



Environment, Food and Rural Affairs Committee

Oral evidence: [Food Security](#), HC 926

Wednesday 12 February 2014

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Written evidence from witness:

- [National Farmers Union](#)
- [British Poultry Council](#)
- [British Retail Consortium](#)
- [Waitrose](#)
- [Agricultural Biotechnology Council](#)
- [Germaines Seed Technology](#)

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Members present: Miss Anne McIntosh (Chair); Jim Fitzpatrick, Mrs Mary Glindon, Mrs Emma Lewell-Buck, Sheryll Murray, Neil Parish, Ms Margaret Ritchie, Mr Mark Spencer

Questions [113-184]

- Witness: **Peter Kendall**, President, NFU, **Tom Taylor**, CEO, Agriculture and Horticulture Development Board, and **Andrew Large**, Chief Executive, British Poultry Council.

Q113 Chair: Good afternoon and welcome. Thank you very much indeed for participating in our inquiry. We are still waiting for Mr Kendall, but we are delighted that you are here with us. I will invite each of you to say who you are and which position you hold, if you would.

Tom Taylor: Tom Taylor, chief exec of the Agriculture and Horticulture Development Board, which is the overarching organisation over the six levy boards and the six sectors, which do everything other than poultry and fish, effectively.

Andrew Large: Andrew Large, Chief Executive of the British Poultry Council. We are the UK trade association, representing about 90% of the UK industry, for the poultry meat sector.

Q114 Chair: Are you concerned about the levels of self-sufficiency of UK production at present?

Tom Taylor: It is a different challenge in different sectors. If you look at the pork sector, for example, we are only about 42% self-sufficient. If you go into some of the

areas, the numbers go quite high. It is different for us, having all six sectors, because we cover beef and lamb, pork, dairy, horticulture, cereals and oil, and potato. That is six different sectors. There is a long-term issue about what that means. We all saw that with the Icelandic cloud, when there were planes that were stopped and significant issues about food that could not be brought in. Therefore, supermarket shelves did empty quite quickly. If you look at the dairy, it has to be on the shelf pretty quickly, in terms of freshness and everything else.

Andrew Large: From the poultry sector's point of view, I am not concerned today. The industry is around 70% self-sufficient overall, with a thriving import and export trade, making the balance up from UK production. I do have some concerns about future resilience, however, particularly around the modernisation of the poultry housing stock and the ability of the industry to maintain a commercially viable production system that includes an export trade, for those cuts of meat that are not particularly desired in the UK market.

Q115 Chair: Where do you think the most gains have been made in productivity in UK production over the last five years?

Tom Taylor: The cereals sector has done quite well. Beef and lamb has been relatively flat, with small gains. Pig meat is working hard to catch up. They have set targets in a campaign they have called Two Tonne Sow, which is to try to get two tonnes of sow meat out of the all the litters of each sow. They have actually set targets. We are very strongly benchmarking against the best in Europe, looking at where the best in Europe is and how they produce, and trying to improve. It is a patchy picture.

Andrew Large: From the point of view of the poultry meat sector, the improvements in genomics have been very significant, perhaps over a 20-year rather than a five-year time horizon. You are looking at improvements from a feed conversion ratio of two to a feed conversion ratio of closer to 1.6, over a 20-year time horizon. There is a very, very competitive market in poultry. There are three major breeding companies, all of whom are striving to produce the best combination of productivity yield, welfare and liveability for the farmer. Collectively, they are all producing significant productivity gains, and I think will continue to do so in future.

Q116 Chair: I will take this opportunity to welcome Mr Kendall. Thank you for joining us and participating.

Could I also ask how productive you think upland farms are, compared to farms on lowlands and on plains?

Tom Taylor: It is a different measure of productivity, in that they also have a significant function in maintaining the uplands as they are. They would have very other little uses. Particularly for the sheep farmers, there is a particular role in trying to produce a living whilst also making sure there is an environmental gain. If those sheep were not there, then how would that environment be maintained? Nobody else is going to maintain it. There is a balance. They have a dual role, effectively.

Peter Kendall: Apologies for being late; I was on the train coming down from Grantham, and it was delayed a bit. I apologise about that; it is rather ghastly weather. I apologise for coming in and having to pick up halfway through.

I am more optimistic about both upland and other sectors. A lot of this is a function of price. As we see stronger prices for all commodities right across agriculture, I see investment and confidence growing, even in the areas we have often talked about when I have been to the Committee in the past. The upland areas need to make profits. They need to have the confidence to make those investments. I see young farmers coming to those more remote areas, bringing new techniques and using smart technology, whether it is remote scanning or other technologies. These can actually help them build profitable businesses. Of course, as Tom Taylor says, it is important that they receive management payments as well, but I see, hopefully, commodity market prices driving that innovation.

Q117 Chair: As it is probably the last time you appear before the Committee, it is appropriate to record our thanks for what you have done for farmers. Have you had any chance to assess what the impact on farm production will be in those areas that are affected by flooding, at present?

Peter Kendall: We have not, yet. We are trying to do that. There is a lot of media interest at this moment in time. I was down in Boroughbridge on Monday lunchtime; it is horrendous. It is probably spreading to more areas. I know, from conversations I have had walking to the House, that there are more and more people being affected by the floods as we speak. The message I would take from the farming industry is that it would be very clear to say that human life has to come first. We have to worry about the big urban areas. What we need to make sure of is that, where we can, we do our best to prevent this sort of crisis happening again, on farmland and to rural dwellers. There is a strong sense that we have not put the measures in place to prevent it. We are very clear that we need to assess the damage. We need to make sure lessons are learnt and we do what we can to minimise. Let's be really honest: it is horrendous. Hopefully, it is a one-off rainfall that is causing this. It is exacerbated by the way we have managed the environment.

Q118 Sheryll Murray: Mr Kendall, if I could ask you first, and then Mr Taylor and Mr Large, how much scope is there to increase productivity by changing land-use patterns or our farming systems in the UK?

Peter Kendall: I quite deliberately talk about the need to significantly intensify our management. I say that provocatively. We need to increase not the use of inputs, such as fertilisers or pesticides, but the intensification of our management. Because of the way technology is moving on, we can smartly farm our land much more intensively, by using the right products in the right place at the right times to increase output.

When you then go and look at somewhere like Thanet Earth, you can see how, by using glass-house production or hydroponics, you can have really significant increases in production. For that to occur, we need a supply chain that works and that sends the right signals to farmers to make those investments. Down in the outskirts of Chichester, for example, you will see the glass-house industry there really racking up production, but it needs to be done on the back of confidence from retailers. They are going to want their output for the long term, and they are not going to make investments that are not rewarded and they lose a lot of money over. Given the right market signals, there is very significant potential to increase that by adapting our land use. That can be right from the use of better water management, to precision technology, to actually using either polytunnels or glass-covered production, as well.

Tom Taylor: Almost ditto: effectively, in our corporate plan that we are about to produce, the No. 1 priority for the organisation is to help our levy payers improve productivity. That is all about resource use, as Peter said, in terms of what we do with water and land. We are working hard with Harper Adams on the precision farming. There is a lot of resource we are using now that we do not think we need to use. That is the key issue: what can we recover and not use that we are currently using, to make the industries more productive?

That is a huge job. We spend 45% of our money on research, and then knowledge transfer on to farm. Without that knowledge transfer back on to the farm, the research in how you do this is completely wasted. We count that money together. Forty five per cent of the levy we collect is spent on that, because it is really important to help the farmers become more productive.

Andrew Large: From the specific point of view of the poultry sector, there are a number of areas of potential for increasing productivity. I mentioned genomics earlier on. Improving the ability of the birds themselves to provide good yields for farmers is going to be important, as it has been over the last 20 years. Also, because the poultry industry is unsubsidised—it does not pay levy, nor does it receive pillar 1 funding from CAP—it is very close to its consumers. It is very close to the retailers, the food service outlets, and very close to the man or woman in the street who is buying the poultry. That means it is very sensitive to market demands. Whether it is different cuts or different products being made available, the industry is always looking to maximise its ability to provide what the consumer wants, and to do so in a profitable way.

One other point I would like to add is that the global warming potential of poultry is significantly lower than for some other agricultural sectors. The water use, in terms of water per kilo of meat, is also significantly lower. As we look at climate change, carbon emissions and the energy usage of various different sectors, the poultry industry has a very good opportunity to be part of the UK agricultural sector being able to reduce its emissions and to become more sustainable, as part of the overall food security debate.

Q119 Sheryll Murray: If I could just continue, I would like your view. The Government says that the CAP limits productivity by enabling inefficient farmers to continue farming. Could you give us your view on that statement?

Peter Kendall: We could have a very long debate about the whole purpose and role of the CAP. There are some really negative aspects to CAP. I always think that the worst aspect of CAP is that often the media have a debate about the CAP that was 20 years ago, rather than the one of today. People still talk about food mountains and production support that damages the environment. That is a debate that we really should have parked some time ago. The debate about CAP today concerns some of the greening measures that are due to come in. We are not yet sure exactly how that will be implemented. We may have to take land out of production for greening measures. We may be forced to grow three crops, where through modern land management, techniques and structures, we have learned to specialise in areas and rotate rotations around. If that makes us less productive, then the CAP, in its delivery, is making us less productive. The challenge for saying that our payments keep inefficient farmers in production is quite emotive. The reason I say that is because if it is devil take the hindmost, and let people go out of business because they are not cutting the mustard, that is a pretty tough message. It is tough because their

competitors get that support. If we say that we are going to let the market forces operate, it is fair to say that we would reduce those support payments to farmers evenly across Europe.

We all know the crisis we had in the dairy industry, from 2012. I have said this to the Committee before. A dairy farmer in Denmark or Holland gets nearly twice the payments that an English dairy farmer gets. It might be keeping the English dairy farmer in business if he has a bad year, but it is actually helping the Dutch or Danish dairy farmer invest in better technology—maybe robotic milkers—or better advice on how to get dry matter conversion into the diets of cows. Of course, it plays a role, but you could argue that because, for a dairy farmer, the payment is half what it is for a Dutch or Danish competitor, we are already losing and driving that inefficiency into our farmers.

One more example is arable farming—

Chair: We might have to stop there, because we have three panels this afternoon. Are there any other comments?

Tom Taylor: We have restricted ourselves. As a slightly different organisation to the two gentlemen either side of me, a non-departmental public body, I have to be very careful about not lobbying on these issues, we have restricted ourselves to the evidence in the science base. We have provided a lot of evidence in the science base of what this would mean if you grew three crops instead of two on 30 hectares. We have actually done that. That evidence supports what Peter has just said.

Andrew Large: We are in a slightly different position as well, because the poultry industry does not receive direct support payments from CAP. Clearly, though, as the purchasers of 20% of the UK wheat crop, we are directly influenced by what happens with CAP. We have great concerns, as Peter has said, about the unwanted side effects of land being taken out of production, and of potential further volatility being introduced into the price of grains.

Q120 Ms Ritchie: Moving on to new farmers and new entrants, how important are new entrants to the farming industry for our future food security, Mr Kendall?

Peter Kendall: They are absolutely vital. The most exciting farmers you will ever meet are first-generation farmers. I am not sure you can legislate for it. The most important thing we can do is big up the industry, talk it up and make it an attractive career choice for young people to go into university and study. They will not all be primary operators; they may come in as managers, advisers or specialists in different sectors. It is absolutely, vitally important that we bring fresh thinking. There is a generation of farmers of my father's age, who came in after the Second World War, often with some of the best degrees. They really shook up the industry with fresh, new thinking. It is vitally important.

Tom Taylor: I could not agree more. On 6 November, we launched a new AgriSkills Strategy to help the whole industry, working with Lantra, Landex, Harper Adams and all the universities. It is vital that we get people into the industry. It is also vital that we do those other technical roles that people do on farms. Everybody cannot have a degree and do the management. The skills issue is about two things. It is new entrants who have bright, new ideas, but maintaining the skill level of people that we have in the industry is equally important. We need to take a two-strand approach.

Andrew Large: I would endorse all of that. The characteristics of the poultry industry are slightly different, in that around half of poultry farms are integrated with food processing plants in the same commercial organisations. Clearly, the process by which you get new entrants in is slightly more corporatised than the independent, owner-managed or tenant farmer that Peter and Tom might have been talking about. There is a lot of thought being put into expanding the grower base.

One of our major members has launched a project recently looking to create 400 more growers. They are looking to do that by combining support, in terms of a reliable customer for the product, any planning constraints that there may be in place for the new farm, any regulatory issues that need to be overcome, and dealing with construction and the training, so that people are up to speed and ready to hit the ground running on a brand new, grade-A site.

Q121 Ms Ritchie: What should be done to support new entrants through the RDP, or other means? Maybe you have addressed some of that, but if you could be specific to the RDP programme.

Peter Kendall: We disagreed with the results from the CAP reform. We advocated, as did a number of Members of the House, financial support as a better way, rather than top-ups of single farm payment. Support for people to borrow money was a better use. Young people almost always have to pay a 3 to 4% premium on money. We would rather have seen that process. There will be a top-up, which I do not think is going to be that significant or make that big a difference. I think we will have to look to use the RDPE on training and helping making sure we get those correct messages across to young people.

Tom Taylor: We have put a bid in, and won two of the RDPE bids, to do the training and skills. We have people going out in the field to do it. Whilst the RDPE is going to be there, we will use it to bring money into the industry to develop skills.

Andrew Large: From the point of view of the poultry sector, clearly we are not in the CAP ambit. From our perspective, the commercial security is going to be the most important. You will not make an investment in a new farm facility unless you are going to have a market for it. That is where the strength of the integrated model comes across, because the farmers and growers are bound in with the food processing side. That is why we have less of a problem with getting new growers into the market than, perhaps, other farmers, where it is on a more contractual basis.

Q122 Neil Parish: There are three parts to my question. First of all, how important and achievable is sustainable intensification in enhancing our food security? Why is the poultry sector especially suited to sustainable intensification? How could you increase production sustainably? Finally, is enough being done through research and knowledge transfer to help farmers address the challenges of implementing sustainable intensification, climate-smart agriculture and precision farming into their production system? So some very easy questions there.

Peter Kendall: Sustainable intensification is one of those great throwaway lines that can mean everything to everybody. That would be the challenge for me. It is about smart land use. It is about the use of all available technology and innovation. There is no blueprint. The most important thing for me is the fact that we are changing our outlook; we want people to innovate and be smart producers of food. If I go back to the start of my

tenure as the President of the NFU, eight years ago, we had not had any global price spikes. We still had overhangs of food stock sitting in the European Union. The world is a very different place.

The drive for sustainable intensification, to me, is how we produce more food in a smart way. I coined the phrase “producing more, impacting less” a long time ago. What do any of these phrases mean, other than producing more food in a smart way?

Q123 Neil Parish: Do you mean less fertiliser and less fungicide? What do you actually mean by that?

Peter Kendall: I would hope so. It might, in certain cases, mean more in some places and not in others. It would be very targeted. My brother and I manage a farm that used to be under the Co-op’s management. We scanned all of that to start with and mapped it. This year, we will use 40 tonnes less phosphate on that farm than we did in the first year, going in, because it is all now put on in the right place and in the right quantities. That is a massive advancement. That is just one example. It needs a much more holistic approach.

The third part of your question was the knowledge transfer. No, we are not doing enough. One of the challenges for HDB and for future leaders of the NFU is to champion the need for getting these messages across. By using some really great examples of people who are doing things in a new, innovative way, other people get excited by that and adopt the technology, which is really important.

Tom Taylor: If you join those two up—without using the “sustainable intensification” phrase, because most farmers just glaze over, frankly. It is not a good place to go when you are starting to talk to anybody, because you have lost people before you start, frankly. Having said that, there are lots of practical things you can do to produce the results that sustainable intensification is looking for, without the buzz-phrase. We have things like the Better Returns Programme, where we get out on farm and do lots of benchmarking. It is simple stuff, but farmers understand it.

Farmers like talking to farmers. We use different farmers, pilot sites and all sorts of things, to get farmers on to other farms to see what the good guys do, and to get the guys that are in the next tranche aspiring to do what the guys in the top tranche do. There are always going to be some in the bottom tranche that you are really going to struggle to get at, but that is the same in every sector.

We actually use different tools; the Better Returns programmes and the benchmarking are out there. In a sense, they are a part of our knowledge transfer offering. The knowledge transfer is also about, “If possible, how do you use less water?” We have two roles. Our role is to make our levy-payers competitive and sustainable—that is, sustainable in a long-term, competitive business, as well as from a planet point of view and a sustainability point of view. We are trying to do those things together, if we can. For example, if you use less energy, you will be a more productive and, hopefully, a more profitable farmer, and you will do something for the planet. It is about how you get both of those together, so that there is a win-win for the farmer, without for ever having a pop at the farmer and saying, “This is your fault we’ve got this, that and the other.” It is trying to turn it on its head, and say, “Actually, no; this is the source of a lot of what we want.”

These guys can do this job, but if we keep coming and saying, “You’ve got to do sustainable intensification”, we will switch them off.

Q124 Neil Parish: The poultry industry is probably the best example of intensification.

Andrew Large: It is a very good example, yes. To explain where the poultry industry is today, had we not had the improvements in yield and productivity that we have had over the last 25 years, you would need 11% more poultry houses to produce the amount of meat we have today. I have an example from the United States context, although the breeds of birds are relatively similar. Without their improvements in field-conversion ratio, you would have 4,100 more square miles of corn being planted and consumed. The industry has already started that process of sustainable intensification. There is potential for improvements in things like genomic performance and in terms of the poultry housing stock. The NFU did a housing survey some years ago, which said that the average age of poultry houses was around 25 years. That average has undoubtedly got older now. That means that the latest innovations in heating, climate control, ventilation, feed management, water management and so on are more difficult to implement. There are significant opportunities for improvements in productivity by investment in new poultry houses.

I also think that, intrinsically, poultry is a very good meat for sustainable intensification. It is low fat, particularly when skinless. A standard breast fillet has something like three to four grams of fat and one gram of saturated fat. When you consider that women’s RDA is 70 grams of fat and 20 grams of saturated fat, this is a very small proportion of your recommended daily allowance. One kilo of poultry meat takes one unit of water. Lamb would take 1.6 units of water and beef 2.5 units of water. It is water efficient and, as I said before, it is also energy efficient. The poultry industry is already along the track of sustainable intensification. I think there is the potential to continue that.

Q125 Neil Parish: I am very interested in how keen you are on saving water at the moment, but I will not make the analogy. The next question is linked to water, in a way. Are future climate change risks being appropriately incorporated into UK food and farming systems? If you take the land that I farm on, it is very heavy. If it remains getting as wet as this, are we going to be able to grow the same crops? There is probably no magic solution, but how can farmers manage, be it climate change or be it climate pattern? Call it what you like.

Peter Kendall: I have been saying this for a number of years, now. Extreme weather events are the biggest risk to agricultural production around the world. I think we can manage a gentle increase in temperature, whether it stalls or whether it occurs over a 25-year period. You cannot manage with what is currently going on around the world. For example, California is currently in the midst of a drought and running out of water. I had an e-mail last night from some friends in Australia who said people are forcibly selling cattle. They are actually even killing them on farm; abattoirs have a waiting list of a number of months, because the drought is so bad in parts of New South Wales and Queensland.

At the same time last year, we had a record temperature of 40.5 degrees in Austria. We know what is happening and what has happened in recent years in the UK, and other extreme weather events we have had. Planning for agricultural production in that backdrop is incredibly difficult.

What we need to be doing is looking at how we can build resilience. It is one of the reasons why I have written every year—I think, for the last four—to the Treasury, looking at agricultural building allowances. We need to be looking to make sure that we can invest in the right sort of buildings that protect us and that help us increase animal welfare in this extreme weather, and that we increase our environmental performance. There are many things we can do; I use improving infrastructure as just one example.

I have made this point over a number of years. At the moment, you do not get agricultural depreciation on a reservoir. One thing we could be doing at the moment is filling them up, or even having additional ones we could top up, because then they give you resilience. You and I know as farmers, when it stops raining, it will probably stop for a long time and we will be moaning that it has not rained.

Tom Taylor: I will bring it round to what we talked about earlier. There is also the issue about the market, and the confidence for the farmer to invest in things that will help climate change. Without that confidence in the market, beyond next week's price or next month's price, then it is a real challenge to get people to say, "You have got to do this, because the temperature is going to change over the next five years", or whatever. You have to link it to the commerciality of the farm. I would not like the Committee to miss that point.

Andrew Large: I agree with that. The situation for poultry is slightly different, because poultry housing is clearly an artificial environment in its own right that is created. Clearly, energy use requirements for cooling and ventilation may well go up, and that may increase farmers' costs as a result. Another factor is the way in which farmers are able to have a stable regime, so that when they are making future investments in things like solar panels, biomass digesters or whatever they might be, they know that they have a stable, financial planning horizon to be able to calculate.

Q126 Jim Fitzpatrick: Can I just turn it to GM, please? I have three questions, which I will outline. Mr Large, what are the limitations on the greater use of GM in the UK poultry sector, and how does that impact on costs? How does it impact on our competition with other EU suppliers, as well as poultry suppliers in Brazil and Thailand? Mr Taylor, what is the Agriculture and Horticulture Development Board doing to help farmers understand, access and use new technologies? Will the new Agri-Tech Strategy help with the transfer of science and technology? Earlier on you started explaining the support you are giving, so you have already had a wee stab at that. Mr Kendall, what is the NFU's view on GM crops? A general policy statement would be very useful.

Andrew Large: I will be very quick. Poultry is not, itself, genetically modified; it is developed through traditional, pedigree hybridisation techniques. Genetically modified feed in poultry is now accepted by virtually all the UK retailers. I think there is only one that stands out. There has not been a significant consumer reaction. Poultry sales continue to grow in the UK, so far as I am concerned, at this point in time, restrictions on GM are not a particular issue that applies to the UK poultry sector.

Q127 Jim Fitzpatrick: Which is the retailer?

Andrew Large: Chair, am I at liberty to name the retailer? It is Waitrose. It is on their website; it is publicly available.

Chair: That is very appropriate, because we are hearing from them.

Tom Taylor: We are putting ourselves behind the rest of Europe, frankly. In the UK and Europe, we are behind the rest of the world with our approach the GM. There are products that we bring into this country from America, and they are all GM. You virtually cannot get non-GM soya, but there is no problem with anybody. It is going all around the world. Unfortunately, we have a particular attitude to GM that I think makes us very uncompetitive, against the rest of the world. If you look at drought resistance—though, at the moment, that is odd—and if you look at the ability of GM to change what plants could do, whether it is in drought or in more water, then there are ways and means of doing this.

Through the knowledge transfer teams, we are trying to do that. As I did touch on earlier, we are trying to work a programme through with colleges, Harper Adams, Cirencester and the Dutch college, et cetera, about how we can get more information and sensible knowledge that is simple for people to understand. There is so much technology and technophobe information that you can write papers on GM that nobody will understand. Sometimes I think that happens quite deliberately, so that nobody understands it. Our job is to demystify and to simplify this. If we do not, we will carry on being unproductive.

Peter Kendall: NFU policy is that we are in favour of new technology. We believe that GM will be one of the solutions, not the only solution. Our concern is that there are so many new plant-breeding techniques that we may find we are rejecting some other, new developments of traits. We can switch on and off certain genes. Are we going to bag that as GM as well and, as Tom Taylor just said, leave ourselves further behind the rest of Europe?

I would like to give you one statistic that Syngenta have been using in presentations recently. In 1989, 33% of the big seed plant companies' R and D spend occurred in Europe. Today, they spend €7 billion, and only 7% of it is spent in Europe. The rest is being spent round the world, where there is an interest and a hunger in having that technology. We are rapidly turning people away from making the investments here. The UK used to export agriculture solutions to the world. We are now shifting that to other people.

Q128 Jim Fitzpatrick: In terms of more usage, is the obstacle consumer perception, media presentation or is it regulatory?

Tom Taylor: From a European point of view, part of that is regulatory, very definitely. Supermarkets and retailers have concerns about what the public perception of this is. I think that that partly goes back to the fact that this has not been simply explained to people. I am not having a pop at the retailers for that, because I can understand where they are. Collectively, we do have to demystify this, to make sure that people are not frightened about GM and we can use it sensibly. European regulation is one of the biggest hurdles.

Peter Kendall: It is, of course, European regulation. I also think we need to have positive GM stories to tell. They had demonstrations in Rothamsted last summer. They were taking a peppermint gene and putting it into the wheat plant so that it just repels

aphids. You do not have to use an aphicide, late in the life of the wheat plant, which must be bad news for consumers; instead, you just have the peppermint gene, which deters the aphids from going anywhere near the wheat. Even Tony Juniper, ex-Director of Friends of the Earth, said on radio, “Wow; that sounds interesting”. If we can get Friends of the Earth advocates to be saying, “Wow; that sounds interesting”, perhaps we can start winning the day, other than saying, “It means I can put Roundup on my wheat.”

Q129 Mr Spencer: In connection to the poultry industry, your consumers would want you to have a more extensive system, but you are being driven towards a more intensive system. I want to know how you are going to strike that balance, really.

Andrew Large: The watchword is “consumer choice”. In reality, there is consumer demand for all the different systems, from the standard, indoor broiler production, through free-range, to organic. All of our industry is committed to providing consumers with that choice. In reality, there is limitless opportunity. If consumers wanted to buy different production patterns, they could. They could find it on the shelves. The system would adapt very quickly to providing what the consumer wanted. The current split—where it is very largely standard, indoor, barn-reared birds, with a much smaller fraction of free-range and a smaller still of organic—reflects, essentially, the current situation of consumers’ choice.

Q130 Chair: What would you say, very briefly, is the biggest single challenge to food security in the UK?

Peter Kendall: Extreme weather.

Tom Taylor: Extreme weather.

Andrew Large: Availability, which, if you like, is a subset of extreme weather.

Q131 Chair: Can I thank you, gentlemen, very much for contributing? May we wish you well, Mr Kendall? We note your formidable contribution to British farming over eight years, which is remarkable and will be recognised, I am sure. We wish you all the best. Thank you very much indeed, all of you.

Examination of Witnesses

Witnesses: **Andrew Opie**, Director of Food Policy, British Retail Consortium, and **David Croft**, Director of Quality and Technical, Waitrose, gave evidence.

Q132 Chair: May I welcome you both? Thank you for contributing to our inquiry into food security. Would you like to give your names and positions, for the record?

Andrew Opie: I am Andrew Opie. I am the Director of Food and Sustainability Policy at the British Retail Consortium.

David Croft: I am David Croft. I am the Director of Quality and Technical at Waitrose.

Q133 Chair: I am going to ask you about price certainty in a moment. Mr Croft, in your written evidence you say that food security, in the view of Waitrose, will be bolstered, in particular by increased access to investment for farmers, especially tenant farmers. How do you believe that that could be achieved?

David Croft: We have particularly nurtured short supply chains. We have close contact with farmers in the UK and, indeed, abroad. If I think about the UK context particularly, one of the points that have been raised with us in our conversations with farmers, particularly tenant farmers, has sometimes been their ability to access finance, in terms of credit or capital for borrowing. In particular, it can be quite challenging if you do not have land tenure behind you as a tenant farmer.

In the discussions that we have been leading—facilitating conversations with banking, for example—we are seeing that, for those farmers, the longevity of a working relationship with Waitrose as a customer is something that really makes a difference in terms of access to capital. As a result, we are thinking that that is something that can help stimulate investment from farmers into the sector to build growth, with the confidence that they have a long-term trading relationship with Waitrose. This is something that, within the John Lewis Partnership, we seek to bolster all the time.

Q134 Chair: Certainly, as individual MPs, we frequently hear anecdotal evidence that supermarkets and food retailers block-book shelves at predetermined prices, particularly for fruit and other commodities. Do you actually do that? Do you reach a contract for a predetermined price for a set quota of items such as fruit?

David Croft: We work closely with all of our farming suppliers to support the demand. We provide them with lots of forecast information, to give them notice about what future demand will be. It is something that we, and indeed all supermarkets, are constantly working on, to get the most accurate forecasts. Things like weather fluctuations play havoc with that, but it is part and parcel of how we look forward.

Q135 Chair: If I could just stop you there a moment, if it is apples, how much are you allocating to British producers at a predetermined price, and how much are you allocating to French, Australian or other producers?

David Croft: We will always take British stock when it is best in season. At the time of the British apple harvest, we will seek to dominate all of our apple offers with British apples. I think I am right in saying that we offer the greatest variety of British apples during the season. That is a commitment we make to farmers upfront. We are working through our suppliers to balance supply across different farms, throughout the course of the season, to maximise that offer on-shelf. What we will also do is work with those farmers to help manage if there are fluctuations in supply, because of adverse weather, for example. In one case, we have promoted weather damaged apples—so, class 2 in the grading system—to make certain that those farmers are still able to provide a retail offer and get the best value for their crop.

Equally, the other way, we will help to promote a crop if there is a flush in the market. To make certain, again, it goes mostly to retail sales and to get the best value for the farmer, we will have that ongoing dialogue with farmers, to help them manage the supply. Again, I come back to our relatively short supply chain management; that helps us to have great visibility, end to end.

Q136 Chair: How much are your hands tied by world prices and how much can you negotiate off your own bat, with British farmers?

David Croft: It is a very competitive marketplace. The world market is increasingly starting to play a role in the sense of how supply and demand plays out, perhaps more so at the moment for commodity crops, so things like soya, where we would

see pressure from, maybe, the Asian markets for soya going into animal feed, changing the supply and demand curve that we see coming into Europe. Even in the case of outside-of-UK-season crops that come to the UK, we work with our traditional suppliers in South Africa with the Waitrose Foundation to help develop their supply base. The foundation is a £3 million-per-year investment that we are making, in terms of developing farming in Africa. Even those farmers are saying they no longer need to supply into the UK market. We need to be the preferred customer, for both UK farmers and, indeed, international farmers.

Q137 Chair: Mr Opie, would your members immediately increase prices in their retail outlets if world prices had gone up?

Andrew Opie: There is always a bit of a lag time, because it depends what the commodity price is. For something like wheat, which is going into a heavily processed product like bread, there may well be a lag time. You are right to identify commodity price as having an influence, both on our price here but also the prices that farmers receive here. What happens around the world in some of these crops is actually much more important than it is here, for their prices. In terms of those processed products, probably less than 10% of the cost of bread, for example, is actually in the wheat itself, because you have the oil price, to manufacture it, transport it and process it. Commodity prices will have an influence, but they will be only an influence, alongside some other issues, such as currency fluctuations, oil prices and other variables in the processing market.

Q138 Chair: Is there any evidence that preference is given to foreign apples or items coming in on the shelves?

Andrew Opie: No. David explained it very well. All of our members are exactly the same. We have seen it in the past. Two or three years ago, I think, we had a glut of top fruit. All of the major retailers were out promoting British plums and apples at that time, increasing the punnet sizes, using more promotions and finding other uses for those, because consumers want product when it is in season. That does not mean that we will not put products on the shelf that are out of season. Many co-operatives here that will pack UK produce will also have arrangements with farmers in the rest of Europe or beyond, to pack produce here, which would then go on our shelves, as well. It is a very, very secure supply chain if you go like that, because you also build some flexibility.

There will be times of the year, for example, when we have adverse weather conditions here, even for root vegetables. We might need to take some more supply from France, or close to the continent, to supplement that. The preference, in season, is growing awareness for UK produce.

Q139 Ms Ritchie: The Government is confident that the country has in place appropriate plans to handle threats to our food supply—for example, volcanic eruptions or volcanic ash in Iceland. We have had horse meat, or food contamination, and we now have extreme weather events. Has the retail sector considered how to deal with those potential disruptions, or does it regard the current systems as fit for purpose, Mr Opie?

Andrew Opie: It is absolutely imperative for every retailer to build resilience in their own chain, because they are in a competitive market. It is up to them to make sure the produce is on their shelves and worry about their supply chain, because if it is not on their shelves, they will go elsewhere. If I give you an example, before the pandemic threat that we had about five or six years ago, which you might remember, we did an enormous

amount of planning with the Cabinet Office before it was going to happen; it did not actually happen.

We knew exactly how we would react in our own supply chains both here and abroad; how we would manage stores to make sure there was enough staff and the correct numbers of staff in the stores; and how we might open and close stores. There was even talk about collaboration between stores at a local level, if it got really, really bad, to make sure. Supply chain resilience and all of those issues are frequently rehearsed within retailers. As an organisation, we also do participate with Defra in their food chain emergency liaison group, to pass information back and forth through the supply chain, with groups like the NFU and FDF, as well.

David Croft: I would echo much of what Andrew said. Certainly a lot of work goes on with Government to support ongoing food supplies against threats that would be cutting across the whole sector. From an individual business perspective, we think about that from the perspective of how shops will stay open, whatever the challenge might be—a pandemic is one example. If I look back up at the supply chain—which is where, I think, your question is more focused—the sort of work that we are doing is thinking long term. We are thinking about contingencies, building robust producer groups that help us to work closely with farmers and understand their needs and what might be barriers to entry for them into the marketplace. We are thinking of things that will help them become more efficient, even way up the pipeline of R and D activity. We are thinking of what will make farming efficient, not just in the next two to three years, but in the next five, 10 and 15 years, through the work that we do through the Centre of Excellence for UK Farming and our Future Farming Programme, which is really about initiating research with the universities and translating that through into farming practice. Again, one of the advantages of the John Lewis Partnership model is our ability to think long term, which, from an agricultural point of view, you have to do, in terms of supporting that contingency of supply and making certain that there is equity and supply base within the supply chain.

Q140 Neil Parish: What are the benefits of long-term partnerships with suppliers? How widespread is this practice, and with what particular products within the industry?

Andrew Opie: It is incredibly useful, particularly with the topic we are talking about today, in terms of food security, because long-term partnerships with groups of producers allows you to work closely with them around lots of issues. We are seeing fantastic examples of producer groups, right across the board. The milk sector is probably the one you will be most familiar with, because there has been a lot of development, but lots of the red meat sector and, increasingly, the arable and field-scale vegetable sector, as well. It allows investment in research around sustainability—we are seeing a lot of retailers doing that—on issues such as: how do you reduce carbon at the farm level and through the chain; how do you cut waste, right through the chain; how do you cut water use, where appropriate, through the chain? That information is then disseminated at a farmer-based level, so it is investing in research that would not necessarily be available, and then sharing that research, at a very practical level, with farmers.

When we talk about sustainability—we heard it from the previous speakers—often what we are talking about is efficiency. If you look at energy and carbon reduction, we are often looking at cutting the energy use of a farm, which obviously has a cost and a cost saving involved as well. There is an incredible amount of work going on. It is exactly as

David has said, because retailers are pragmatists. They know that food security is becoming more of a problem, going forward, and the way you secure that is corralling groups of producers that want to work with you in the long term, within your supply chain.

David Croft: I think the starting point, from a Waitrose perspective, is that it is absolutely in our interest for farmers, and the whole of our supply chain, to thrive and prosper. We see that long-term relationships are a fundamental part of building that long-term future for the whole of the supply network that we operate. Now, in terms of how we go about that, we develop producer groups on all the major livestock breeds, and in terms of fruit and vegetables. If I think about what comes into those producer groups, it is how we work with those producer groups and the farmers involved to think about the challenges they face and what can help make them more efficient. That is where the R and D activity and the work with universities come in.

Part of that might, for example, be really long-term thinking about how we look for alternatives to soya in the animal diet or how we look for the best grassland mix to improve ruminant conversion of protein. These are things that will play out only in a number of years' time, for the benefit of those farmers, but it is in our interest to do that where we have long-term relationships. It makes that supply chain more robust.

We have a strategic producer group, which about 15 of our key suppliers of livestock and agricultural suppliers are part of. We work closely with them, not just to think about the R and D coming to them, but also to think about the product mix that comes out. Within that, we have a vertically engaged supply chain so that not only do we know where the 1,050 farmers that provide us with beef are; we also know that that beef then goes into the ready meals that we use with another supplier. We have clear traceability, because of that producer group. What that also means is better carcass utilisation and, actually, a shared risk. In the case of animals, we buy the whole carcass from the farmer and we share the risk about that, and that vertical engagement. Also, product development helps to maximise carcass utilisation, which returns most value to the farmer. Even things like new cuts of meat, which you might not have seen for quite some years, are driving that opportunity.

Q141 Neil Parish: Moving on, how does this apply to processed food? For example, there are many suppliers of many small amounts of parts to products such as ready-made lasagne or tinned tomato soup. Are you confident that you can trace that?

David Croft: If I can just build on my previous comment, we are confident, but not complacent. We are confident because we know the source of all the fresh meat. It is all UK fresh meat that we use in our ready meals. In fact, all of our fresh and frozen meat is from the UK, with the exception of New Zealand lamb. That vertically engaged supply chain, such that the beef from the beef farms goes to the beef ready meal sites, helps us to clearly trace all the way through the process. Those ready meal manufacturers can use only the beef that comes from our beef farms. It is the same for pork and lamb and, increasingly, the same around specifying for chicken.

Q142 Neil Parish: What about your eggs and egg product, and all the things that are mixed into a processed meal? Would you be able to trace those, as well?

David Croft: We can trace it. We are increasingly pressing to see how far we can go in terms of that vertical engagement.

Q143 Neil Parish: If I go into your shop and buy one of those products, can I see on the label exactly where it has all come from?

David Croft: You can see on the beef, because that is how the beef traceability regulations work.

Q144 Neil Parish: And on a lasagne?

David Croft: On a lasagne, I think we can still tell you where the beef comes from, if you need to know, although I cannot tell you which of the 1,050 farms.

Neil Parish: I will perhaps go in and challenge you.

Andrew Opie: We are exactly the same. I was just thinking of your example about the eggs. It was really interesting; you will remember when we had a slight problem, where Europe had not converted to the enriched cages. We had discussions with DEFRA at that time. We were able to reassure the Ministers—and, I think, possibly this Committee—that even the liquid egg that was going into our processed products, as well as the eggs, which were coming primarily out of the UK and which were sourced in the UK, were coming from the correct welfare conditions, so yes is the answer.

Q145 Neil Parish: That leads quite neatly on to the next part of the question—I think the answer will be yes to this. Has this situation changed as a result of the horse meat contamination? One or two retailers have decided to have all-British products, haven't they, especially in meat?

Andrew Opie: Like every retailer, you would expect us to review and improve from any situation that we see, whether we were directly involved in that situation or not. That is exactly what we have seen with retailers. We have seen some shortening supply chains, which is probably what you were suggesting there. We have also seen some increase in auditing, above and beyond where we might have audited previously. We have seen more collaboration as well, going forward, which you would expect to see, so yes.

The one thing I would say is that whilst we regret every problem that we had in the incident at the time, it was quite interesting to see the contrast between the European problems, particularly in France and some other countries, and here. Most of our products, as you will have seen, will have been AFS assured, or something like that. Just to finish, that has been one of the interesting consequences of that incident. A number of retailers at that time had actually asked to carry the red tractor on processed products. The lasagne you mentioned would not have qualified, because there would not have been a sufficient amount of the meat in the product, as a percentage of that product, to carry the red tractor. We now have that possibility to do it, because AFS have changed their regulations. Increasingly, you will see a lasagne with the red tractor that says "Made with AFS-assured beef". There have at least been some positive changes, as well.

Q146 Neil Parish: That leads me on to the last part of the question. How far in advance do you purchase commodities from abroad? Are these normally through long-term, contractual, supplier relationships? One of the things the horse meat scandal showed us is that there were amazingly long food chains, and the meat had gone from various countries, especially in the processed food industry. You must buy from abroad; you were buying New Zealand lamb, I take it.

David Croft: From a Waitrose perspective, all of our fresh and frozen meat was British, with the exception of New Zealand lamb. We have long-term relationships with

all of the farmers involved, including those in New Zealand. We have not had to change our practice, because we did not have horse meat as an issue. Because of the short supply chains that we operate and the connections into the processed meat plants, we were able to trace all of that through and have a lot of confidence around it. We have increased our testing. We have increased controls in processed factories, to avoid cross-contamination if it comes from other sources. We have not changed our approach though, because we already had all-British meat in our products.

Q147 Neil Parish: What about at the cheaper end of the market, where there could be, perhaps, a mixture of things being fed to people that they may not necessarily know about?

Andrew Opie: I am not sure I would agree with that. If you looked at that time, those contracts with those meat processors in particular were with major meat processors. The specification that was given to them by all of the companies, as I know this Committee will be aware, was very strict and clear about where that product should be coming from. That was the issue. We found in a very small number of cases that that was not the case. Some 99.6%, I think, of the thousands of meat products, collectively, that British retailers tested were absolutely and exactly as they should have been. It should be 100% and we have always said that.

We were dealing at that time with a very small element of fraud. What we have needed to do, working with people like Professor Elliott, who is doing the review for DEFRA, is find out how we target that 0.4%. We have already made some changes. The BRC, for example, has introduced an agents and brokers standard for the first time, which is an assured scheme, which is as tough as our factory audit scheme that we have been running for a number of years. That is just about to be introduced. There are some changes in there. To be clear, we were dealing at that time with a very, very small amount of fraud. Actually, in some ways, it showed how robust the UK meat processing supply chain was, compared with some of our European competitors.

Neil Parish: So you are confident, all being well, it will not happen again.

Q148 Chair: We need to move on, but can I ask: do you think that what contributed to the scandal was the moratorium on desinewed meat, which was imposed in March 2012?

David Croft: I think there were a number of factors, not just that moratorium. It is probably fair to say that care needs to be taken about pressure on primary producers. A number of reports talked about it. That is why long-term relationships that support the efficiency and effectiveness of farming at that level are crucial as part of the preventative measures, as are—Professor Elliott talked about this very clearly in his report—thinking about the propensity for food fraud to creep in, making certain that people are aware and alive to that risk and continuing to take account of and monitor it.

Q149 Neil Parish: On the fish side, that could be an accident waiting to happen. If we are buying cod, are you convinced that we are getting cod? There is a lot of switching of various types of white fish. Are you confident, looking at your food process and your buying process, that you are getting what you believe you are?

David Croft: We have made a commitment at Waitrose to only source it from sustainable fisheries. Over the next couple of years, they will increasingly be third-party certified, which gives us traceability to the origin. At the same time, already in operation,

we have a range of supply chain testing that goes on to check that the species of fish we are buying is what it says on the box.

Andrew Opie: Exactly the same. You identify one area, but we are very vigilant on lots of other areas, whether it is extra virgin olive oil, basmati rice or orange juice from Florida. These are issues that we just need to deal with, and we are.

Q150 Mrs Glindon: How much of the out-of-season retail supply of imported food products, particularly fresh fruit, is sourced through UK-expatriate farming companies with operations or subsidiaries either within the EU or beyond?

Andrew Opie: I would not have those figures. So the question you are asking is what proportion.

Q151 Mrs Glindon: Yes, basically: what proportion of the out-of-season retail products are coming from those countries?

Andrew Opie: I can tell you what proportion of the products we source are from the UK. Is that the point you are asking?

Q152 Mrs Glindon: From expatriate farming companies that have operations elsewhere, in Europe or beyond.

Andrew Opie: I do not have that figure. I can tell you what we source from the UK. I am very aware that lots of the companies that pack UK produce for us in the UK would also pack, for example, broccoli, which would be coming from outside the UK; it would be packed here, and then go to UK supermarkets. I am not sure I understand.

Q153 Mrs Glindon: Nothing that would be supplied from other countries, as opposed to stuff that is produced here and packed abroad—stuff that is actually produced elsewhere that you will get out of season.

David Croft: Out of the UK season, we will source from various different parts of the world, in order to maintain continuity of supply. Typically, we will source through a UK-based company, who then has outreach into those different countries. They do not usually own the farms; those farms are more often than not owned locally, but we work very closely with them. As an example, we have a Waitrose farm assessment process that visits all of the farms that supply us with fruit and vegetables, in any part of the world—UK and abroad—and starts to build continuous improvement programmes with those farmers about productivity, reducing waste, reducing water and taking account of potential climate change impacts that those farmers might face, wherever they might be. As I have said before, in Africa, we also work through the Waitrose Foundation to provide broader community development support in Kenya, South Africa and Ghana to help those farming communities thrive and prosper, and therefore also support our supply chain. That is how we see that robust, long-term supply network working, with that type of trading relationship that we are very close to. The foundation is largely funded by Waitrose, but partially funded by those UK-based importers with whom we have this close relationship. That helps visibility back to the farm, continuity and long-term relationships, as well as clear understanding of what the pressures might be in those different countries.

Q154 Mrs Glindon: So there is a direct link with British companies bringing this in, whether they are based abroad or not.

David Croft: Absolutely, yes.

Q155 Mrs Glindon: We have been told that resilience of food supply is the key to food security. Should we be carrying a higher level of food stocks, given the increasing instability in climate and weather—as we are experiencing now—to ensure both short and longer-term guarantees of food supply in the UK system?

Andrew Opie: I am not sure that is necessarily the right answer. There is always an argument about price, at the end of the day, for the consumer. We operate a very lean supply chain in the UK—farmers, right through processors to manufacturers and retailers. All those benefits are passed to consumers. The point about resilience is absolutely right; there should be resilience built into the system, which, for example, may mean being able to flex your supply when you need to, to deal with adverse conditions. Retailers, for example, at the moment, are doing audits around the world to see areas that will be under threat from climate change and what that might mean for their future sourcing policy; how do they adapt their sourcing policy going forwards? So resilience: absolutely. Do we actually, physically, need to build more food stocks here, though? I am not sure that is the answer.

The final thing I would say is the bulk of our food exports come from within Europe. They are not from outside Europe, apart from big commodities like soy and rice. If you think of beef and these sorts of things, that is imported from within Europe. Lots of our fresh produce and fish is within the European base, which, as we are in the EU, is a common market, and these conditions would apply across. It raises an interesting point that we put in our submission as to whether we need a more joined-up discussion around food security at a European level, where the EU has all the levels you spoke to the previous people about. There is the CAP, for example; the EU has the competence over trade; it has the competence over licensing of biotechnology. Lots of the levers are at the EU level, but I am not aware that there is a coherent discussion going on, at the moment, around food security.

Q156 Ms Ritchie: Does the British Retail Consortium provide any guidance about how retailers should help their suppliers respond to the impacts of climate change?

Andrew Opie: No, we do not, but we do demonstrate what our members are doing. If I go back to the previous answer I gave, the responsibility for a retailer to build resilience into their own supply chain is absolutely paramount—I cannot stress it any more—because they stand and fall by the availability of the products that UK consumers expect to be in their shops. We have such a competitive industry: if you do not find it in this shop here, you will go to the shop down the road and you will find it there. That is an absolutely business-critical issue for our members. We could never think that we would have better knowledge than David and colleagues in our other companies. To demonstrate the resilience to the Government and others, though, we published, for example, our latest “Better Retailing Climate” document last week. This highlights some of the examples we have been talking about today of our members working with farmers and processors here in the UK and abroad to not only make our supply chain more resilient, but also reduce the environmental impacts, which will help combat some of the issues around climate change.

David Croft: To pick that point up from a retailer perspective, we work very closely with those farming suppliers to think about the long-term impacts of climate change. That is why, as I said before, our farm assessment process helps to work on reducing water usage, but also looking at the varieties of crops they might be growing and finding different varieties that might prosper in different climatic conditions. It seems

ironic to talk about things being drier, but we have to manage both drought resistance and heavier rainfall conditions across the whole of the world supply base that we work with.

Q157 Ms Ritchie: Added to that, what are retailers themselves doing to reduce the carbon footprint of your supply chains?

David Croft: Again, there is a range of measures. From a horticulture perspective, it is how we work with farmers to look at, perhaps, the most effective use of fertilisers, which, in and of themselves, can make quite a high contribution to the carbon footprint. If I look at livestock, particularly ruminants, then we are working closely with the different universities—I was at Aberystwyth University only last week—to look at the diets of ruminants and how you can make that as efficient as possible, and even reduce the amount of methane emissions from cows, to put it bluntly, which contributes towards the carbon footprint they have. That is long-term thinking.

We are also thinking about energy-efficiency on farms, as farm operations. There is a process, effectively, around even seeing farms as power stations in their own right, to think about local generation. Indeed, one of our key sweetcorn growers, down near Winchester, now has three significant biogas generators and is a heavy contributor of electricity into the grid, as a result of recycling green waste through those biogas converters.

Andrew Opie: On top of what David said, the biggest commitment that retailers collectively are playing is through the Courtauld Commitment to reduce food waste. We have not talked about it today, but you will be aware that food waste is one of the best ways we can cut the carbon impact. We have massive targets to go at, with consumers at one end and processors at the other. We are now in the third phase of the Courtauld Commitment, and all the major retailers have made commitments, with the four Governments of the UK, to cut, realistically, targets in food waste. We have already cut 1 million tonnes at the consumer end, but we still waste over 7 million tonnes of food in UK households. The biggest way we can contribute towards food security is to cut food waste through the chain.

Q158 Ms Ritchie: What are you doing to increase efficiency and reduce costs further within the supply chain, particularly the reduction of post-harvest waste?

Dr Little: Part of the farm assessment process that we do on every farm, and built into the continuous improvement programmes that those farms then generate, is about managing waste at the heart of the supply chain, both pre-harvest and post-harvest, on the farm. Where there is the ability for us to take a product into the retail sector and sell it as grade two, if it would otherwise be wasted, then we will do that—as I said before, where there are damaged apples or if there is a flood.

At the same time, through our research programmes, the Centre of Excellence for UK Farming, the work we do with our agronomy group and the Duchy Originals future farming programme—which we contribute to very heavily, and are the sole funders for, through the sale of Duchy Originals products—we are gaining the best of the organic and conventional sectors, trying to marry those together. Reducing waste on farm is a key part of that, to drive greater efficiencies and therefore the most cost-effective supply chain and benefit to those farms.

Andrew Opie: A very quick example, as David mentioned before, for lots of retailers is maximising the crop that comes out of the ground. If you think of carrots, you could maybe grade them. The best carrots go in the bags that we would buy loose. The next ones down you can cut into batons; buying them in that way is now an increasing trend for consumers. A massive amount of carrots are bought that way. Those that are left you can use in soups and purees. Looking to maximise the crop is the way that, as much as price, retailers are working with suppliers to reinforce this long-term relationship.

Q159 Ms Ritchie: How significant are EU product and retailer quality standards in contributing to the level of post-harvest waste, particularly of fresh fruit, salad crops and vegetables in the UK food supply chain?

Andrew Opie: As an organisation, we were probably at the forefront of lobbying for the relaxation of those fruit marketing regulations about five or six years ago. We were successful in getting all but eight or nine of those relaxed. That was a fantastic boon for retailers, led by many innovative retailers who wanted to use this product.

There is a demand out there, but it needs to be consumers. When we talk about quality standards, whether they are regulation or whatever, it is pointless transporting and putting on the shelves goods and produce that consumers will not buy at the end of the day, because you have added to the carbon footprint. You are better off finding a use for it, like the carrot batons and soup at this end, until consumer demand grows and accepts that the wonky carrot is just as nutritious as the other, and it grows with it. That will take time. That takes understanding of food and how food is produced.

David Croft: We regularly flex our specifications to make certain that we bring all the saleable product to consumers from farmers that we can.

Q160 Jim Fitzpatrick: Gentlemen, you will have heard me ask the previous witnesses about GM. I will give you an opportunity, Mr Croft, given that I unfortunately created an opportunity for you to be named. Waitrose has a policy. BRC, are you agnostic and do you basically follow what the regulatory regime is from Europe or the UK? Is there a view within the industry, in terms of what seemed to be a consensus from the previous witnesses, that GM could be part of the solution for food production and sustainability for the future?

Andrew Opie: From our perspective, there is a very small number of branded GM products in some retailers now, which are labelled and available, but there is no own-brand GM as currently sold. That is purely because consumers, at the moment, do not demand it. They do not see the benefits for them. You heard one of the previous speakers talking about the benefits. Until consumers are convinced of the benefits for them, next to the conventional product they can see on the shelves, there will not be that demand. It is simply around demand. The regulatory issues will take care of themselves, in our opinion. It is the demand from the consumers that will drive any new technology.

David Croft: Putting aside the question of the regulatory issues, consumers are not demanding GM food. Their preference seems to be an alternative. Firstly, it is a question of choice: consumer choice and, indeed, choice for farmers. If you are an organic farmer, to continue farming in an organic way is important. That is something that we continue to support very strongly, through our Organic range.

That said, there are clear opportunities to think about how you would apply the science around genes to support more efficient agriculture and things like rapid marker assessment, helping you to identify not genetically-modified but hybrid crops that can be brought more rapidly into the marketplace and introduce new varieties to the marketplace, to achieve greater efficiency within the whole process. The same is true of livestock breeding. Again, using gene technology to look at chromosomes of cattle and find the best varieties in terms of ruminant production and so on is hugely important. We are aware and want to encourage sensitive use of science and bring that into play to make the best value for farming.

Q161 Chair: I just want to come back to the question about seasonality and non-seasonality. It does seem a rather big figure; in millions of pounds, there is £112.7 million worth of onions and shallots—fresh produce import penetration—into the United Kingdom. You would have thought that is produce of which we would have produced more than enough of our own. Does that figure strike you as very high? Apples are £291 million of import.

David Croft: I am not aware of the overall proportions. My only sense of it would be, realistically, around support for continuity of supply outside the UK season. Our starting point is, when British is best in season, that is what we will stock, because that is what our consumers expect of us.

Andrew Opie: From our perspective, we do collect figures, which we share, from the major retailers. If I look back—unfortunately they are a year or so out of date now, so this would be for the year 2011-12—75% of onions in UK major retailers were produced here in the UK. Again, as David said, the preference of major retailers is to support UK farmers, because closer supply chains bring many benefits with them.

Chair: Can I thank you, on behalf of the Committee, Mr Croft and Mr Opie, for being so generous with your time and participating in our inquiry?

Examination of Witnesses

Witnesses: **Dr Julian Little**, Chair, Agricultural Biotechnology Council, **Paul Mullan**, Managing Director, Germains Seed Technology, and **Calum Murray**, Lead Technologist, Sustainable Agriculture and Food, Technology Strategy Board, gave evidence.

Q162 Chair: Can I welcome each of you to the Committee, and thank you for participating in our inquiry? For the purposes of the record, could you give your name and title?

Dr Little: My name is Dr Julian Little. I am chair of the Agricultural Biotechnology Council, a group that is promoting the use of biotechnology in agriculture, here in the UK.

Paul Mullan: I am Paul Mullan. I am the managing director of Germains Seed Technology, which is a wholly owned subsidiary of Associated British Foods plc.

Calum Murray: Calum Murray, lead technologist for the sustainable agriculture and food innovation platform within the Technology Strategy Board.

Q163 Chair: I have a couple of questions to start. What do you think is the biggest challenge we face to food security in this country?

Calum Murray: The earlier speakers have already alluded to a lot of that. Peter Kendall suggested that, with the volatility and the extreme weather patterns we are experiencing just now, building resilience into our production systems is something we need to clearly address. The capability to respond to those extreme weather patterns is a key challenge, but, equally, looking at the investment into applied research, within the whole community and across the entire supply chain, is something we need to tackle head-on.

Paul Mullan: Rather than just talking about the weather, as we have done on a number of occasions already today, I suspect I would agree, as well, that investment into fundamental science is an area that has been severely lacking in the last 20 or so years. Initiatives like the Agri-Tech Initiative have been very welcome in terms of stimulating that research. I would also be very concerned that we have increasing amounts of volatility, particularly around commodity prices, which, if you go back five, and maybe 20, years, you did not see very much of within the UK marketplace, and we are now seeing increasingly more of as we are exposed to the globalisation of world food markets.

Dr Little: To expand on Paul's comment, one of our concerns is that we have become increasingly, and are still, reliant on a global market out there, assuming that whatever we do not produce here in Europe we can source from outside of Europe, at a time when there is an awful lot of other people doing exactly the same thing. We used to be able to do that very actively by just paying more, but actually countries outside of Europe are quite happy to pay just as much as European countries for the same commodities. That is a problem that is not going to go away; it is going to get bigger and it is going to get more of a problem. It is something we need to address now.

Q164 Chair: Why do you think there is such seeming resistance amongst the British public to GM crops?

Dr Little: Gosh, that is a big question. It is a historical question in some ways. I would argue that the public opinion of, say, 10 years ago compared to now is astonishingly different. Ten years ago we usually think of as the nadir of public acceptance here in the UK. People were still concerned about all sorts of things, but the one thing they were not concerned about was where their food was coming from. Food prices were still going down; they were still dragging general inflation down. Today, food inflation is running at something like twice that of headline inflation. People are worried about where their food is coming from and, from the point of view of the organisation, the number of the inquiries we get from journalists is almost directly proportional to the price of wheat. As soon as the price goes up, interest in GM goes sky-high.

Paul Mullan: My view would be probably Government and white-coats, or scientists. Ten or 15 years ago, Government and the white-coat brigade—which I would put myself in, as I am in that business area—definitely had huge amounts of credibility with the public. Now we have been through so many food scares in the UK—BSE would be a great example of that—Government and the scientific community have lost a lot of credibility in both the way that they handled the understanding in portraying that to the public, and then the back-up and follow-up that came as a result of that as well.

Calum Murray: I agree with that point. I think in terms of the fundamental understanding of what the technology is, what it is that we are delivering, and the media coverage in the past, there is, with the greatest of respect, a level of ignorance that exists among the public as to what is being done, with plants particularly. Given the exposure to GM crops when there is little choice, I am not sure that the public are particularly concerned: when they travel abroad, when they go on holiday and so on. It is perhaps linked a bit to the responsibility of the media, but in general it is the perception and the lack of understanding. Those unknowns drive fear.

Q165 Chair: In this brave new world of science and technology, what role do you envisage for small farmers in particular in this process, so that they will not be excluded?

Dr Little: From a perspective of biotechnology, we now stand at a stage where about 170 million hectares of GM is being grown around the world every year. Over half of that is being grown by small-scale farmers in developing countries. On average, a GM farmer is growing less than 10 hectares. Taking into account that some people are growing 20,000 or 30,000 hectares of this stuff, you can understand that there are an awful lot of farmers out there who are growing GM crops on less than one hectare.

What does that mean? It means that GM is, in a way, technology-neutral for a farmer. It is whether he can access the seed that is out there, and there are many, many way of delivering that. Essentially, this is a technology that works just as well for small farmers as it does for large farmers.

Paul Mullan: Seed technology has now become ubiquitous for most farmers in the UK. Sugar beet is a sector we do a lot of work in. The adoption rate for technology 20 years ago took between seven and 10 years to reach 100% saturation. We launched products in the last two years where we had 95% saturation in the market. I think farmers are ready for technology. They like technology; they are ready to adopt it. I suspect they are now just waiting for consumer acceptance, and they will grow whatever they can that the consumer accepts.

Calum Murray: From the UK perspective, we are dealing with a larger scale of small farmers than perhaps we are in sub-Saharan Africa or developing countries. The role of small farmers with all technologies is simply to be encouraged to embrace the opportunities, to improve the level of management they have and to improve the adoption of new technologies that can drive things forward. Their contribution is critically important in various parts of the world, but to isolate them and to suggest that they are in some way excluded from the adoption of any given technology is perhaps not the way to go.

Q166 Mr Spencer: Turning back to GM, I wonder if you could run us through the benefits of GM, focusing on the UK—obviously we appreciate things like golden rice, but they are unlikely to be of benefit to UK agriculture. What are the benefits of GM to the UK?

Dr Little: When you look at what was grown, in terms of trials, a few years ago, you will be aware that there were extensive field trials for things like oilseed rape and maize. On average, over the three or four years that we were growing GM oilseed rape here in the UK, we were seeing an increase in yield of around 13% over conventional varieties that were out there. Quite simply, first and foremost, you can improve your yields going forward.

In terms of environment benefits, you can also see a dramatic reduction in things like ploughing, improving soil structure. From a farmer's perspective, of course, that means less input, less fuel being used, less CO₂ being generated and more conservation of that soil for subsequent crops. There are a number of different possibilities, which are being realised elsewhere in the world and could easily be captured within a UK farming environment.

I am ignoring many of the other potential benefits going forward. In the previous session, they were talking about the need for drought resistance. Drought resistant crops have already started to be adopted in North America. Unfortunately, we cannot see adoption yet in Europe, because quite simply we do not have a functional regulatory process in Europe that would allow UK and European farmers to benefit from that.

Paul Mullan: We do a lot of business in North America. Our sugar beet seed business in America now treats 95% GMO, and the farmers there absolutely love the technology. I have written a little list here of the stuff that they like. Number one, interestingly, is lifestyle; they recognise the amount of time a farmer has to spend on his fields significantly reduces with GM technology, typically. That is not just his own time; it is also diesel fuel, inputs and all the other things he is doing from a sustainability point of view. Ultimately, there are all the inputs that he is not having to put on the crop. That may well be water, quite simply; it could be nutritional inputs; it could be a herbicide application; it could be improved disease resistance, which means less spraying of plant protection products, pest resistance and tolerance as well.

There is a very significant amount of additional yield that they can establish. Most of the US sugar beet industry now would be looking at a minimum of 5% increase in yield across the board, where they have benefits from GMO technology. That is only through one trait, which is, as everyone knows, the Roundup Ready weed controller that is applied in the US market.

Calum Murray: We have covered all the particular aspects of resource-use efficiency, whether it is looking at biotic or abiotic stress tolerance that exists, or the level of resistance that would exist within plants to any given challenge coming from pest disease or abiotic stresses. There are the nutritional aspects that should be considered: the enhancements and nutritional benefits that would come forward, not only for human consumption. Take some of the developments going on just now: for example, the improvement of omega-3 fatty acids in oilseed rape and the use of vegetable sources of omega-3 for aquaculture. Should that be taken forward, the sustainability of marine systems and so on is largely enhanced.

Q167 Mr Spencer: What about disadvantages? Can you think of a disadvantage?

Calum Murray: You have touched on the imposed or consequential issues that surround GM, coming really from the associated bureaucracy and regulation that Julian mentioned, in terms of the dysfunctional mechanism that exists within Europe just now, and the disadvantages associated with that.

Q168 Mr Spencer: I am really thinking more about in terms of wildlife and biodiversity. Are there any negative impacts to the environment and wildlife that you could identify?

Dr Little: Originally, we were talking about things that are specific to UK farming, but where for example insect-resistant crops have been introduced in many parts of the world, we are seeing wildlife coming back into those crops. That is simply because, especially with things like maize and cotton, you would have to spray on a very, very frequent basis to control those real problem insect pests. The arrival of insect-resistance crops, which are inherently resistant to particular pest damage, essentially means you do not have to spray nearly as much and therefore are not controlling those insects that are using that crop as a refuge.

Q169 Mr Spencer: I am sorry to jump in again, but they are positives. If there is not a negative, tell me there is not a negative.

Paul Mullan: There are very, very few. Again, in our experience in the US market with sugar beet, the only negative they have identified so far is the natural build-up of tolerance to the trait that has been built into the crop. For example, they now have there a Roundup Ready tolerance in weeds, so increasingly they are finding weeds they are not able to treat with that chemical. That can be managed, though, as part of a sustainable agricultural programme, through the different rotations.

Dr Little: You would see that anyway, irrespective of whether you are using a GM crop or not. We see that with black-grass control in wheat in the UK, for example. There is a build-up of tolerance within that weed population to any herbicide that you use.

Q170 Mr Spencer: You are suggesting that the scale is very much in favour. If that is the case, should the Government be investing taxpayers' cash in GM research? Would that be acceptable or help with the public debate?

Calum Murray: The Government are investing and making money available. Funding comes through technology strategy board from the public purse. We are, to use the expression you used before, agnostic. That is not to say we do not believe in the technology. We will not discriminate against the technology if it is research that needs to be carried out. We want UK companies to be at the forefront of the research so that, as and when the policy and the regulation allow, UK companies are in a position to react, not to start research at that point in time. We are already prepared to invest in that kind of research.

Dr Little: I would argue that we are already frustrated by the regulatory system. Investing more money to bring new products to a point where they cannot be commercialised is a strange way of pump-priming. Our view is that the policy around GM has to change in Europe, as it did, I would argue, in the UK. Once you have that, you then start to free the shackles off many different companies—research institutes, universities—to take those big steps forward to allow commercialisation in the UK. There will certainly be a role for Government funding in enabling knowledge transfer, for example, between that fundamental research that is done and things that will allow farmers to move ahead.

Paul Mullan: I think what consumers are looking for is a signal from Government of a strong support for GM. We are now talking about consumer acceptance of a technology we are saying is fairly ubiquitous in a number of markets across the world, but we have not adopted it within Europe yet, and that is down to consumer acceptance. Therefore, the opportunity the Government has to start influencing the consumer and saying, "Actually, we believe this is the right thing to do" is important for sustainable

agriculture. It is an important message, and the Government is probably one of the few people that have the opportunity to take a leadership role in that.

Calum Murray: We should also be in a situation of recognising that we are not just dealing with the UK market. We would want the UK to be in a position to exploit the markets where this technology is applicable, so we can see the UK companies engaging with those markets to the benefit of UK plc.

Paul Mullan: We have seen a number of larger organisations across the whole of Europe now pulling out of GM technology altogether and relocating themselves to the United States and other markets. They think it could be decades they have to wait for the European regulatory body to get to a position where they acknowledge the benefits of GM technology.

Mr Spencer: That is a European brain drain, then. Those experts are leaving Europe.

Paul Mullan: Absolutely, yes.

Chair: Because of the lack of consumer acceptance. I am going to move on after a very quick question from Jim

Jim Fitzpatrick: No, those answers covered it, Chair. It is about public perception and Government in leadership. That was very helpful; thank you.

Q171 Neil Parish: The Secretary of State has made a speech promoting GM, but of course unless Europe will accept it, farmers cannot grow it because they cannot trade it. That is one of the problems. My question is this. One of the perceptions of the public is the potential for cross-contamination. I am a great supporter of growing GM crops, but you have to allow organic crops and conventional ones to grow alongside them. What is the impact of growing GM crops, and how can we be sure, if we could grow them here, others could grow conventional and organic crops alongside them?

Dr Little: It is a really interesting area, and one in which I have often heard people saying, “Well, it only works in the US because it is such a big area and you can separate things very easily”. In reality, if you look at those farmers that are growing large-scale organic crops for the marketplace, they are also growing GM on the same farm. They are the same farmers. They will be growing some conventional, some GM and some organic, depending on the marketplace.

Q172 Neil Parish: Are you talking about America?

Dr Little: Yes, so that would be in the US. In terms of co-existence within a UK framework, we have had, since around 1999 and 2000, a body set up in the UK called SCIMAC, specifically looking at how to do that. When we were doing these very large-scale trials here in the UK—over many hundreds of hectares, into the thousands, and over a large number of years—not one organic farm or producer ever had a problem, was delisted or whatever else. We believe that it is entirely possible to do, and we believe that it is a realistic possibility.

Q173 Neil Parish: Is the cross-contamination a different distance for different crops or what?

Dr Little: Indeed, yes. For some crops, you would need separation distances of 50 to 100 metres. For others, bizarrely enough, the distance between you and me would be sufficient to bring it well within European law on thresholds.

Paul Mullan: There are a number of parts in the supply chain where there is risk. One is in the seed-production part of the supply chain. A number of crops are produced in very localised areas, often in controlled environments, usually because they are looking to produce hybrid varieties, so they are essentially matching a male and a female plant together to produce a certain hybrid. They are often very closely controlled in very small locations.

The wider problem is the open pollination that can happen in nature, and that is probably the biggest issue. For most crop species, I suspect there would be a very rapid move towards 100% adoption of GMO, because the technology is so compelling from a farming perspective. Most farmers who do not use the technology in markets like the USA have found themselves significantly disadvantaged. Therefore, once the consumer market has accepted the technology, there has been almost 100% adoption of the technology immediately.

Q174 Neil Parish: Ultimately, we are disadvantaging ourselves in Europe by not adopting it, are we not?

Paul Mullan: Enormously. Our colleagues in North America look at Europe and laugh. They just do not understand why we are being so stupid with GMO.

Calum Murray: I absolutely agree with that. I would not care to add anything with regard to the separation, but on productivity, we know that there are issues surrounding the yield gap, in terms of the ability of crops to achieve their biological potential. We do not necessarily understand what is going on there. Adoption of the technologies that could be introduced here would perhaps allow opportunities to start to close that yield gap. In turn, that could lead to an increase in our total factor of productivity. The UK has fallen behind many people in Europe and certainly the US and South America. For all the reasons that were mentioned before, the adoption is likely to be fairly complete once the technology is allowed to be introduced.

Q175 Neil Parish: Very quickly, some NGOs and others call GM “Frankenstein foods”. How do we counter that?

Calum Murray: That is a very interesting question. The process of doing that is a challenge that the whole industry has to try to address. There has been a lot of good work done in the media recently, with those people that the public perceive as trustworthy, rather than white coats and scientists, whether they are the modern day rock stars and the celebrity chefs, and so on. Again, getting that perception across requires this understanding to be delivered and to differentiate between transgenic, cisgenic and all the rest of it.

Chair: I am going to have to ask you to really keep it very tight.

Q176 Jim Fitzpatrick: EU-bashing is not my natural territory, so forgive me, as this is an open invitation to EU-bash. It appears to me, from all the answers we have had this afternoon, that it is the regulatory regime that is holding things up. Are the EU simply

risk-averse, or is it protectionism for European farming methods? Why is the regulatory regime so awkward, given the way the technology is developing in the rest of the world?

Dr Little: To go back to my earlier comments around the history, in terms of there always having been enough food around. The Humboldtforum just published a paper that says that if you increase productivity in Europe by 1%, it equates to 10 million people fed. The reverse is also true. If you cut productivity in Europe by 1%, you have to import enough food for another 10 million. That just has not got through to the policy makers. There is an understanding at the food security level, if you ask people in member states, but we do not get that understanding at a policy level. It may well be that a new Commission coming in in September will take a new view, but that is a hope we are not convinced about. It is a real policy issue.

Paul Mullan: There is a reality in Europe that we have the wealth and can afford to choose. That is where I think we would be coming from: that the consumer, ultimately, has a choice. They can choose between the GMO or other technologies and conventionally produced agriculture. The prices at the moment are acceptable to the majority of residents of the European Union. Therefore, they have spoken with their wallet. Until there is pressure on the price of the food on the table and it becomes significantly different to what it is today, I suspect the reality is there will continue to be consumer pushback on this technology.

Calum Murray: It is speculation as to why the attitude is being taken, but the UK Government is to be applauded for the stance that has been taken within Europe, as a sole voice that it is trying to drum some sense into the debate. On the availability of food, there may be a wrong and erroneous perception about the impact on the smaller-scale producers in the wider aspects of Europe as a concern, but that is flawed in its argument.

Dr Little: A very short piece about this idea that consumers have voted with their wallets: yes, they do. You heard from Andrew Opie earlier that there are products on the shelves today. They are well-labelled. Almost by definition, the fact that they are on the shelves means that they sell. Where these GM products are available, people are buying them, so there does not appear to be the rejection that we often hear about, or at least the level of rejection that some people would suggest there is.

Paul Mullan: I would add that there are probably two key decision makers in the chain. One is the agricultural supply chain that is choosing to grow and produce these products. It is very clear there are significant benefits from this technology to a farmer, to a processor and to some of the retailers. The struggle here is a lot of the GM technologies that have been launched so far have very limited benefit to consumers, other than possibly price, which I guess ultimately will come through yield improvement. Until there is a significant benefit, either through nutrition or some other form of intrinsic benefit—we saw the purple tomato that was launched by the John Innes Centre a number of weeks ago now—and we see more of these things becoming widely adopted and such health benefits being transferring to the consumer, we may well struggle to get that adoption of GM technology widely across Europe.

Q177 Mrs Lewell-Buck: I am wondering how confident the panel is that the Agri-Tech Strategy will ensure the uptake of new technology in a co-ordinated way. Mainly, how effective is it going to be?

Dr Little: First and foremost, we applaud the UK Government for taking the decision, quite firmly, to nail its colours to the mast of productive, sustainable agriculture. That is to be applauded, and probably the first time for many decades that has happened. That is what has really jolted industry: we see the UK as a country that is open to do business, clear about where it wants to go and a frontrunner, right at the vanguard of European productive agriculture. That is massively to be applauded. Ultimately, it will be a kick-start to UK plant science plc. For all of those universities, research institutes and small companies that are actively working in plant science, it is a real kick-start to say, “Here we are. This is what we are doing. We are really keen to work with you, under the Agri-Tech Strategy.” That is a great thing, as well.

Ultimately, I believe that parts of the Agri-Tech will go right through to commercialisation. The GM bits will not, until we get a chance in policy, but the Agri-Tech Strategy is more than just GM. It is a great way to start looking at how we sustainably improve productivity in the UK through the use of UK science.

Paul Mullan: As a technology business in agriculture, we are incredibly excited about the whole Agri-Tech Initiative; this is fantastic news. We have not talked in agriculture in 20 or 25 years about innovation. There is an expression we use in our business, which is: “Spend an hour in the library, because you can save yourself three months in the laboratory.” We have unfortunately not had that library’s worth of information that we can draw on to do some of that fundamental underpinning of the work we are doing.

We are desperate to take this technology, drive it into the field and commercialise it. We want this technology, yet we do not have a library of information to pull from at the moment, so the Government is starting to stimulate. The number of conversations I have had in the last three or four months all around this subject has been phenomenal. It is generating huge amounts of interest and excitement in our industry.

Calum Murray: As you know, the Technology Strategy Board has been tasked with delivering the Agri-Tech catalyst part of the AT strategy. I can tell you that we had over 400 registrations for round one; from that, we secured something like 89 or 90 applications, despite the fact it was only a week from the announcement of the opening by David Willetts to the point of opening the competition. We were six times oversubscribed in the availability of the money for round one. Given the level of interest and enthusiasm that appears to be out there, and that it is business-led and involves collaboration with academia and business, this catalyst is particularly meant to be a pipeline of support to take this forward.

We have early-stage feasibility studies, going through industrial research to late-stage feasibility studies. The money that is available is probably going to have to be committed over the next two years, but some of these projects, given the seasonality of what is involved, are going to require the spend and ongoing investment over much longer than that. It is a very, very important and encouraging step, as Paul has been saying, but we need to see that longer-term commitment. Industry will be gearing up to start to undertake some of this research, which it has not done over the last 25 or 30 years. If that pool of support were to be shut off in the next 24 or 36 months, that would be too soon. We need to move forward.

Q178 Mrs Lewell-Buck: You have all probably in some way answered the question I was going to ask next. Are the Government and the agencies it works with helping to develop the expertise in the use of precision agriculture?

Calum Murray: Precision agriculture is recognising the opportunities that exist around a lot of different technologies in support of smart farming. The kinds of technologies that have been highlighted within the applications that have come in so far are showing that people really, truly do want to engage with that, be it the area of electronics, photonics, sensors, engineering solutions—I am talking about mechanical and electrical engineering, not necessarily biotech. All these innovations and technologies are being fully embraced. We are reacting in a way that, rather than tackling things from a thematic perspective in the way we have within the sustainable ag platform, gives people an open call through the catalyst, allowing them to come forward as and when they have ideas that can be contributed.

Q179 Mrs Lewell-Buck: Do you think the Government is doing enough to keep the momentum there?

Calum Murray: This is a very positive kick-start. Whether they are doing enough, and whether they continue, remains to be seen.

Q180 Mrs Lewell-Buck: Time will tell, yes. I quickly wanted to ask: what do you think any of the obstacles are to greater take-up of the precision farming?

Paul Mullan: We launched our first precision farming product, if you want to call it that, back in 1946, with the singulation of sugar beet seed in North America. We were right at the forefront, and we have launched a number of successive generations of that. The thing for us is we have been operating in a massive technology vacuum for the last 20 years, as we talked about earlier on. The opportunity for others at a much more fundamental scientific stage to start introducing technologies into the marketplace is critical. The holistic approach the Government is taking is absolutely right. It is not just about seed technology or genetics, but it is also about data and agriculture; it is about the mechanisation and the way we implement some of this precision technology in the field. It is a very, very rich area. It is going to both encourage significant amounts of scientific research within the UK, and provide a platform for technology businesses like ourselves to take this technology overseas

Q181 Mrs Lewell-Buck: So you do not think there are any obstacles at the minute.

Paul Mullan: I do not think there are any.

Q182 Chair: We are almost finished. There is a lack of commercial uptake. There are no commercial partners. What are you doing about that?

Paul Mullan: The only observation I would make is that in the last 20 years, because we have been operating in a vacuum, most technology businesses have had to develop their own internal R and D and their own support to do all of the work we are talking about today. Therefore, in the absence of any technology coming from universities and academic institutions, or a significantly reduced level, we have learnt to be self-sufficient.

The problem with that self-sufficiency is we are now very, very focused and very, very niche in what we do. We are having to go out now and relearn and redevelop those relationships with academia that just did not exist. One of the concerns I have with Agri-Tech is that there is a risk that that money goes into academia again. The academics

are very good at attracting funding because they have had a lot of years' practice of doing this. Industry have had no practice, because it has not been there, therefore we have not had to do it; we have become self-sufficient. Joining—I think the expression is—the Valley of Death between the academics and commercial is very important.

Q183 Chair: If you look at traditional plant breeding techniques and crop yield productivity without recourse to fossil fuel-driven inputs—look at robot-driven vehicles—is there a future there, and where will the take-up from that precision-type farming be?

Calum Murray: Are you referring to robotics in agriculture?

Chair: Yes.

Calum Murray: On the whole area of engineering and putting the smart into the mechanisation of systems, we have of course mentioned that GM is one particular route. Through TSB, we are currently in the process of assessing an engineering solutions call, in terms of extreme weather patterns, identifying engineering solutions to land management and the identification of stresses, the use of photonics, the use of unmanned aircraft, GPS, controlled traffic farming, small autonomous vehicles, be they aerial or land-based. A lot of companies in the SME sector are ready and willing to engage with that. We will see the outcome of that through our current engineering solutions call. Concept to commercialisation in that sector is something we are really seeing a great interest in.

Dr Little: To add to that, one of the advantages of putting a lot of your effort into the seed is it means that you have a lot less for those robots to do. If you are already starting with an insect-resistant, fungal-resistant, viral-resistant plant—if you are able to simplify what you are doing in farming—it makes robotics not only much more likely, but also a lot simpler to bring to the market, because it will not have quite as much to do. Farmers are unbelievably innovative about what they do. You have to reduce it quite a lot.

Q184 Chair: It strikes me that, as an industry, you have quite a lot to do. First of all you have to persuade the public to take GM crops and to embrace the technology in this country. You need to go out and have a partner, as well.

Dr Little: As I said earlier, where GM is available in your shops today, people are buying those products. We do not see market acceptance for consumers as being as big as perhaps people are suggesting. Our view is that the fact that they are not able to go into a shop and choose to buy a GM crop is as much to do with European regulation as anything else. If there are products out there, we understand that people will go out and buy them. We will work with whomever, in whatever country, to take this technology forward. We believe the UK could be right at the vanguard of this happening in Europe.

Chair: Can I just thank you, Dr Little, Mr Mullan and Mr Murray, very much for being with us and sharing your expertise with us this afternoon? We are very grateful.