communicators.