Environment, Food and Rural Affairs Committee

Oral evidence: Brexit – Trade in Food, HC 348

Wednesday 15 November 2017

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Written evidence from witnesses:

- Fresh Produce Consortium (Panel 1)
- Crop Protection Association (Panel 2)
- Agriculture and Horticulture Development Board (Panel 2)

Watch the meeting

Members present: Neil Parish (Chair); Paul Flynn; John Grogan; Dr Caroline Johnson; Sandy Martin; Mrs Sheryll Murray; David Simpson; Angela Smith; Julian Sturdy.

Questions 139 – 277

Panel 1

Witnesses: **Siân Thomas**, Communications Manager, Fresh Produce Consortium; **Raoul Curtis-Machin**, Director of Horticulture, Horticultural Trades Association; **Nick Marston**, Chairman, British Summer Fruits, gave evidence.

Q139 **Chair:** Good afternoon. Thank you very much for attending our inquiry on Brexit and trade implications. We will be particularly talking about cereals, horticulture and fruit production today. It is really great to have you here. I will start with ladies first. Siân, then Nick and Raoul, will you, please, introduce yourselves?

***Siân Thomas*:** My name is Siân Thomas. I am communication manager with the Fresh Produce Consortium and we are the UK trade association for the fresh fruit, vegetable and cut flower industry.

***Nick Marston*:** Good afternoon. I am Nick Marston. I am the chairman of British Summer Fruits, which is the industry representational body for the UK berry industry.

***Raoul Curtis-Machin*:** Good afternoon. I am Raoul Curtis-Machin, director of horticulture at the Horticultural Trades Association. We represent the garden industry, so the ornamental sector. We have garden retail growers, landscapers and manufacturers in our membership.

Q140 **Chair:** It is on the ornamental side as well, then.

Raoul Curtis-Machin: Yes.

Chair: Thank you very much for attending our inquiry. I have the first question, which has two or three parts to it, but I will give you all the parts of the question so that you can incorporate that in your answers. First of all, what are the major challenges and opportunities for the horticulture sector after Brexit? Attached to that, given that fresh produce must be used quickly, is there an opportunity to increase exports or is there a problem? If the UK moves to trade on World Trade Organisation terms only, what will the impact of tariffs on imports be on prices for consumers? You can see a nice simple round of questions there to start with.

***Siân Thomas*:** For the fresh fruit, vegetable and cut flower industry, it certainly is a great challenge because we import 62% of all fresh fruit and vegetables. If we do not have a free trade agreement with the EU, we are immediately in the arena of having to do pre-notification and customs clearance. That will involve a lot of small and medium-sized businesses that currently have no experience of doing so and do not have that expertise. We risk major delays at points of entry, specifically the port of Dover, which you will probably have heard a lot about, where we have ro-ro traffic. We estimate about 600 vehicles come through the port of Dover every day carrying fresh produce. A lot of those products are highly perishable. Sometimes they are pre-packaged in the country of origin, so they are ready for the retailers' shelves. Any delay is highly damaging for the quality of that product and its availability to the UK consumer, but also risks a producer or importer losing a contract with a major UK retailer if they cannot supply the product.

Q141 **Chair:** Are the fresh products mainly import rather than export? There must be some export as well.

***Siân Thomas*:** We have a very modest volume of exports, and one of the opportunities is to grow and improve our self-sufficiency. However, we can only grow certain products here in the UK because of the restrictions of our climate. The UK consumer is now very used to a wide range. We have about 400 different kinds of fresh fruit and vegetables available to us here in the UK. The potential to improve and increase on exports is limited, but it is still there.

Q142 **Chair:** On WTO and possible tariffs, what will be the effect on consumer prices?

***Siân Thomas*:** It is difficult to say at the moment. People have made some guesstimates in that area. Because we are part of the EU we are bound in the actual criteria of the EU. We have a proportion of the tariff quotas available to us as an EU member. What we do not know yet, and what has to be negotiated, is how much of that proportion will come to the UK. It might sound quite an easy thing to do. We could just look at the volumes that we are currently taking from those quotas, but there are umpteen ranges of different tariffs and quotas. It becomes quite complex. There are also other countries within the WTO that are looking very carefully and want to scrutinise what we are doing because they see an opportunity.

Q143 **Chair:** I think Liam Fox tried to take the New Zealand lamb quota and say, "Europe has 70% and we have 30%; let us just split it up between us". Of course, then the WTO has its say. Are there many of those agreements on fruit?

***Siân Thomas*:** There are lots of beneficial trade agreements with specific countries or groups of countries. We are one of the major importers for those countries so they are very concerned about what this might mean for them. It is very complex. We are doing our best to help Defra and the WTO team that will be engaged in the negotiations to understand this.

Q144 **Chair:** As we go through our inquiry, we find the complexity there more and more, so we share your sympathy.

Nick Marston**:** First, on opportunities, certainly in the berries sector, and I guess most horticultural products that we can produce in the UK, northern Europe has a very well-developed industry of its own. Horticultural products, generally, are bulky and expensive to transport and the added logistics costs mean that, generally, horticultural products are produced in the countries that consume them, if that is practical. Import substitution is a big opportunity. We can replace product. The UK berry industry is about 90% self-sufficient from May to October and using technology—LEDs, glasshouses and perhaps indoor farms in the future—a year-round opportunity could be £350 million of sales extra. But that needs a lot of investment. It is very capital-intensive and will take time.

There is also the road of increasing automation, but robots need a very orderly world to work in, and I think 10 to 15 years is the soonest that we will practically see robotics that are able to pick crops and perform plant husbandry. It is not a short-term fix.

Regulation is a challenge. We are not overly concerned about the withdrawal of actives. We are very heavily dependent on natural predators and bio-pesticides. However, the easier introduction of natural predators will be important in the future. It is heavily regulated. We tend to have alien pests, such as spotted wing drosophila. We cannot, at the moment, release that pest's natural predators and we are very, very strict on that. Some better regulation in that area would be helpful.

We are heavily dependent on European nurseries for our baby plant material, as is most of the horticultural sector. An overzealous regulatory regime on plant importation would be problematical.

Q145 **Chair:** Do you think you have an opportunity now, though? Going back to ash dieback, which we looked at in the previous Parliament, we were exporting the seedlings over to the Netherlands, they were growing them and then they were coming back in, and, potentially, could bring back disease with them. I know that the previous Secretary of State, Owen Paterson, was keen to see whether we could create more of an island mentality when it came to keeping the disease out of our trees. Do you think we are missing an opportunity there?

Nick Marston**:** The issue with young plants is that they are raised in glasshouse production. There is substantial glasshouse nursery capacity in Holland, Belgium and eastern Europe. There is very little in the UK. Land availability and planning restriction in the UK mean that we could not practically transport that production here. We completely support a rigorous testing regime on vectors of Xylella and things like that. We are not talking about a free for all. We would just not like to see an over-prescriptive regime. We think the plant passport regime as it stands at the moment works very well.

Labour is the big issue and the big challenge, as we all know. I will not rerun that.

Q146 **Chair:** We will probably talk about that in a minute, yes.

***Raoul Curtis-Machin*:** In the ornamentals sector, when we look at the garden industry, we see a very exciting opportunity with Brexit. As the Government have to redesign the way they manage the environment and find a new way of creating a common agricultural policy and support for the environmental industries, our industry plays a fantastic role in delivering an awful lot of ecosystem service benefits, from flood alleviation to temperature moderation, health and well-being benefits. We really think we can help deliver an awful lot in these policy areas and we would like to be involved, hopefully, in shaping how that takes place.

Like other sectors, and as Nick says, we have a fantastic import substitution opportunity. We estimate that, at the moment, we are importing about £350 million a year of hardy nursery stock. When we say "hardy nursery stock", a lot of those plants can be grown with minimal input. They do not necessarily require high-tech glasshouses and a lot of heat and energy. A number of plant lines do. You have to bear with us, because the ornamental plants and garden industry is attractive by its nature due to the massive number of varieties and different product lines that we have. I cannot give, categorically, black and white answers for some of these questions.

We see the need for an incentive scheme for nursery expansion. A lot of our guys have been cutting back and getting leaner. They have not had any incentive. They have not been confident enough in the market to be able to invest. Planning is an issue, as is access to inputs like labour and water.

We do not export a vast amount in terms of product. We will go on to talk about plant health, I guess. Biosecurity is a huge risk, particularly in our sector. That works both ways. Importing plants is risky; exporting can also be tricky, because to export any live material requires phytosanitary checks at the other end, just as much as we instil that need.

We export our skills and creative energy, however. Some of our landscape designers and garden designers are among the best in the world. Singapore's Gardens by the Bay was designed by a British landscape architect. We are a world leader in terms of our garden industry. We feel there is an opportunity there. We would like to get more involved with international expos, for example, and we are trying to get Defra to say yes to the big one coming up in Beijing in 2019.

Q147 **Chair:** You would like some sort of help with that, I expect.

***Raoul Curtis-Machin*:** Yes. It is Government to Government. It is a massive opportunity.

Q148 **Chair:** On the individual nurseries and others—I have one or two in my own constituency—naturally they are growing trees and lots of plants. They are saying they are not really being given enough encouragement. They are not necessarily able to bid for contracts and things as well because they are very big contracts that are let by Government and councils and very often have imported stock. Is there more we can do there and, if so, what?

***Raoul Curtis-Machin*:** Absolutely. As part of our written evidence, we are giving our oak import substitution report. We studied oak this year to look at what these barriers are and how we can address them. It takes a collaborative approach. With public procurement, the big issue—and I know it sounds ridiculous—is that trees take time to grow. Often, we do not hear about these contracts until about six months before they are due in the ground, in which, no, we cannot supply 10 million UK-grown trees. It is not possible. If we were involved at the start, we could influence the system and, yes, we could.

Likewise, woodland improvement grants chop and change; they have not been consistent. If you are growing trees, you need to think five years in advance, minimum. If you are in business, you cannot plan beyond six months, at the moment.

Q149 **Chair:** Some of these sites now want partly-grown trees. There cannot be many people who have 10 or 15-year-old trees ready to be planted out. You need to have forewarning; the question is how we get that. You are not necessarily going to grow a lot of oak trees, ash or whatever for 10 to 15 years and then look to whether you can sell them. How do we join that up?

***Raoul Curtis-Machin*:** We can do that quite easily. It just takes joined-up thinking across Government departments. For example, at the moment, we are developing a plant health assurance scheme. We have really delved into the supply chain system, and looked at retail and designers. There is a myth that the customer is always going to want new and different, and we cannot restrict their choice. It is nonsense. For a lot of landscape architects and public procurement people, to have a smaller choice but be guaranteed UK grown is a beneficial thing for contracts. It helps our businesses. It also helps the final product in the ground.

Q150 **Chair:** It is interesting. With food, many retailers and others are very keen to buy British food and have it. We do not necessarily see quite the same drive on trees, shrubs and others. That is something we can probably do better at.

***Raoul Curtis-Machin*:** Yes. Plant health and biosecurity risks are sharpening everyone's minds on that.

Q151 **David Simpson:** You are very welcome indeed. I am very interested in some of the points you have been making. The challenge is interesting: you said 62% of imports, which is a big percentage. It is very good. What changes do you need to make to your business to respond to trading conditions after Brexit? Where do you see the difficulties? Maybe you have already started to make those changes.

***Siân Thomas*:** It is very difficult for the UK fresh produce industry at the moment, because there is such uncertainty. One thing we wish to press for is a transition period, which would give people a bit of breathing space. Within that, we still need to have the certainty of what that transition period is and under what customs or plant health regulations we will be operating.

Q152 **David Simpson:** For the transition period—sorry for cutting across—the Government have indicated possibly two years. Do you think that is long enough for your industry?

***Siân Thomas*:** It is helpful, but we need to know now that it is coming. That is the crux, really. Decisions are already being taken by some businesses. I know of companies that are moving production out of the UK and going to other parts of Europe where they know they can get labour, they can get into the market and they have that stability. Other people are just not able to touch it at the moment.

For customs clearance, we do not know under which scheme we may be operating. For fresh produce, we have a very efficient system at the moment for pre-notifying, called PEACH. It integrates with CHIEF, which is the customs system. It is absolutely vital that that is maintained. CHIEF is being replaced by a new system. We do not know whether it will have the capacity to cope if we have to clear all EU imports from day one. There is an awful lot of uncertainty. It is labour; it is regulation; it is customs—the lot.

Q153 **David Simpson:** You are saying that you need a clearer picture, so you can make the plans.

Siân Thomas**:** We totally understand that a lot of this may come at the last minute, and we want to work very hard with different UK departments to help them understand the complexities. That is what we are trying to do at the moment.

Nick Marston**:** The berry industry has been doing a great deal to equip itself to be more efficient. We have seen a massive move into substrate production, so no longer growing crops in the ground on soil but growing them in substrates, raised off the ground. The breeding programmes now tend to be very heavily targeted for bigger-fruiting varieties, because the larger the fruits, within reason, the more effectively you can pick them. There is very substantial investment and energy going into automation. The Lincoln Institute for Agri-Food Technology is doing a great deal of work on robotics but, realistically, these are quite a way off.

There are tasks that we are starting to mechanise, but Andersons, the farm business consultancy, analysed all the work done on a soft fruit farm, and around 5% of it can be automated within the next two to two and a half years with investment. We are still very heavily dependent on labour for the foreseeable future.

Q154 **David Simpson:** There was a programme on television about 12 months ago and they were showing what I would call glasshouses, but they were more up to date than that. Plants, such as tomatoes, were grown outside of the soil. Is that something that you guys are looking at? Does that help the growth cycle?

Siân Thomas**:** It has already been happening for many, many years. We have used hydroponic production in glasshouses here in the UK. There has been a lot of investment and it has been very successful in terms of extending the season and UK production. It requires a lot of investment. Some of that investment has come not from the UK but from outside of the UK—from the Dutch for example, in some cases.

Chair: We need to keep that investment.

Nick Marston**:** Yes. It is the same in the berry industry. We are using substrates quite heavily. There is opportunity to grow crops under LED lighting, perhaps using solar panels to generate the power, but, again, the investment is huge. If we were just to replace the UK outdoor tunnel industry with glasshouses, which are more efficient structures where you can use lighting, the approximate investment would be £6 billion. It would be substantial. It is something that we will see and there are trial indoor farming units already being run on a small scale, but, again, this is the work of 10 to 15 years rather than by 2019 or 2020.

Q155 **David Simpson:** You are talking about X million pounds of investment. I take it that growing berries and flowers is very profitable.

***Nick Marston*:** It is not so profitable that we can spend £6 billion tomorrow, no. That is one of the issues. While profit can be reinvested, that takes time and you can only invest on the basis of profitability.

David Simpson: Sorry for putting you on the spot.

***Raoul Curtis-Machin*:** Building on what has just been said, everybody would invest if they had surety in the market. For our crops, particularly when they are grown in hydroponics or containers, in hot, dry weather a plant cannot last beyond 24 hours without water. We have been working very hard to figure out how the water framework directive gets implemented into UK regulation and, provided that water for food is classed as an essential need, we can just about cope with it.

As things stand, water in agriculture and horticulture does not have any particular significant classification, which means, if there are any exemptions or restrictions, there are no exemptions for plant producers. Right now, we have very dry weather. It is about the surety of the frameworks that exist at the moment. For example, we worked very hard on influencing the new EU plant health strategy. There are some great things in there. It is stronger than it was before. We would not want to lose that. We want that recognition as a minimum. We need the UK to have that third-country recognition with the EU immediately.

Q156 **Chair:** On water extraction, when we get changes to the Water Act, we will be looking at extraction again, because you make a really good point that water is needed for plant production and agriculture. We need it for drinking, naturally, but we need it for many things.

***Raoul Curtis-Machin*:** Yes. Likewise, with skills, we would love to have a very healthy UK skills pipeline, and employ Brits to pick our crops and grow our plants, but for years we have been suffering from a perception issue. It is all land-based careers; it is not just our sector. We are seen as a poorly paid, low-skilled career choice. It is a shame, because it is not true, but we have quite a big task to do careers promotion properly. We would love to see some match funding coming out of Government to help us all do that. We are joining up with our promotion.

In strategic research and development, as I mentioned earlier, in our sector we have some fantastic ecosystem service benefits that we can provide. We would love to know more about that. We would love to develop new ranges of super-trees that absorb 10 times the air pollution, and substrates for green roofs that absorb 20 times the amount of torrential rainfall. Currently, we do not have strategic R&D support. The levy board that we have just does near market stuff.

Q157 **David Simpson:** In relation to the investment, we are coming out of the EU. Have you received any subsidies or grants from the EU where the gap would have to be filled by the British Government?

***Raoul Curtis-Machin*:** In my sector, we have never received subsidy.

***Nick Marston*:** The berry sector receives funding under the EU fruit and vegetable regime. That has been important in encouraging growers. It is match funded, which is always a good thing. The farmers are paying 50% of it, so they use it wisely. The £6 billion was an example of what it would cost to replace. The biggest issue is that no one at the moment wishes to invest significant sums of money in capital projects when they do not know whether they are going to have the supervisory management to grow the crop or the staff to pick it. There is a huge level of uncertainty and a great nervousness about investment.

The fruit and vegetable regime has been helpful, but my estimate is that growers over the last 15 years have probably invested up to 10 times more than they have received from Europe. It is very useful seed capital and, if targeted, as Raoul was saying, very helpful for further government funding in targeted areas.

Q158 **Julian Sturdy:** I should start by drawing Members' attention to my declaration of interest. I have a specific question, coming back to Siân, on fresh produce. I wonder what you think about the impact on our larger packers that growers are very reliant on. These larger packers will be supplying supermarkets or retailers for 12 months of the year. For nine to 10 of those months, they will be supplying UK produce but, for obvious reasons, they will have to fill the gap for the other two to three months with imported produce from Europe. Some of these packers have invested in farms in Europe as well. What is the impact going to be? I wonder whether you have any feeling about what impact that will have on the relationship going forward.

***Siân Thomas*:** Some of those packers are our members. Yes, it is quite common for a company to do a variety of different roles across the supply chain. It is quite a common scenario now. In order to supply the UK consumer with the same product all year round, which is what the UK consumer expects now, they are sourcing from a range of different countries. They will predominantly use the UK supply when it is available and in season, but they go outside. Those pack houses need to be fully employed, so they are taking the product from elsewhere to provide their customers with that constant supply.

Their concerns are the cost of doing that and what is going to happen. Can they avoid passing it on to the consumer as the supply chain has tried very, very hard to do so, up to now? It is increasingly difficult to manage those inputs. On the labour, are they going to have the people available to them to continue packing? We have been working with other UK food and drink trade associations, under the lead of the Food and Drink Federation, to ask our members jointly about their concerns. We have put forward evidence to the Migration Advisory Committee. We are doing a follow-up at the moment to ask it about forecasting of the future workforce, because it is a key concern.

We cannot rely solely on UK production to meet our needs. We are not self-sufficient in this country in fresh produce. We have not been for a very, very long time in history, so we need to have a number of different sources. It also gives us food security. If there is a problem with a harvest somewhere, either in the UK or another country—as we saw in Spain last winter, where it affected the availability of certain products—we have the flexibility to be resilient and keep supplying the UK consumer with fresh produce.

Chair: Could I have slightly shorter answers? They are very good ones, but could we be a bit quicker?

Q159 **Julian Sturdy:** If the process of importing for those few months when it is needed is slowed down, what impact will that have? We are talking about fresh produce here so it could be held up in ports. At the moment, I am led to believe it is a very quick, smooth transition for something leaving Spain to get to the UK pack-house and out to the retailers. What impact is that going to have?

***Siân Thomas*:** We have a very short supply chain. We have products that are air-freighted, products coming in by sea and products coming in by road. It will affect the availability of certain products. Companies will do their utmost to find alternative sources, but that may not be possible. They have to do it and make a profit at the end of the day.

Q160 **Mrs Murray:** I will try to roll this question into one, to make it quicker. You have already told us a lot of what you are doing to improve your production, with a view to self-sufficiency eventually. Could you tell me whether you have any other ideas about what you might need to do, and also what retailers can do to encourage consumers to buy British products as opposed to imported goods? Should the Government engage in a "buy British" campaign, as we saw years ago? If I could hear all of your ideas, that would be welcome.

***Nick Marston*:** The retailers are very supportive of UK farming and UK horticulture, and have done a great deal for that. It is much more about producing it. I believe that consumers enjoy buying British. They do not expect to pay more for it, but equally we do not really need to charge more for it, as long as we are able to produce it, unfettered, with the right levels of labour and investment.

Q161 **Mrs Murray:** Do you think the Government should engage in a campaign?

***Nick Marston*:** I do not think there is a need for the Government to engage in that. The Government's role is much more about assisting investment, research and our ability to produce the products, through availability of labour and the seamless flow of product imports, rather than necessarily doing a "buy British" campaign. The support for British farming is very substantial in the public.

Q162 **Chair:** I imagine the vegetable industry is pretty integrated. Therefore, you would rely a lot on the retailers and those that are buying it to market. You see the union flag on there. You see lots of things there, so it is something that they do, but are they doing enough to promote UK produce?

***Nick Marston*:** They could always do more, but they do a great deal. Retailers tend to be rather bad at doing what farmers want them to do, but they are very good at doing what their customers want them to do. As long as customers want to support British and buy British, which I think they do, retailers will continue to support that.

Q163 **Mrs Murray:** Do you think the Government are doing enough to procure British products themselves locally?

***Nick Marston*:** In our sector, which is specifically the berry sector, we do not do a great deal for public procurement, because it is not that sort of product. I do understand from vegetable producers and others, including the horticultural and ornamental sectors, that Government could do more on government contracts to make sure they tailor their requirements to enable the British industry to supply.

***Siân Thomas*:** At the moment, they are bound by the requirements to meet the EU's regulations.

Q164 **Mrs Murray:** Absolutely. Would that be an opportunity after Brexit?

***Siân Thomas*:** It might, although I would not want to see anything that limits the range of products that a UK consumer can have. We still cannot grow citrus in this country. We are pretty self-sufficient in the majority of our indigenous products. We have a very good track record. There is a lot we can do to improve that and UK retailers are very positive in terms of supporting British production.

There are things, potentially, on the marketing standards. There could be more relaxation of some cosmetic specifications. They have done a lot to encourage consumers to have wonky fruit and vegetables. There is more that could be done there, but they need to make sure that it is still a viable product for the grower to be producing.

***Raoul Curtis-Machin*:** There is a lot of help that could be given, particularly on procurement, because it is shockingly bad. I have been involved in the HS2 project, for example, where ash was still on the procurement list and it had been banned for four years by the time it came round to that. There is an awful lot of knowledge-building. We would love to see more horticultural knowledge and expertise in Defra and spread across departments.

I cannot see a government national marketing campaign working, but help with marketing for British-grown would be a great assistance to us. Our first challenge is to define what British-grown means. As the Chairman said earlier, we had a situation that we learned from with ash dieback, where a seedling starts off in the UK, goes to Holland, goes to six other countries, comes back to the UK for a year and then is sold. Is that UK-grown or is it an international plant? We need to nail some of these definitions first and then work on how we do it.

The retailers in our sector have woken up big time this year to the threats from biosecurity and Xylella particularly, and they would love to specify just UK plants right now. To be frank, there is not enough quantity in the UK to supply that need. It will take us four or five years to incentivise.

Q165 **Chair:** You have to get the right signals in order to do that.

***Raoul Curtis-Machin*:** Exactly. It is back to that confidence in the market.

Q166 **Angela Smith:** I visited FERA last week and observed the experiments being undertaken there in relation to crop protection. It is quite clear that the answers in terms of the use of pesticides, fertilisers and so on are quite complicated and probably involve more precise and sparing use of these products. We are where we are, and there is the risk that glyphosates and neonics in particular may end up on a list or banned under the precautionary principle. How do you think the Government should respond to that in a post-Brexit scenario?

***Siân Thomas*:** We are very supportive of our regulatory process, because it has a heavily risk-based and scientific approach. We have had increasing pressure in the UK horticulture industry in terms of the range of products that are available to us. Because we are more of a niche market, a lot of products are developed for cereals, which is a larger market, and come down to the horticulture industry. There is a concern about building resistance, if you have a limited number of products available to you. All the assurances we have had so far are that we will continue a risk-based scientific approach for the UK pesticides regulatory authority and plant health regulation. That is a very positive thing. There have been huge strides to do more in integrated pest management. UK horticulture is using different techniques.

Q167 **Angela Smith:** In terms of the potential for divergence and what that may do to your trading position, what is your response?

Siân Thomas**:** There are some positives here. At the moment, we have to abide by EU plant health regulations, which means that we have to control citrus coming into the UK in terms of citrus black spot, which is a cosmetic disease that is of great concern for growers in Spain. They do not want to have it appearing and becoming a problem for them, but it is not a problem for the UK or any crops we grow here. We would love to see that restriction reduced, as would our South African colleagues, because we are a major importer for them. We have to watch divergences and have some harmonisation of standards. That is very important, but there is still some room for us to look at things, take a risk-based approach and decide to go down a different path.

Nick Marston**:** I would echo what Siân said. The berry industry is heavily dependent on biocontrol. We do not have any significant concerns about a risk-based approach in harmony with the EU. There are one or two very specialist areas, like the release of natural predators, where we could take a freer, more risk-based approach without jeopardising potential trading arrangements. There is the risk that, if you diverge from the EU standards, the export opportunities that exist will disappear. I am for harmonisation with the EU in all those key areas, but also for taking a risk-based approach in those very specific, small niche areas, where we may be able to so without jeopardising that.

Q168 **Angela Smith:** Before Raoul comes in, would it be possible to provide some further written evidence to detail some of those areas in which a risk-based approach could be taken without jeopardising our trading relationship with the European Union member states?

Nick Marston**:** Yes. I can talk with one or two of my technical colleagues and ask them to think about those areas where we could. I will do that.

Raoul Curtis-Machin**:** We, in ornamentals, use neonicotinoids. In terms of quantities, it is 0.1% or less of the overall use in the UK, and it is about the only fully effective treatment for vine weevil. Without them, we would have pot plants that looked chewed up and had roots full of white larvae. That said, we are developing alternatives. The industry is by no means 100% wedded to chemical use. We have been using ever fewer chemicals, like my colleagues have mentioned, and we are getting much more targeted.

However, we do not have viable alternatives right now, so we would like to see a continuation of the risk-based approach, with more reliance on hard scientific fact, rather than just what we pick up. We are all listening to the gathering NGO noise that we get in terms of this message. On glyphosate, for amenity landscape use, organisations like the National Trust are virtually chemical-free, apart from using glyphosate on their paths. You cannot keep 500 miles of paths clean and weed-free without resorting to some efficient chemical use.

Q169 **Angela Smith:** It reduces tillage.

Raoul Curtis-Machin**:** Yes. With all these things, it is not a black and white, simple issue. As we know, with pollinators, a number of factors influence them. From our perspective, we would like to see continuation of the risk-based approach. There is mileage for certain exemptions but, in general, we would like to see harmonisation across the board so we can trade.

Q170 **Angela Smith:** Siân mentioned integrated pest management. All these things sound the right way to go for me: precision, sparing use and integrated management. There will be a demand for investment to deliver all that, with the big use of technology in predicting weather, spotting outbreaks of disease and so on. Is that right? Will better use of pesticides and fertilisers in the future demand investment?

***Siân Thomas*:** We need support in terms of research and development specific to our sector. That is really important. Making sure that some of the techniques developed become commercially viable is the critical point.

***Nick Marston*:** On farm investment, no. In other words, if precise and accurate delivery of crop protection products and the use of bios saves money in the long term, it is much more about the research and the knowledge transfer that enables people to bring those technologies out on to the farm than how much it costs once it is there.

***Raoul Curtis-Machin*:** I would echo that. Our guys are already investing heavily into the IPM—integrated pest management. It is not necessarily the financial investment. It is more about skills, learning and husbandry.

Q171 **Julian Sturdy:** I would like to follow up on one of Angela's questions and the answers you gave. On potential exemptions to certain pesticides and how they might work in the marketplace, take, for example, what has already been in the media: neonicotinoids. You have already mentioned, Raoul, the importance of them to your industry. It would be the same in the fresh produce sector, in certain areas, I imagine. If there were exemptions for what might come under the bracket of minority crops, rather than wholesale use, which is more based in the cereals sector, is that a potential way forward? Are there pitfalls if the EU does not take the same stance? It may take the same stance for a couple of years but if it does not, or we take a different stance, where might that lead us? It is quite a complex question.

***Nick Marston*:** There is the possibility of going for exemptions on minority crops. There are pitfalls, and the lack of the ability to export would be a clear one. There is another pitfall: we mentioned NGOs and NGO pressure. The reason most of these actives are under question is because they are questionable in one way or another and the NGOs will press that case. Would a particular sector producing a product for the British public, proudly British, want to risk being tarred with, "They asked for an exemption for something that the whole of Europe will not use any more"? That is a risk in itself.

Q172 **Julian Sturdy:** What happens if that means that it is not produced?

***Nick Marston*:** I am not aware of any crop or product that will not be produced as a result of the loss of an active. It may be more difficult to produce; it may be more expensive; production may be a little more erratic, but there are ways and there are technologies. We are very good at finding new ways to produce crops.

***Siân Thomas*:** I would agree with Nick. The issue is where you have a knock-on effect, where you have only a few fungicides available that are efficient with a particular crop, and suddenly you lose one active. Then you potentially have problems with resistance. It is having the time to manage that and being able to find alternative techniques.

Q173 **Julian Sturdy:** We already have this in place, do we not, with licensing of chemicals? When chemicals are up for relicensing, quite often the companies that are making the patent only relicense them for certain crops, so they are not licensed for other crops. Pirimicarb is an insecticide that is still available to be used in the fresh produce sector, but cannot be used wholesale in the cereals sector, for example. Is that not an existing example where—I hate to use this term—minority crops are already benefiting?

***Nick Marston*:** It is not my area of expertise, but label regulations are, as you rightly say, put forward by the manufacturers. The manufacturers have to go through extensive trialling and work to get that label regulation. They tend, therefore, to do it for products for crops where they know they are going to sell some volume. Then minority sectors will use the AHDB panels to apply for off-label approval. Off-label approvals are available and we do quite a lot of work in that area, but the active has to be available in some shape or form for use within the European Union. It is just that it has not been approved for that crop because the manufacturer does not want to go to the cost of having it approved, not because it cannot be approved. Does that make sense?

Julian Sturdy: Yes, it does.

Q174 **Angela Smith:** On licensing, one of the potential issues is that crop protection product producers can only license for relatively short periods of time. The approvals are quite short-term. Do you think that is a disincentive, in a way, to innovation?

***Raoul Curtis-Machin*:** Yes, it probably is. As the company has to bear most of the cost of development, we are already at risk, if we do not have equivalence and registration across the EU and the UK, that a chemical company would think, "The UK market is too small, so why would I bother?" We will end up with even less, which is a risk. Minor uses and off-label approvals are all well and good, but we need to have the registration in the first place. In terms of the incentive to develop the chemicals, there is a very costly process to develop a new chemical in any shape or form. If the license is short, where is the incentive?

Q175 **Angela Smith:** With or without Brexit, and whatever the harmonisation is, this is something that should be tackled.

Raoul Curtis-Machin: Yes.

Q176 **Julian Sturdy:** I have a very quick question to all of you. I will stick on neonicotinoids because they are in the press, but this potentially reflects all different actives. If the European Union in its meeting in December approves a ban going forward, given we are talking about having harmonisation of regulation and standards, should we, as the UK, import products from outside the European Union that are still being treated with neonicotinoids?

Chair: Go on. Who wants to put their neck on the line politically?

Julian Sturdy: You are talking about harmonising standards; it has to be across the board.

Chair: If they are banned here, should we import?

Q177 **Sandy Martin:** Julian has already asked two-thirds of my question. Can I bring my question in as well? Clearly, not only does being a member of the European Union make it easier for us to import and export produce in Europe, but it also keeps out some of the produce that could have been imported from other parts of the world. Do you believe there is a danger that easier and cheaper imports from other EU countries with lower phytosanitary standards might undermine the domestic market?

***Siân Thomas*:** I have every faith in our UK regulatory authority. Plus, we also have extremely high standards, often over and above the regulatory requirements, which are created by our customers, the UK retailers. They do a lot of work in terms of assuring what products are being used on fresh fruit and vegetables in the country of origin. They check spray records and applications. An awful lot of due diligence takes place, which gives me confidence that we will ensure that the UK consumer has fresh, safe and affordable fresh produce.

Q178 **Sandy Martin:** That was not quite the question, though. Clearly, at the moment we have an EU regulatory regime, which protects us from imports from other countries. If we have a situation where we are going to look for more imports from other parts of the world, we may not be able to rely on having the same high regulatory standards that we currently get from Europe.

***Nick Marston*:** Siân is right that, at the moment, we are strict on regulation on maximum residue levels. If you import a product from an overseas country, that product can have been treated with those chemicals, which can be legally used in that country, but it still has to meet our standards in terms of food safety and maximum residue levels. It still has to meet UK food standards. In addition to that, as Siân said, we are self-policing as a food industry. All the food retailers have strict "red lists", as they call them, of chemicals that, even if they are approved for use in other countries, they will not permit on product that is being sold to them.

We should harmonise with the EU in terms of maximum residue levels. To allow a free-for-all on MRLs would be completely the wrong thing and could undermine our own industry as well as customer confidence. Again, harmonisation on that is important.

Q179 **Chair:** Coming back to Julian's question, if you can produce it in America or wherever, and you use a certain chemical, there is no residue in that product when it comes in. The consumer is absolutely safe, but those farmers have had the ability to grow it in a much cheaper way. It is almost like the animal welfare argument where, with lower costs and lower welfare standards, that product comes in. Is that going to be a problem for growers in this country, if we are faced with the fact that an imported product is coming in and the chemicals are being used? No residue is found in that product, but it was used to grow that product in the first place. That is a legitimate argument.

***Nick Marston*:** It is a very legitimate question. In the case of horticulture, our industry is sufficiently sophisticated and capable. Certainly, in the berry industry, we are competitive on a global scale. Our ex-farm costs are competitive with North America, with anywhere else. The distribution costs to bring them in, plus duties and tariffs, mean that we can compete in our own season. We are virtually self-sufficient. It is much more a question for things like the livestock sector where, clearly, different welfare standards for animals can make significant differences to the cost of production. Every geography and country is different and has its different challenges. The legal use of chlorpyrifos in America at higher levels than we can use it at here does not give their industry a significant cost advantage.

***Raoul Curtis-Machin*:** In our sector, plant health threats outweigh the chemical risks. We do not have minimum residue levels. Yes, there is a risk that, if neonics were banned, they could come in from other countries, because it is not really checked in the ornamental sector. The bigger risk by far is of Xylella fastidiosa and other pests and diseases coming in, because we know that the UK has one of the best plant health regimes in the world. As nurseries, we are improving our standards, but we are not there yet.

Q180 **Chair:** What about inspection and making sure that does not happen? Is that in place enough?

***Raoul Curtis-Machin*:** There is not enough resource for that, no, not if we are going to be importing on the same or bigger scale. The inspectors can barely cope with what they are getting at the moment.

Chair: That is an interesting one to note. Before I move on, can I welcome the University of Lincoln students? You have suddenly come and filled our room. I take it you are doing a parliamentary study module, so you are very much welcome. At the moment, we are looking into horticulture, Brexit and the effects on trade and so on. You are very much welcome.

Q181 **Paul Flynn:** There is a very alarming prospect of losing all the workers who are not British citizens. We have heard figures of 70% in the food industry and in catering. Will it be a situation that the fruit is going to rot in the fields and the restaurants will close down, or else what solution is there for the shortage of labour?

***Nick Marston*:** Siân seems to be looking in my direction. The berry sector is probably the most exposed to the loss of seasonal labour. First, most of our supervisory and managerial capacity is from European origin. We have a very underdeveloped skill base in the UK. For people who are already here in full-time jobs, clarity as to their rights to stay is critical.

If we move on to seasonal labour, about 90% of the labour in the berry industry is seasonal. They come in March and April, and go home in October. In 2017, farms are already short, by anything from 10% to 30%. We depend on returnees: people who are contracting to come back next year. Typically over the last five or six years it has been 65%. Most farms are reporting, at the moment, as little as 35% returnees. The whole of the European Economic Area is short of seasonal labour.

Q182 **Chair:** What would you normally get as returnees? You are talking about 35% this time.

***Nick Marston*:** Normally, it is 65%. It is massively down on two or three years ago.

Q183 **Chair:** That is double what you are getting at the moment.

***Nick Marston*:** Absolutely. The EEA is short of people. It is fascinating. You go to Germany, Poland, Spain, Portugal and you will find Thais, Russians, Ukrainians, Moldovans all working on seasonal work permits already. We do not have any clarity as to whether we will even have a scheme, let alone whether we can extend that outside the EEA. It is really critical for 2018 that we have clarity on a seasonal permit scheme and that, preferably, it is extended to outside the European Economic Area, because that area itself is short of seasonal labour.

Q184 **Paul Flynn:** Siân Thomas mentioned companies that are already relocating to mainland Europe. Is this not the sensible thing for them to do, when they see the hell that Brexit will bring?

***Siân Thomas*:** Only a couple of companies are able to do that. For the majority, their production is here in the UK. They are stuck with the issue.

Q185 **Paul Flynn:** What do you think of what has been suggested by the Prime Minister: that Putin deliberately got involved in the referendum in order to pursue his policy of destabilising Europe? Has he not been successful? The evidence that you and others are giving us suggests that, for every opportunity there is in Brexit, there are about a dozen new problems and crises ahead?

Chair: Paul, I allowed you to widen the question, but that is getting pretty wide. Would anybody like to have a shot at the Russians, in a manner of speaking?

***Nick Marston*:** I read the PricewaterhouseCoopers report, which said that the reduction in availability of European labour would not have a massive effect on the total UK economy, but it went on to say that the one sector that would be heavily affected would be the food and farming sector. This is what we are here representing.

Q186 **Paul Flynn:** If we look at the substitution, there is 60% of produce that comes in from the European mainland now. If we replace that with home-grown material, does that not mean either larger subsidies or bigger increases in prices for the housewife in the shop?

***Nick Marston*:** We do not need subsidies. We are competitive on a global scale.

Paul Flynn: I know that you have no subsidies at all, but the gross value of agriculture in this country is 0.6%, less than 1%, yet the industry has 40% of the European subsidies at the moment, which is crazy. Do you expect that to continue for your industry, because Boris Johnson has already spent 150% of the money he is getting back anyway?

Chair: With respect, Paul, that question is better targeted at the second panel because they are receiving subsidies. These guys are not receiving subsidies.

Q187 **Paul Flynn:** Two of our witnesses talked about incentives, encouragement and so on but that must mean subsidies from the public purse. Do you really think this is on?

***Raoul Curtis-Machin*:** Yes, if you want to nurture an industry. We use the comparison of the UK film industry. Think about the great success we have had recently with a film like "The Avengers". Lots of international Oscar-winning films have been filmed in the UK, and they have been offering 25% tax rebates to nurture production companies. If our nurseries had an incentive like that, that would be enough for them to invest in capital infrastructure.

Paul Flynn: I am a great enthusiast for the British film industry and greatly enjoyed two wonderful films that were supported by them. One was "Breathe" and the other was "Notes on Blindness". But the comparison is not an accurate one. Why do we not compare it to the steel industry or the manufacturing industry generally?

Chair: We can, Paul. It is a legitimate answer. It stimulates the industry.

Q188 **Paul Flynn:** Can we get back to this idea that we can substitute and the British industry can grow? It can only grow at the expense of the taxpayer. The prices will go up if we have to substitute for what is coming from abroad at the moment.

Nick Marston: We are here representing horticulture, and horticulture is not heavily subsidised. We would like to see money spent on research and knowledge.

Paul Flynn: The question is addressed to Ms Thomas, because she suggested that there should be substitution. You have a huge amount of imports coming in. Why are they coming in? It is because they are cheaper than what we can produce here. If that stops and we produce a substitute for it, it is going to be dearer. Is that not true?

Q189 **Chair:** Let us not argue with each other here. Siân, if you would, please answer that, and perhaps we will leave it there on this particular question.

Siân Thomas: There is scope to improve our UK production but we cannot, in reality, become totally self-sufficient. I am not sure it would be a good thing for us to be reliant on one country for sourcing all our fresh produce. Fresh produce is critical to a healthy diet. We need to make sure consumers have a wide range of products available all year round. Some products we cannot grow here in the UK. We cannot grow bananas or citrus, and those are the key products that we import in high volumes. There is a lot we can do to improve, but we need to have a realistic perspective on the situation.

Q190 **Chair:** Going back to the point that Paul made on labour, last year we looked at the availability of labour in this Committee for seasonal workers. We had the then Minister, Robert Goodwill, saying, at that stage, he did not believe that there was a problem and that they could put in a seasonal workers system within six to nine months. We need to bring the Ministers back again and we need up-to-date evidence. We will use some of the evidence you have given us here this afternoon. There will be a separate short inquiry into that, but we are very well aware that, if you do not have the availability of labour to produce the crop, you will import the crop. It is quite simple, really.

Nick Marston: Interestingly, in my sector, the berry sector—we cannot speak for the whole of farming because farming has a range of different challenges in Brexit depending on the sector—the Andersons report that we produced in June looked at the cost of importing product during the northern European main season. We estimated that food price inflation on berries would be between 30% and 50% if we were entirely dependent on importing them from Holland, Belgium and Germany in the peak of the season. Far from being less expensive, if we cease to be self-sufficient and we import this product—it will be the same for other crops—it will be costlier for consumers.

Chair: Yes. In a way, Paul, it is costlier for consumers than it necessarily is for taxpayers in this particular instance. Save your next question for the cereals-growers in a minute.

Q191 **Dr Johnson:** First of all, I should mention that I am married to an arable farmer, as per my interests. The question I was going to ask was about genetically modified products. At the moment, we do not grow genetically modified products in line with EU regulations. Once we leave the European Union, how do you think the UK Government should approach this topic?

Chair: It is a non-controversial one.

Raoul Curtis-Machin: Genetically modified material was found in orange-flowered petunias earlier this year, and it took the whole industry by surprise. We had no idea it had got into the supply chain. We traced it back to Germany in the 1980s where some research was going on and the crop should have been destroyed but, for whatever reason, was not. It had found its way, by hook or by crook, into some bedding plants. The environmental risk was minimal to zero. The plants are not hardy so they did not get out and we were very much on top of it immediately. We got in touch with the GM team at Defra and worked ceaselessly to contain it because it is against the law.

It brought up a few questions in our minds about whether we should be looking at this and having more of an open and honest debate about its future. We are talking earlier about the environmental benefits and the horrendous pest disease threats we have. Should we be looking potentially at some street trees, or some way of breeding or modification that could enhance and improve these characteristics?

Q192 **Chair:** Disease-resistant, hardier, that type of thing, is it?

Raoul Curtis-Machin: Yes, absolutely, and they perhaps require less pruning and absorb more air pollutants.

Siân Thomas: We have been driven by what the UK consumer wants. On that basis, a lot of information and education is needed to open up the debate again. It had been quite closed for a considerable amount of time. There is a consensus view that says we should wait until the consumer is content and receptive to that as an option. There is another group of people who say it is another way of plant breeding and another tool that might be available to reduce the amount of crop protection products we need to use. It could improve varieties. It could increase resistance and deal with issues when we have problems with water consumption, et cetera. It is a potential tool. I agree with Raoul that perhaps it is time to start opening up a debate again.

Chair: It is about who is brave enough, really, to put their head above the parapet.

Q193 **Dr Johnson:** In medicine—I am a doctor myself—we have started to look at how we can genetically modify certain aspects in people, in order to prevent things like mitochondrial disease and cystic fibrosis. Do you think the general public, who generally welcome such developments, equate the two? The general public generally seem to welcome developments in genetics where it applies to medicine. Do you think they equate the two techniques as similar?

Siân Thomas: It is a personal view but it is about perception. If you make a decision where there is a life-threatening disease, you know that there is a reason behind something like that being done, whereas if it is in your food and you do not necessarily know about it, and why it is being done, that is a different situation.

Nick Marston: In my view—again, it is a personal one—it is a perfect legitimate technology. However, it has a very poor customer perception. If genetically modified food is going to be acceptable to consumers, it has to clearly deliver a benefit to the consumer. Work in medicine is accepted because people believe it will give them a benefit. At the moment, they do not see a benefit to genetically modified food products. They only see a benefit to the production side of the industry, not to them.

Q194 **Chair:** Why is it that, when we go into hospital, we will have anything injected into us and we will not immediately say, "Is that genetically modified or not?" We just accept it. If it is a food crop or something else that may have less pesticide and fungicide because it is resistant, why do we have a completely different perception on that?

Nick Marston**:** It is fascinating. That is a perception issue and, if you are taking medicine or being treated in a hospital, it is because there is something wrong with you, whereas if you are a consumer eating food you want the food to make you feel well. You do not want to risk the food making you less so. It is a fascinating thing. It needs to deliver a consumer benefit, whether that is enhanced selenium for memory or something else. There is quite a lot of work going on to try to get nutraceuticals into vegetable crops particularly. At the moment it is being done by conventional means, but that is the sort of area where you may be able to sell genetic modification to a consumer. They will never buy the fact that it is of benefit to the farming community or the horticultural community.

Q195 **Dr Johnson:** You said that it seems to have a bad press as an industry. What do you think people are frightened off and do you think their fears are legitimate?

Nick Marston**:** It is the *Sun* headline of "frankenfoods". It is the fact that something has been put into your food, you know not what, and it is a gene from some other species, you know not what. It is a scare story. I accept that.

Q196 **Dr Johnson:** What are they frightened of getting or happening to them?

Nick Marston**:** I do not know. I am not a consumer psychiatrist, but the concern about genetic modification seems to have been well entrenched into the consumer psyche. I am sure it can be introduced but, if seed producers or the agrichemical industry are going to look at GM, they have to think about what a consumer or customer would like to see in their product. What would make them say, "Yes, that is good. I will buy that". At the moment, they are not offering anything that, if you are a Joe in the street buying food, makes you think, "Yes, that is worth having on my plate".

Q197 **Julian Sturdy:** I will try to be brief. We have missed a trick on GM, if I am honest. It should have been sold on the environmental benefits that it brings. Around the world, where it has been used, it has brought great environmental benefits with lower land use, so less intrusion into the rainforest and things like that. Could GM make us more self-sufficient going forward, and is that a benefit?

Nick Marston**:** From a berry industry horticulture point of view, that question is probably better asked of the cereal industry, where you will get a more robust response. We are such an intensive industry in terms of production per hectare that it would not in my industry. That is not to say there are not other sectors that would say, "Absolutely".

Chair: You are all frit; that is the trouble. You are all frit; that is what it is. You do not want to put your heads above the parapet and say there could be some environmental benefits, because you are not sure how the consumer is going to go for it. Who finally does it? That is the thing.

Q198 **Julian Sturdy:** Siân, in fresh produce, do you think it might make us more self-sufficient?

Siân Thomas**:** We have not had a debate for a considerable number of years. We had a technical group that hosted a debate about three or four years ago and then it dropped off our agenda, if I am honest. Maybe now is the time to start looking at some of these other techniques. We had a very open mind. We saw it as a tool that could be available to the industry. We also have retailers that are members of ours giving a very strong message that, "No, the consumer does not want this at the moment". We basically parked it, at that point in time.

Paul Flynn: It was partly Monsanto's fault. One modification it introduced was for crops to produce seeds that would not germinate so the third world would be tied in permanently to Monsanto products. They damaged their own reputation.

Q199 **Chair:** It certainly gave them a very bad reputation. I think we would all accept that.

***Raoul Curtis-Machin*:** Similar to the berries, we are a very intensive operation. I can imagine, in terms of disease resistance, less watering, less pruning, longer flowering seasons, yes, there are potential benefits, which would help production.

Q200 **Chair:** From the landscape point of view, it is about whether these trees or shrubs will be intrusive with pollination or anything, not the fact that we are going to eat them. It is quite different in a way, but there is still that potential for intrusion, if you want to take the pure argument about bringing in another gene or whatever.

***Raoul Curtis-Machin*:** That is what we do not know. The concerns in our sector were about a modified gene getting loose. If it were, say, a herbicide resistant gene, and it bred with a local weed and became resistant, that would be environmentally damaging. More science and more study can easily nail that.

Q201 **Sandy Martin:** It is always good to have at least one person on each Select Committee who does not agree with everyone else. I am probably the person who does not agree with everybody else on this subject. I was not going to say anything until you mentioned the petunias from Germany. Do you not see that there might be an issue? I have always thought this was the biggest single issue about genetically modified crops. You have petunias that are growing now and are presumably healthier and better petunias than they would have been if they had not been modified, inadvertently, by genetic material that was let out into the biosphere by the Germans in the 1980s, despite all the protestations that we have had that from GM people that none of this material will ever escape into the biosphere. If these petunias are still around now and, presumably, that much healthier, what effect might this have on some other genetically modified crops in the biosphere, which will do better than they have ever done before and which may become very difficult to eradicate?

Chair: Are you worried about petunias taking over the world?

Sandy Martin: At the moment, there are very few parts of Suffolk where you cannot find oilseed rape growing in people's gardens, in hedgerows and so on. It is a very resilient plant, and that is before genetic modification. If we had genetically modified oilseed rape, I could see a situation where we would find it virtually impossible to eradicate. What happens if we end up with genetically modified ragwort or stinging nettles that grow to twice the size of the present ones?

Chair: Again, in some ways, these questions are better for our next panel, but please have a go.

Angela Smith: Can I bring the GM debate back to Brexit, which is where we have not been with this, because it is really important? I am in favour of GM technology. I am persuaded by the argument, but if the UK were to pursue the use of GM technology after Brexit and it remained banned under the precautionary principle within the European Union, what would the implications be for UK trade, even if we had a free trade deal?

***Raoul Curtis-Machin*:** From our perspective, not much, because we are not exporting live product.

***Nick Marston*:** Ditto in our sector. The arable cereals sector is the one you would have to ask questions to. It exports significant amounts of product.

Angela Smith: It is for the next panel, really.

Q202 **John Grogan:** I just had one question. One of the best things I have been involved in as an MP, when I was MP for Selby, was playing a small bit part in the saving of Stockbridge Technology Centre. It gave me an appreciation of how important research is in your industry, including near-market research and more distant research. What are the implications of Brexit for such research, if any? Does it make it more difficult to collaborate overseas or are there very few implications? What are the implications?

***Nick Marston*:** This is probably better addressed to the research community. There are serious concerns. Pan-European collaboration is very important. We have seen stuff like the Erasmus programme and access to the Erasmus programme being negotiated. Nothing has been concluded and a pan-European agreement in the research area will be critical. As we withdraw some funding from areas of farming, as Mr Flynn said, reinvestment in technology is going to be important. All sectors of farming will benefit from that.

I have been involved in Stockbridge and we ran some indoor farming trials there, which I talked about a little earlier. It is really early days for that technology, but it is exciting stuff. It is great that we have institutions like that in the UK that can do that work, and long may it continue.

Q203 **Chair:** When it comes to soft fruit and things like that, is there much research being done into the varieties and what we grow in the future?

Nick Marston: Yes.

Q204 **Chair:** Is there enough?

***Nick Marston*:** The investment in plant breeding and new variety research is substantial. The investment in robotics and labour-saving is now building a head of steam but it is very early days. It is 10 to 15 years before we really see the fruits of that. Knowledge transfer, water use and bio-pesticide use are all critical. There is a substantial body of research going on; the important thing is to maintain that and to put in funding where the European Union's funding will disappear, or to enter into pan-European agreements, because there is a lot of knowledge over there as well, which we will benefit from.

***Raoul Curtis-Machin*:** I would make a small plea for ornamental horticulture. We tend to get forgotten about as a small cousin of agriculture and even below the edible sector stuff, so we have always struggled to maintain any research and development base. Stockbridge is one of the few remaining ones but, for the ornamental sector, irrespective of Brexit, we need more support and help. We have been asking for that for a while. It would be great to see Defra stepping in a bit more. It is a concern. Keeping any EU funding channels open would be great, but more so for home-grown research and development, because we are now losing our horticultural research skills, which is a worry.

Chair: Thank you very much. The idea of you all coming here this afternoon was to try to make sure that we looked a bit more into the horticulture sector and the ornamental side, as well as production, because we have not really done that for a very long time. I thank you. We will try to make sure we keep that incorporated as we do other inquiries. One or two of the questions may have taken you slightly further than you were expecting this afternoon. Thank you very much for that. It has been a very good evidence section. Thank you very much for attending. I will now ask you to retire gracefully and the other panel to come forward, please. Thank you very much.

Panel 2

Witnesses: **Sarah Mukherjee**, Chief Executive, Crop Protection Association; **Dr Martin Grantley-Smith**, Strategy Director Cereals & Oilseeds, Agriculture and Horticulture Development Board (AHDB); and **Michael Hambly**, Chairman, NFU Crops Board, gave evidence.

Q205 **Chair:** Welcome to you all. Thank you very much for coming to the second panel this afternoon, looking at Brexit, trade and the agricultural cereals sector. First of all, I will ask Sarah to introduce herself, and then Dr Martin and Michael.

***Sarah Mukherjee*:** I am Sarah Mukherjee. I am chief executive officer of the Crop Protection Association. We represent the agri-chemical industry.

***Dr Grantley-Smith*:** Good afternoon. I am Martin Grantley-Smith. I am a director of cereals and oilseeds for the Agriculture and Horticulture Development Board.

***Michael Hambly*:** Good afternoon. My name is Michael Hambly. I am a cereal and beef farmer from Cornwall. I also sit as the chairman of the NFU national combinable crops board, representing the interests of 55,000 businesses in England and Wales.

Chair: Whereabouts in Cornwall?

***Michael Hambly*:** Callington, south-east Cornwall. I recognise one of the Committee.

Chair: It is north Cornwall as well, isn't it?

Mrs Murray: It is the best part of Cornwall.

Chair: There is no doubt about that. Seeing as you have your parliamentarian representative here, I would not argue with her for one moment. First of all, what is the UK cereal sector doing to ensure it can exploit any post-Brexit opportunities to increase exports? Linked to this, how significantly do you expect the export of value-added products—beers, whiskies and oat snacks, added to the cereals—to grow? It is the export of cereals as a raw material and then as a value-added product.

***Michael Hambly*:** First of all, the thing to realise from a cereal producer's point of view is that, in most circumstances, we are net exporters of grain in this country. The predominant cereals that we are concerned with there are wheat and barley. At the moment, roughly 80% of those exports of wheat are finding their way on to the EU market. The main customers are Spain and Portugal. A lot of grain ends up in the Netherlands, but some of that is trans-shipped through Rotterdam and it may not be the final point of destination.

Q206 **Chair:** This is mainly feed wheat and barley, I expect.

***Michael Hambly*:** The wheat that is going to Europe is predominantly feed, but there is also trade outside of the EU, particularly into north Africa. In those areas, we have been successful in selling soft-milling wheats as well.

Q207 **Chair:** Is the barley feed barley?

***Michael Hambly*:** The barley is a mixture of feed barley and malting barley. We have homes for malting barley in the EU, particularly Germany, and we are also very reliant on exports of feed barley. Those go a little further—Saudi Arabia is a key destination for us—and even to other areas in the Far East.

Q208 **Chair:** With Brexit, the European market is very valuable to us, so we need to try to maintain that. Beyond that, with Brexit coming, are you fearful of it, do you see it as an opportunity, or do you see it as a mixture of those things?

***Michael Hambly*:** At the moment, with a lack of definite information, we see it as a mixture of those things. In the cereals sector, our pricing for a commodity product is very transparent. It is easily linked to the futures prices and, when we export, we have to be competitive to the world price. In our sector, it is rather unlike the problems that, perhaps, the dairy sector has seen. Our pricing is transparent. The key is that we have to be competitive in what we produce for whatever market we are exporting to.

Q209 **Chair:** There are then beers, whiskies and all these added products where we are selling something that we have produced from a cereal. We are doing quite well with whisky into China. Post Brexit, can we do more?

***Michael Hambly*:** In my understanding, in terms of food exports, whisky is the key product to the UK. That is very important. I do not anticipate the world demand for Scotch whisky diminishing just because we have left the EU. That is likely to continue. It might prove to be a little more difficult for some of the beers, but whisky has such a reputation that it is unlikely to be affected markedly.

Q210 **Chair:** Sarah or Dr Martin, do you want to add to this? It is a question on the marketing side, but you might have a point to make.

***Dr Grantley-Smith*:** Just to make the point on grain exports, once we leave the European Union, we are faced with some serious competition that we do not have to deal with at the moment, whether it is Russia, Ukraine, the US or South America. They not only have been exporting effectively for a very long time, but they do it in volumes we cannot imagine. Sometimes it is difficult to see how a customer would necessarily change from an existing supplier of large volumes, guaranteed every year, to somewhere like the UK that cannot guarantee that sort of volume and, if it has a poor harvest, would possibly not have anything to export at all.

Q211 **Chair:** Cereals markets fluctuate with different crops in different years. You are saying that, in some of these countries, the scale of production is a lot larger and our surplus is not the same.

***Dr Grantley-Smith*:** Yes, indeed.

***Sarah Mukherjee*:** In terms of the opportunities, our sector sits behind the producers as part of the supply chain, and it is more to do with the R&D capacity. We have lost an awful lot of R&D capacity in Europe, in part because of what is seen as an unpredictable and sometimes very politicised regulatory system. We had 33% of global R&D in the 90s in the EU. That is now down to 7%. As you talked about in the previous session, with a risk-based, scientifically robust regulatory system, there is a real opportunity to get some of that £4 billion of global R&D back to this country. We could become a beacon of worldwide R&D; we have the foundations. We see that as an opportunity. The problem is being flexible enough to manage a UK regulatory system, an EU regulatory system and systems around the world.

***Dr Grantley-Smith*:** On the processed product side, you asked the same question. I would only answer that by illustrating the fact that Turkey exports about 5 million tonnes of flour a year. That is equivalent to our total UK production. Again, it would be difficult to see how we could break into that sort of market.

Chair: We sometimes forget how big an agricultural producer Turkey is. When I was in a previous place in the European Parliament, they were always terrified of Turkey, because of the sheer scale of bringing them in as far as the common agricultural policy was concerned, let alone anything else. It is an interesting point. Sherryl, you wanted to make a quick point.

Mrs Murray: Yes, very quickly.

Chair: You must not mention Cornwall, whatever you do.

Q212 **Mrs Murray:** I do not intend to. What support have the UK Government already given? Are they working with you to explore opportunities? I know, from my past role as the PPS to the Secretary of State, that she went to China, for instance, to look at opening up extra markets. Has there been any support of that nature for you?

***Sarah Mukherjee*:** Maybe I should declare an interest, because my husband is from Truro. We have been talking an awful lot to civil servants who, across the board, are just beginning to understand in outline the quantum of regulatory change we are talking about. One area that we have been working on and trying to support Government with is the idea of the quad. Defra is very interested in this informal grouping of Australia, New Zealand, Canada and the US, in terms of regulation. It is back to the point about just how relatively small we are.

We are now talking regularly to our colleagues in the crop protection industry in those four countries. We have regular calls on comms and policy. We are very, very small. They have farms that are as big as our counties. Speaking for our little grouping, in terms of trying to get heft within that system, when they are talking about millions of acres, I am going, "Yes, us too, us too. Yes, that would be quite interesting". To Martin's point, we have to remember just how small we are compared to the rest of the world, in terms of these new regulatory structures. We find that the officials we talk to in the ministry are very willing, open and interested in the points we have to make and the research we are able to bring.

***Dr Grantley-Smith*:** To answer your question about the way the Government are helping, one of the roles of AHDB is to identify and try to open up markets for UK agriculture. Take the example of China.

Chair: We are probably going to move on to that in a minute, so you can answer it then, please.

Q213 **Dr Johnson:** You said at the beginning that we are a net exporter of wheat and that most of it currently goes to the EU. Some of it may still go to the EU after Brexit, maybe as much as did before. If we are looking at the opportunities we will have once we have left the customs union to export to other countries around the world, what do we need to do to ensure that our product is competitive?

Chair: What can Government do to help, coming back to your answer?

***Dr Grantley-Smith*:** In terms of accessing markets, before we get on to competitiveness, we need to be able to access those markets. There are rules and regulations about accessing those markets and, in many cases, there are protocols or export certificates required for those markets. It is very important that those are developed quickly. That is mainly in the hands of Government, because it is the Government-to-Government discussions that lead to those certificates.

Q214 **Dr Johnson:** Are they things that we could be getting now or things that we cannot get under the customs union laws?

***Dr Grantley-Smith*:** Once we have identified the target markets, yes, we could be working on those. We have experience of that. You mentioned China. I was involved in the production of a protocol to allow us to export malting barley to China. That took nearly six years to agree. It is not a quick process. It is Government to Government. Governments can be very status conscious, so they expect senior people in Government to deal with.

Q215 **Chair:** How much do we export to China now?

***Dr Grantley-Smith*:** We have not exported to China.

Chair: We still have not.

***Dr Grantley-Smith*:** No. It is an economic issue, rather than that we cannot.

Q216 **Sandy Martin:** We export products, such as beer and whisky, but not grain.

Chair: Is that right?

Dr Grantley-Smith: Yes.

Q217 **Dr Johnson:** Mr Hambly, do you have any other comments on how we access the world market outside the EU?

***Michael Hambly*:** An issue that needs to be considered is that, particularly in the trading of grains, you have to be fast and reactive to changing market scenarios in any one season. You need to have a network of people you have contact with. You need to have that network of countries where your goods are accepted. Back in 2013 and 2014, we were in a position, in that season, to export somewhere in the region of 250,000 tonnes of feed wheat to the US, which would was almost unheard of. The currency rates and the market situation in that year, and the quality of wheat that we had, just made it possible. The key thing is to be flexible, fleet of foot and to have those contacts in place when you can use them and the opportunities arise.

Chair: How much of that is the industry in marketing the grain and how much is Government?

Q218 **Dr Johnson:** Do you think the Government, and particularly the Department for International Trade, are doing enough to help prioritise those sorts of agreements?

***Michael Hambly*:** The Government have to set out the parameters so that trade is possible in the first instance. The response to those market conditions is driven on a commercial basis by the traders seeking those opportunities, putting together the package, sourcing the grain, shipping the grain and delivering the grain.

Q219 **Julian Sturdy:** To come back quickly on the barley to China issue, if I am correct, we can now export barley to China but we have not. What are the other options that the UK should be developing to export barley? Sorry, I should also declare my interest at that point.

Chair: Yes, and I would also declare mine, a little late.

Julian Sturdy: There is a limited area, globally, where you can grow good malting barley. It is slightly different when you are talking about feed wheat. That is where the UK has an advantage. How should we push that advantage globally? It is not just China; there are options for getting malting barley out into other parts of the world. If China is not buying from the UK at the moment, where is it buying from?

***Dr Grantley-Smith*:** Whisky consumption is a little like meat consumption. It is a sign of a prosperous society. You go for those societies or countries where you see that happening. India is another example where whisky consumption is increasing. In terms of how you get that in, you need to watch, to see where the industry is growing its own production. We know in China that they are beginning to produce more of their own whisky, but they do not seem to have the capacity yet to malt barley, hence it going in.

At the moment, where are they getting it from? There are other European countries that produce malted barley, but it is still, I understand, a relatively small industry in China. Just so that you know, they have renamed a town in China "Aberdeen" so they can call it whisky from Aberdeen.

Q220 **Julian Sturdy:** India is potentially another option to be cultivated.

***Dr Grantley-Smith*:** Yes, and there are countries in the Middle and Far East that are also increasing in their prosperity and seem to move towards drinking whisky.

Q221 **Chair:** How do we catch those markets?

***Dr Grantley-Smith*:** There are two ways. As Mike said, the first thing you need to do is create the opportunity politically to access those markets. As we saw in China, the only way in is a political one, first of all. Once that is established and you have the way through with a protocol, it is up to the industry to push its wares, which it does very effectively in the end, with the likes of Scotch whisky.

***Michael Hambly*:** I wonder if I could add something to that. It is in relation to wheat and particularly the work that AHDB has done in trying to promote UK wheat overseas, originally through the auspices of BCE. It is a case of promoting the wares and demonstrating to those countries that the wheat we have is suitable for producing their traditional bread. We hold bread-baking workshops for those countries to come and visit, with the clear point of trying to prove to them that they could produce what they deem as their traditional loaves with flour from our soft-milling wheat. That is all about gaining confidence, so that you remove a barrier to that trade when you are trying to trade into those opportunities.

***Dr Grantley-Smith*:** In terms of the prosperous nations, as prosperity increases, consumer demand for assurance, traceability, quality and so on also goes up. We are extremely well situated in the UK to provide grains and products with good assurance, good traceability and good quality.

***Sarah Mukherjee*:** I was going to say exactly that. Speaking from not just this job but others in the food and water industries, we have a fantastic brand. The union jack is recognised; it is a brilliant brand. It would have cost us an awful lot of money to get marketers to come up with something that good. The traceability, quality and welfare standards of British food are second to none, and that is a huge selling point.

Chair: That is what we push—okay.

Q222 **Julian Sturdy:** I wanted to come back very quickly to the difference in exports and how we export—it might be to do with the tariff system—between barley and the malt itself, malted barley. We have a lot of big maltsters based in the UK, which will be looking to take advantage of exporting the malt. Is there a difference in tariffs and how you can export between the two?

***Dr Grantley-Smith*:** Yes is the simple answer. The tariff for raw materials is different from the tariff for processed products.

Q223 **Julian Sturdy:** Is there any advantage there?

***Dr Grantley-Smith*:** I am not sure I can answer that question. It is as much to do with scale as anything, as I understand it.

Chair: If it is possible to have a written answer on that one, it would be quite useful. It is an interesting point you make there, Julian.

Q224 **Angela Smith:** I have a question about the balance here in terms of the level of our current trading with the European Union on grain and the potential for replacing or replicating that with what are currently known as third countries. If we fall under WTO rules, which I hope we will not, and we start losing our trading position with European Union member states—this is a question for Dr Grantley-Smith more than anybody else—is it possible for us to replicate and replace that loss of trade with third countries? How long would it take?

***Dr Grantley-Smith*:** Yes, it is, if we can identify markets that are interested in taking our product, whether on the basis of quality, service or whatever. As I said earlier, we are up against some very, very experienced nations, which have product guaranteed year in, year out, in the quantities people might want. If we could find markets that wanted relatively small amounts of high-quality product, we would try to service them. My only concern is that, if those markets exist, is someone not already servicing them, and why not, if they are not? We would have to compete with others. At a price level, we would find it quite difficult. Maybe because of our traceability or whatever, we could be preferred suppliers. It will take time and we are coming from behind, but it is possible.

Q225 **Angela Smith:** What do you mean by coming from behind?

***Dr Grantley-Smith*:** The others probably already have the trading certificates and so on in place.

Chair: We are not going to produce the cheapest grain in the world, are we? We can produce some of the best, but not the cheapest.

Q226 **David Simpson:** You are very welcome. A lot of the questions have crossed over. If I repeat one, I apologise for that. Is the industry in its entirety gearing up to increase production after Brexit to counteract imports? Is it a case that imports will always happen because of the economics of it?

***Michael Hambly*:** On the situation on imports within the cereals trade, as I stated, we are predominantly a net exporter, but there is one thing that has to be considered there. Even though we are a net exporter of wheat, we regularly import somewhere in the region of 1 million tonnes of wheat. That is specifically to meet the milling requirements for millers of high-quality, high-protein wheat. That wheat is coming in from Canada, and some of it possibly from Germany. It is unlikely that that wheat is ever going to be displaced by production in the UK to meet those millers' requirements.

David Simpson: That was my next question.

Q227 **Chair:** Sorry to interrupt, but could we change people's tastes so that they had a different type of bread that could be produced from our own wheat? That is just an aside.

***Michael Hambly*:** Quite possibly, we could change their tastes, but you have to understand that some of these breads are big brands. That is a really difficult question that you would have to put to the owners of those brands. I think they would be very protective of it.

Q228 **David Simpson:** In relation to increasing production, do you think that will be the case when we leave the European Union and look for other markets? If that is the case, how quickly can that be achieved? Do you believe that the status quo—we talked about wheat coming in from Canada or whatever, because of the quality—is the balance you are just going to have within your industry?

***Michael Hambly*:** Can we increase production? One thing I know is that farmers are very responsive to market signals, particularly in the cropping sector. If the market signals are there that we are able to compete in those markets, yes, the industry will respond and will look to produce more.

Q229 **David Simpson:** The Chairman made the point that we may grow good product but it is not the cheapest. Is the material coming in from Canada and elsewhere, because of their climates, much cheaper than we produce here?

***Michael Hambly*:** It is a different product, so we are not comparing apples and pears. That is the answer to that question.

Q230 **David Simpson:** You are not going to tell me how much cheaper it is, though.

***Michael Hambly*:** Without research and data, I would not be able to give you a figure.

Q231 **Chair:** The final question on this goes back to my original point. The only way, surely, we can displace a lot of imported bread-making wheat would be to see if we can replace them with hard biscuit-making wheats and others that we can produce certain types of bread out of, which we can probably produce more successfully. Otherwise we do not really displace anything. You either have to carry on exporting or you have to try to keep out the imports, but somehow or other we have to make sure we have a market for that grain. I know you have partly answered it. I do not know if anyone else on the panel thinks this. Am I just trying to push water uphill, which is always possible?

***Dr Grantley-Smith*:** I cannot answer it directly but, if the economic driver was there, breeding companies might see an opportunity to try to improve varieties to grow in this country. There would have to be a strong financial benefit for them to invest in that sort of thing.

Q232 **Dr Johnson:** I have a quick question about the area dedicated to wheat. In our briefing, we have been told that we are particularly good at making soft wheat for biscuits and cakes. It says that the UK's wheat area dedicated to such varieties has dropped from 31% in 2007 to 5% in 2016. Why such a large drop and could that be reversed?

Chair: You cannot always rely on making the quality, can you?

***Michael Hambly*:** In terms of why that has changed, you need to look at the changes in varieties coming forward and the potential yield that those varieties have. In some circumstances, quality wheats can yield less than some of the feed wheats. The plant breeders are making improvements. A grower will take a number of factors into their thinking and decisions in terms of what market is available, the premium for the market, the risk in terms of trying to meet that market and supply it and the potential yield. The grower will, in the first instance, be looking at the gross output, but more importantly the gross margin and the net income that he can achieve.

Q233 **Dr Johnson:** It is bit of a change over nine years, is it not?

***Michael Hambly*:** It is, and it is probably a reflection of the varieties that have been coming through, particularly the soft wheats. If you look at the work that has been done by the industry to promote soft-milling wheats into the north African market, you can set up the opportunities to export but you rely on the breeders to find something that is economically viable for the farmer to produce, to meet that market.

Q234 **Chair:** In a nutshell, we need to breed some better wheats.

Michael Hambly**:** We always need to breed better wheats. We always want improvement.

Chair: We need better soft-milling and harder-milling wheats. Otherwise, the farmer is going to choose to grow higher production. I do that myself because, if you are going to lose a tonne an acre or something, you are not going to make it up on the quality.

Dr Johnson: I get that. I wondered why it dropped so much.

Q235 **Chair:** That is partly why, because the feed wheats have become more productive, and the bread-making and biscuit-making wheats have not kept up. Would that be fair?

Michael Hambly**:** That would be fair.

Q236 **Paul Flynn:** This is the non-farming side of the room. None of us are farmers on this side and we take a rather different view. What have we got ahead when we are looking at Brexit? We might face tariffs in our traditional markets that we have relied on fairly comfortably for a long time, and we will be trying to sell to markets that are already served, presumably. They are not starving in the developed countries. We are hoping, very optimistically, that having lost markets—and we certainly will—we should be able to find these areas to replace them magically. You tell us that it took six years negotiating with China, and we have not sent a single grain of wheat there, as far as I can gather. Are the losses ahead certain and the challenges overwhelming for your trade?

Sarah Mukherjee**:** From our point of view, as part of the supply sector to agriculture, as you can imagine, chemical formulations are very complex now. The IP may be in one region, raw materials in another, and they may be processed in a third country for export to a fourth. I am sure you have heard this from every single sector: it is back to the certainty. At the moment, it is uncertain as to where exactly we are going to land. If we end up with a cliff edge, with WTO rules, the increased costs and complexity of each element of that trade and that movement would be incredibly difficult to manage quickly, or even slowly. That is a concern.

We will probably get on to the other element when we talk about agriculture and science. We heard from your previous witnesses about one section of the skills market. Of course, in agricultural technology, you are talking about very, very highly skilled, often very specifically skilled people, many of whom come from the EU. I know that is another concern for companies: where that innovative skill is going to come from for the future. Back to the question of developing new breeds and making sure we are doing more with less or the same, we need those skills in order to ensure we have a very technical agricultural sector that is fit for purpose.

Q237 **Paul Flynn:** If I can give you possibly a biased view, I remember as a child being told that we had to dig for victory, and we dug up marginal land that was never going to be economic. Much of it is still in production, although it is not economic, and it has very fat subsidies. Then we had the great grain prairies in the east of England. One pound in every five paid in subsidies was paid to a billionaire or a millionaire. Brexit means an earthquake in the prospects for the agricultural industry. Do we have to start from the beginning, look at what is economic to grow sensibly in this country, and look for a scale of subsidy, if necessary, that the public will support, without giving income support to billionaires?

***Sarah Mukherjee*:** We have had some indications already from the Government that there is a review going on in terms of what happens post 2020. You are right: we have to think of different ways of using technology. Again, from my previous roles as a journalist and in the water industry, there are so many pressures on very finite land. We have to find housing; we have to find development; we have to find land for productive food as well. You are right that it is an opportunity to start to reset that.

Of course we must bear in mind—I am sure Michael has far more frontline views than I—that a lot of farmers are struggling to make a living even as we are across the sectors. It is not just upland farmers, sheep and livestock; it is across the board. Farming incomes are incredibly low, even with the amount of subsidy they have at the moment. In the long term, there has to be another, more sustainable way, one would hope, to produce a productive UK agricultural system, bearing in mind we have such fantastic farmers and products.

Q238 **Paul Flynn:** Can I make a final, brief point? I spent last week in Bangladesh, in a refugee camp, and saw terrible suffering: a chronic shortage of food, about a quarter of the food that is necessary, no clean water, no hospital and no system. There are people in terrible conditions; there is the population of Manchester crammed in these terrible circumstances. Sadly, these refugee camps and these crises, as they go on, are permanent in the world and are going to happen all the time. Do you think that there is a market for us in becoming the primary provider of food—which we are failing to do now—in these crises, both for humanitarian reasons and as a way of disposing of our products from farms? They really want rice and grain going there, and some primitive bread.

We are going to find these terrible examples of the very rich, overfed West. Obesity is our main problem—and worries about whisky. One of the few things Brexit will do is drive people to drink, which might improve things that way. Can we try to solve what is a permanent problem of starvation throughout a huge area of the world?

***Sarah Mukherjee*:** It is a continuing one. Figures from the World Bank suggest that we are going to have another half again in terms of need for volume of food, and there is an increasing population. I remember in the 1970s, when I was a child, it was nothing like that, but it was a struggle. We lived in social housing; my mother was a single parent. We did not have access to the sort of affordable food we have, and it is a testament to the British and UK food industry, completely, that we do now.

I was in a supermarket recently, and there was a woman complaining that she could not find fresh lemongrass; 40 years ago, you would struggle to even find fresh carrots and onions if you lived in particular parts of the country. We would say that one of the ways of solving those problems is through agricultural technology. I accept, and I think the industry accepts, that it has not told as good a story as it should have done in the past, and I am sure we will come on to GM and we can talk about that.

I was very struck by the point that you made in your earlier session. If you have a new cosmetic, there is a waiting list. If you have a new phone; people are queueing around the Apple store to get it; other phones are available. Yet, if there is a new agricultural product, people are very suspicious right from the beginning.

Chair: They look at it very suspiciously.

***Sarah Mukherjee*:** It is up to us, working with everybody, to begin to change that, because the pressures are, and will be, enormous.

Q239 **Chair:** It must be science-led and led by the universities rather than by Monsanto. That is the point Paul made earlier, because they have a bad reputation for it.

***Sarah Mukherjee*:** It must be completely transparent, absolutely. You cannot expect consumers to voluntarily go and get something they are unsure about. We have to be transparent, going forward, in the process.

***Michael Hambly*:** I would just add one point in view of the question. Some of the issues there are probably outside the remit of what we are discussing, but I would like to make the point that the statistics show, in terms of the proportion of income spent on food, that food has never been more affordable for the general population. That affordability has been through the advances that there have been within agriculture, and the mechanisms that have been used to support that, so that those benefits have worked through the system.

Q240 **Angela Smith:** We are back to Brexit now. What do you anticipate the impact of Brexit will be on input prices, such as fertilisers?

***Sarah Mukherjee*:** As I said, it very much depends on where we end up landing. Given the complexity of the supply chain, there is a large possibility of increased prices. Farmers are always telling us how expensive pesticides are; they use them only as and when they need. It is certainly very easy to see a situation—even with a degree of certainty—where inputs could rise, simply because of the various stages they have to get through.

Q241 **Angela Smith:** What do you mean? Can you just take the Committee through the various stages so we have that on the record? That would be really helpful.

***Sarah Mukherjee*:** Yes. We asked our members if they could provide us with examples, which I would be happy to provide in written evidence to the Committee. I have one product, which is very difficult to make and starts in Norwich, because this particular plant has specific expertise. It is produced in the UK, exported to Finland for further processing, back to Germany to produce the finished product, and then it goes to North and South America.

Q242 **Angela Smith:** There is this carousel effect with the inputs.

***Sarah Mukherjee*:** Exactly. Three of those countries are in the EU at the moment; two of them will be in the EU in a couple of years' time. How will that trade work? How will those customs look? The other point to make is that, at the moment, thanks to the vigilance of our customs officials, counterfeit products are caught at the border. They are of increasing concern to member companies, because they can look exactly like the real thing, but who knows what is in them? That is another issue. If there is a huge amount of complexity for other products coming in, the extra resource needed to stop counterfeit products as well might be considerable.

Q243 **Angela Smith:** There is a safety impact to that as well.

***Sarah Mukherjee*:** Exactly. Anything could be in these products.

***Dr Grantley-Smith*:** From a slightly different angle, inputs operate in a free market economy like any other, and therefore, if the customer cannot afford them, the price may well reflect that. You tend to find with inputs sometimes that they are reflecting what the industry can afford, and, if the industry cannot afford them and the manufacturers or suppliers of those products have no other market, the price of that product may well have to reflect what the industry can afford. Therefore, it may well come down if the margins for growers become so tight.

***Michael Hambly*:** Inputs are a key factor for us. The particular issue we have is inputs that are coming from outside the UK, particularly where the impact of currency affects those issues for us. In the current climate, we are experiencing a rise in input prices. Anglia Farmers, which is a very large supply co-operative and marketing group, has just published some figures for the 12 months ending September 2017. It looks at a range of inputs that farmers use, and its benchmark was an increase of 4.92% in that period.

If you look at particular inputs in detail, one of the biggest inputs for us in the production of cereals is fertiliser cost. The fertiliser cost and the growing cost can be anything up to 45% of the total cost for that crop. We are looking at three key nutrients there: nitrogen, phosphate and potash. The production of nitrogen in the UK is probably barely half of our total requirement, so half will have to come in from some other part of the world. We have effectively none of our own supplies of phosphate; that is all required to be imported. We have some supplies of potash, particularly up in Cleveland, but we are very exposed to large swings in the price of fertiliser. We have growers now that in the last six months, in terms of nitrogen, are seeing swings of over £50 per tonne.

Q244 **Angela Smith:** You have anticipated my second question. It appears that there is a very limited capacity to create more of our own inputs. Am I reading that correctly?

***Sarah Mukherjee*:** It is something that is of considerable concern to our members, to the extent that some have been looking at, for example, warehousing. It looks, as we come closer to Brexit, that there is a cliff edge and we are going to have a very uncertain post Brexit. Obviously, we would not be the only sector; every sector would be looking to stockpile as much product as possible to tide them over that uncertainty. As far as I understand, these discussions are already going on across business. Of course, being a relatively small industry, we do not have first bragging rights on warehousing. We have to make do with whatever we have, and the big warehousers would be doing exactly the same thing.

Q245 **Angela Smith:** Finally, do you feel that the Government, and Defra in particular, understand this problem? Are they engaging with the users and makers of the products on this problem?

***Sarah Mukherjee*:** These are points we have been putting. As I said before, we have had a reasonable amount of engagement with Defra. Obviously, there are a lot of people it has to talk to, but I think it is hearing quite similar things, particularly in terms of the uncertainty, from us and other similar sectors.

Q246 **Sandy Martin:** Clearly, there are different ways of growing grains, and some people use more of certain inputs than other people do. Do you think there is any prospect or opportunity to change the range of fertiliser inputs that are used in order to grow grain in this country?

Michael Hambly**:** That is going to be key to what we do in terms of an integrated system. All producers, in the way that they have to compete in the market, are looking to identify their cost of production and how they can manipulate those inputs to reduce their cost of production. I am sure Martin would like to say something in terms of the initiatives in benchmarking within the industry, to highlight that and to improve our competitiveness.

Dr Grantley-Smith**:** From our point of view, we see understanding costs as probably the first plank in improving business performance. Without the knowledge of costs, it is very difficult to do anything else. We are throwing everything we can into helping growers get to a position where they know their costs and can make decisions about that. As a good example of that, you may have a range of inputs that you are trying to improve financially to improve your overall productivity; if you do not know which one is going to make the most difference, you may spend quite a lot of time trying to reduce the use of something that financially does not help you very much. You need to use that information. You also need to use it for benchmarking against others, to see where the top of the class are performing and to reflect that.

Inputs are something we can do something about. Marketing is more difficult, because of the global impact of it. We are doing what we can to get people in a position where they can make rational decisions about their businesses based on their financial performance.

Q247 **Sandy Martin:** I speak as the Member of Parliament for Ipswich, where the development of the use of coprolite took place in the 18th century, so I feel partially responsible for the growth of the fertiliser business. We grew a lot of grain all over the world before there was any artificial fertiliser at all, and there has to be a balance between the best possible production of grains, and the best, most effective and efficient possible use of artificial fertilisers. I am not necessarily convinced that we have reached that balance yet. I am particularly talking to Michael here. Do you feel there is a way to go, and that we could produce maybe not quite so much grain, but at a much more competitive price, if it were not being propped up by particular attitudes towards the use of artificial fertilisers?

Michael Hambly**:** All growers have an open mind in terms of what they can do to reduce their cost of production per tonne. I would like to remind you that, within the products that we use to grow our crops, from the seed to the fertiliser to the chemicals, there is only one thing that we can do and apply to a crop to increase the yield. The one thing that we can apply to a crop to increase the yield is the amount of nitrogen fertiliser we put on it. We have to be responsible in the way that we apply that; we do not want waste, and there are environmental considerations to take into account.

Everything else that we do—every herbicide we apply, every fungicide we apply, if we decide to try to control slugs—protects the investment and the potential that we have from the amount of nitrogen that we have applied. It will not raise the yield; it will just prevent the reduction from the optimum level that is achievable with that level of nitrogen input.

Q248 **Sandy Martin:** I accept that, but there are different ways of producing or enriching crops with nitrogen. The way that it is used predominantly in this country is not necessarily the only way.

Michael Hambly**:** There are alternatives in terms of compost and organic manures, but it all comes back to that point: what is the quantified level of nitrogen that is applied, albeit that it is in a different form? The form that it is in might have an impact on the efficacy and the way that it is used within the plant.

Chair: You are competing directly against imports that have come in with all that nitrogen fertiliser being used, rightly or wrongly. If you are going to down an organic route, that is fine, but it is more costly. There is usually a higher cost to the grain and so forth. It is a legitimate argument, but there are lots of checks and balances in it.

Q249 **Dr Johnson:** I just wanted to clarify a point that you made, Mr Hambly, earlier on. You mentioned that the main components of fertiliser are sodium, potassium ash and potash, and said that we had about half of the nitrogen. As I understood it, you said that we did not really have any potash.

Michael Hambly**:** Phosphate.

Q250 **Dr Johnson:** Phosphate, yes. I just wanted to challenge that. I referred to my husband's interest as a farmer and agricultural contractor. I am not an expert in his business; I am a doctor. One of the things he does is sell fertiliser, at least one of which is a British-made fertiliser produced in Suffolk from deep litter chicken manure, which is then burnt in a plant to produce a renewable electricity source, essentially. It leaves an ash, which is a fertiliser containing potash and potassium, which is then spread across the fields. I do not know whether there are others, but I know there is at least one natural source of these materials in the UK.

Michael Hambly**:** I think the product you are referring to is a product known in the trade as fibre foss.

Dr Johnson: Correct.

Michael Hambly**:** It tends to be a mix of potash and phosphate together. You have corrected me; I was referring to straight phosphate fertilisers. I was trying to identify the key ingredients. I was thinking in terms of rock phosphate that could come from north Africa, triple superphosphates, monoammonium or diammonium phosphates.

Q251 **Dr Johnson:** We have sources that are a mix of the two, which can be blended; I know that is something else he does. They can be blended to make the right sort of fertiliser that a farmer needs. All you are saying is that you do not have phosphate all on its own or potash all on its own.

Michael Hambly**:** That is correct, yes.

Q252 **Chair:** There is a counter-argument in terms of whether we should use nitrogen. This is one of my pet feelings. The fertiliser industry keeps us very tight on the production of nitrogen in particular, and they keep the price artificially high in this country. What more can we do to put pressure on the big fertiliser suppliers? There are virtually only one or two that manufacture nitrogen, I think I am right in saying, and that is also an issue. How do we deal with that one? It is a counter to the other arguments that we have been having.

Sarah Mukherjee**:** This is from a previous life as a director of environment in the water industry. The water industry is looking quite closely at whether it can recover phosphate. There is a lot of it in rivers and as run-off. This is slightly old knowledge now, but there were some very interesting experiments in the Netherlands looking at whether you could use plant materials to recover phosphate. Again, as Michael said, it is relatively small-fry. There is a potential—and a very exciting potential—for phosphate removal in the UK.

Q253 **Dr Johnson:** We ultimately have a limited supply of phosphate, which keeps leaking into very dispersed forms.

***Sarah Mukherjee*:** Exactly, yes.

Q254 **Paul Flynn:** We cannot ignore the contamination by nitrates of the aquifers and the deep waters. They cause serious problems in other parts of the world. Those are problems that are insoluble and a part of our ignorance in the past by an excessive use of nitrates. We really must acknowledge now the potential damage that they are going to do for future generations.

***Sarah Mukherjee*:** That has changed. You are absolutely right that people have learned a lot of lessons from the practices of 20 or 30 years ago.

***Dr Grantley-Smith*:** My organisation is doing a lot of work to try to develop plant root systems to more effectively pick up the nitrogen that is put on the soil, so that we do not lose so much into the system.

Q255 **Chair:** Yes. If we could get a better take-up of the nitrogen, we would not have the same problems. Do you want to venture into fertiliser?

***Michael Hambly*:** On the situation of fertiliser, there are two basic forms of nitrogen in the UK. The source of ammonium nitrate is a preferred source and tends to be a little more expensive on a unit basis, but it is controlled and supplied by two key suppliers that operate in the UK. Competition is difficult. We would like to see something transparent that allowed a futures-type mechanism for people to try to manage the risk of that, and we have had discussion about doing that within the National Farmers' Union.

Q256 **Chair:** Do you mean a futures market for buying fertiliser, trading grain or a combination of both?

***Michael Hambly*:** Just for fertiliser, in order to manage that risk. At the moment, farmers have to respond when allocations are put on to the market. To give you an example, I bought a fertiliser that I am going to apply next year before I had even harvested this year's crop. It gives you an indication of the money that has to be put out to secure the best possible price. I am fortunate that I did in the way that the market has moved this year.

Q257 **Sandy Martin:** As you probably know, not only was Ipswich the place where artificial fertiliser was developed, but it is also the biggest grain port—or certainly one of the biggest—in the country. If we have a hard Brexit, or even if we have a medium-soft Brexit, there are almost certainly going to be additional controls and processes that have to be gone through before export, and indeed import, but in particular in this case export. What sort of challenges will ports face in making sure that we have the facilities in place to export once we have left the EU?

***Dr Grantley-Smith*:** I can start by answering that, because I had a recent meeting with Associated British Ports, of which Ipswich is part. The other points to do with preparedness are well covered in the media—in terms of whether there will be enough inspectors and so on—but one of the main points they made to me was that, if it is necessary to store product prior to it being exported, they have generally sold off all their spare land for housing, because it has not been necessary to store anything for any length of time: a few minutes probably is all. They are not in a strong position to suddenly create a lot of spare storage space at the ports at the moment.

Sandy Martin: That is a rather grim answer. Basically, we are stuck.

Paul Flynn: How would you vote if there was a second vote?

Chair: I am not entirely sure that is fair, Paul.

Michael Hambly**:** That may well be the case in certain instances, but all is not lost. We have an infrastructure; we have a number of deep water ports that can handle Panamax vessels and can load 50,000 or 60,000 tonnes in the UK. The ports that have already been doing that—Portbury at Bristol would be one of them—have some storage facilities at port in order to arrange the logistics so that they can bring grain in by road, and have a buffer stock that they have brought in before to execute the loading of those vessels in that quantity to go out.

That is not to say that, if there were extra requirements and phytosanitary conditions that slowed the loading of the grain on to that ship, there might not be a problem, but there are cargo superintendents available and performing that function now. Large shipments of grain have gone out from the Tyne, there have been those large shipments from Portbury and I think there are other ports—of which one would probably be Tilbury—that could handle those sizes of vessels.

Q258 **Chair:** We have touched on this a little bit. Plant protection products regulation is currently aligned with EU rules. Would you favour keeping this approach after Brexit? Then, we might venture into GM, and perhaps we ought to talk a little about a very topical subject, which is the availability of neonics at the moment.

Sarah Mukherjee**:** To unpack that slightly, in terms of what we would like to see after Brexit, again, we have touched on this before. There is a bit of a quandary here. On one side, we have a risk-based, scientifically robust regulatory system in the UK through CRD. It is considered with enormous respect not only within the EU but across the world, and has taken a large percentage of the load, in terms of regulatory function, for pesticides at the moment within the EU.

On one side, there is the capacity for the EU after Brexit to carry on with what is quite a tight regulatory timetable for lots of products. As an industry, we think that that pragmatic and science-based approach is how we would like to go forward. Glyphosate, again, is a very good example of this. We feel that there has been a politicisation of the debate in Europe, which is not based on the science. The UK Government have always been very clear that they would follow the science, and indeed they have.

A future where CRD perhaps set MRLs and became the regulatory body for the UK, in one way, would be a step forward. However, as we have already discussed, what happens to a farmer who wants to produce in the UK and the EU, and finds a regulatory system, without that balancing view from the CRD in the future, that becomes increasingly a political one and not a scientific one? Mercifully, it is beyond my pay grade to work out how you have a flexible system that encompasses both, but obviously it is a real concern, not just for ourselves but for our farmers.

Q259 **Chair:** Countries will grow GM soya, and they will grow non-GM soya presently for the European markets. It is an interesting conundrum, but it would be theoretically possible for us to grow a GM wheat or barley, for instance, to feed our livestock with, and then produce a wheat we wanted to export. How practical in reality is that?

***Sarah Mukherjee*:** I would like to get back to the foundation of GM. Rather like those of us who remember lugging round those massive phones in the 1980s that were the size of bricks, compared to the ones that you hold in the palm of your hand, GM technology—as we continue to call it—has moved on similarly. We are not talking about products that are locked in to particular pesticides. We are talking about very focused, very exciting science: for example, potentially finding a potato that would be resistant to blight because of gene editing. I know that technology is already going on.

It surely has to be better that you eliminate the need for fungicide for a crop, and reduce the environmental load in that way. I am struggling to see who might find that a bad idea. As I said, the sector has learned lessons about how some previous attempts to convince the public that GM was a good idea have failed. There has to be transparency; people have to understand why it works. Back to your previous session, I was reminded of a conversation I had with someone in the food industry, who said, "If you could find a GM potato that you could turn into chips and make people slim, nobody would care. That would be it. GM or not, people would be desperate for it". It has to be inspiring; it has to be an obvious benefit for people to accept GM technology.

Q260 **Chair:** It is an interesting argument on the potato in particular, because if you go back to 2012, when we had a really wet year, I think I am right I saying that there were hardly any organic potatoes to be had, because of so much blight in the potato. Therefore, the conundrum for the industry is how many times we treat a potato for blight before we harvest it. Sometimes it could be 10 or 20 times. We do not necessarily always want to have these arguments but, if it was a blight-resistant potato, it would have huge savings environmentally, and you could rely on growing that potato even in a difficult year.

We need to have these sorts of arguments, but how do we get them out there? We will all get polarised. Sandy has a different view, and I accept that; so do many people. Others have other views. How do we try to take some of the emotion out of it?

***Sarah Mukherjee*:** We have to do it with a degree of humility. I have only been in this job for six months now, but we have started to talk to environmental NGOs, civil community groups and others, which have very large memberships and have a direct link to many, many millions of people. Unless groups that hold the public sway in social media and those sorts of areas feel comfortable, we are not going to succeed. As I said, we have to go with a certain degree of humility and say, "How can we make this work for you? How can we find a process that allows you to feel confidence in what we are trying to do?"

Q261 **Chair:** Michael, you have decided to keep your head down at the moment. What is your view on these matters?

***Michael Hambly*:** I am trying to avoid the Chairman's gaze. I have obviously failed miserably. They were sort of ducking the question of GM in the last session.

Chair: I am not going to let you duck it.

***Michael Hambly*:** No, I was afraid of that. First of all, you have to grow what there is a market for. There has to be a change in what the consumer will accept. You raise an interesting point, Chair, as to whether that should be something emotional, in terms of, for example, genetic wheat going into bread. People feel a great affinity with bread; it is such an important foodstuff. Is it different from genetic wheat going into animal foodstuff? In reality, in Europe, we are all eating meals that, if we are meat-eaters, particularly in terms of chicken, have been fed most likely on genetically produced crops, particularly in terms of soya bean. That is happening all the time.

These products have been available for a good many years. To the best of my knowledge—I am sure the press would pounce on it if they could find it—I am not aware of anybody where the direct cause of death has been due to a GM event that they have eaten. That does not stop the public perception and the point that you made about politicisation. There is a humility that has to come through, as Sarah said.

In reality, the consumer is really not too worried about whether I have a GM event that stops me spraying the crop three times or four times; it is what is in it for them. There are events available now in terms of vegetable oils in the States—in things like oilseed rape, or canola as they tend to call it out there—that are trying to affect the fatty acid profiles and deliver health benefits. That is what we have to work with, and we have to take the emotion out of it. That is very difficult, I am afraid, with the press; it is an easy-sell story every time.

Q262 **Chair:** Are the AHDB going to go out and market GM?

***Dr Grantley-Smith*:** We are very committed to promoting the concept of supplying what the market requires. We will follow the consumer. Think about enriched rice and the benefit it has been to South East Asia and so on; there are examples. Our job is to provide information on these things, so we constantly look at the performance of crops around the world to see whether the market should open for us for GM, and whether it is going to be of benefit. We do not want to build up an expectation and then find that life has moved on. As both my colleagues were saying, GM is almost old technology now.

***Michael Hambly*:** You asked in the last session about some of the environmental benefits that GM can deliver and whether they are valuable as a public good that consumers might take. One example that I have seen particularly is the impact that they have had in terms of diffuse pollution and pollution in the Chesapeake Bay area in the US. There, they have been able to use glyphosate in no-till situations to reduce that diffuse pollution and make a huge impact in terms of the wildlife and the environmental benefit to that large watercourse.

Q263 **Angela Smith:** I understand the degree of the challenge, and that sense of almost going back to first base. I remember years ago, when I was on Sheffield Council, having the debate around putting fluoride in water. The degree of hysteria about how we were going to try and poison the city's children by putting fluoride in water was absolutely and utterly unbelievable. The barriers are huge and very high.

Given that our markets will continue, I think, to function at European level, and the problem of accepting new technologies appears to be much more European than anything else, the debate has to be not just in the UK but across the European Union. That is where it will have to be; not within the Union itself or in the Commission. We can get through the barriers and get to the point where the UK consumer accepts the technology but, if it is not accepted elsewhere in countries that we export to, there is really no point. That is what I am trying to say.

***Michael Hambly*:** In terms of the technology, particularly with GM, it is about a licensing of events—as they call them—with GM traits. Even in a country that will take GM goods, it has to be an event that is licensed to gain access to the market.

Q264 **Angela Smith:** Yes. Were we to reach the point where UK consumers accept it and we can go ahead and license it, what is the point, if we cannot export those products, as we transfer over to a GM or new technology era, because other countries have not moved with us? That is the point I am making. The debate has to be beyond the borders of the UK.

***Sarah Mukherjee*:** Yes, and it will depend on the product. From your previous witnesses, I learned that, in berries, we are more self-sufficient than others. There may be some products where you are looking primarily at a UK market anyway. It is part of this suite of uncertainty, unfortunately, which we are all trying to plan around. Even now, as far as I understand it, CRD, which is the pesticides regulator, could look at exactly the same packet of evidence as European regulators and perhaps come to a different conclusion.

On Brexit day one and Brexit day two, depending of course on what the regulatory structure looks like, we may already start to have that divergence. My experience is fairly limited in terms of the European debate, but it seems far hotter than it is in the UK. I have had colleagues who work at the European level, who have had very difficult conversations. It is sometimes difficult to get even basic points across with some European politicians.

Q265 **Chair:** In 2008, I think, I invited the Governor of Nebraska and one or two scientists and university lecturers to come over to talk about GM, when I was chairing the agriculture committee of the European Parliament. To say they were not ready for them would be an exaggeration. The trouble is that somebody in the end has to try to break the logjam. I just feel that we are more likely to be able to break it than many of the other European countries.

If you take Europe as a whole, some of them have nuclear power; some of them have not. Germany does not want nuclear power but imports a whole load from France, which produces nuclear power. There are all sorts of hypocrisies going on here. It is interesting. On the GM argument, in the end, somebody somewhere has to make that first move, and we will be able to discuss this forever, I expect.

Q266 **Dr Johnson:** Back to the issue of fertiliser and potash, you said that there is no provision at the moment for isolated potash. There will be, not quite in time for Brexit in 2019, but in time for 2021. There is a £1 billion investment in a mine near Whitby, which will be an enormous supply of natural potash. What effect do you think that will have? How do you think that will affect the balance of our trade with Europe?

***Michael Hambly*:** I did not say there was no isolated supply of potash; I said that there is potash currently available as Cleveland potash. I am aware of the development that you are talking about, and that would secure increased supplies for us. At the moment, that could possibly displace imports. Those imports could be coming from Canada, in that area where there is quite a bit of potash production, and possibly from other parts of Europe.

Q267 **Dr Johnson:** We could end up as a net exporter.

Q268 **Chair:** Of potash, but not phosphate.

Michael Hambly**:** No. We could, and that would be good.

Dr Johnson: That would be great.

Q269 **Chair:** Sandy, I bet you want to come back on GM.

Q270 **Sandy Martin:** I do, on the whole tone of what we have been saying about fertiliser, pesticides and GM. Dr Grantley-Smith, you said that we need to be consumer-led, and that makes an enormous amount of sense. I sat here through the meetings about chicken, beef and sheep meat, and I do not think I said anything outrageous, did I, Chairman, despite the fact that I am a vegetarian?

Chair: No, not that I can remember, anyway.

Q271 **Sandy Martin:** I am not about to try to tell anybody else that they should not eat meat. If people want to eat meat, that is up to them and, if they would rather stick to non-meat diets, that surely should be up to them, too. It does not appear to me that, by and large, agriculture in this country is consumer-led at all. We had a delegation from Denmark visit us, and—correct me if I am wrong—something like 40% of the Danish agricultural output is organic. It is a significantly sized agriculture sector in Denmark.

We have quite a significant demand for organic food in this country, virtually none of which is provided by British farmers, because British farmers do not want to produce organic produce. There is a massive antagonism going on in this country between the Soil Association on the one hand, for whom everybody else is a devil with horns growing out of their heads, and the National Farmers' Union, which believes that the Soil Association is out to destroy British agriculture.

Why can we not come to some sort of balanced view about producing for the consumer, and producing different products for different consumers? I have to say, organic produce—whether you think it is necessary or not; that is your choice as a consumer—is a fairly high-value output. It is the sort of quality product that we might be able to do quite well in this country if people got their heads around doing it.

Q272 **Chair:** Sandy, can I just correct you on one point? We have various parts of organic production. We produce virtually all the organic milk we need, and we export to America. There are quite a lot of organics being produced. I do not think the NFU is necessarily anti-organics, is it? That is for you to answer, really, not for me.

Michael Hambly**:** I would just like to make the point that the NFU represents a broad church, and many of those members are organic producers. I have just come from a national crops board meeting. You might not think that the national crops board is in tune with organic issues, but one of our board members is an organic cereal producer, and a very informed person he is. There is a lot we can learn from non-organic production or conventional production in terms of the techniques that that sector uses, which can help us in our integrated systems.

If I could just draw on the debate we had on GM, and the issue that came earlier on the neonics side as well, you have to understand that we are trying to work in an integrated system. We are trying to use cultural methods. We are relying on products that are available to us through technology, such as sprays. We are relying on machinery, mechanical and cultivation things to try to have an integrated system. As soon as we take one thing out, we increase the pressure somewhere else.

Let us look at the situation now, particularly in terms of south-west cereal producers, with the potential loss that neonicotinoids seed treatments might make to the production of cereals and the problem where we have to have a prophylactic preventative treatment against barley yellow dwarf virus. At the moment, a lot of that is achieved through a seed dressing. Once we have lost that, the only opportunity we will have will be through repeat applications of foliar insecticides. We have a limited choice now of those insecticides, so the thing that we are going to do is increase the pressure on that and develop resistance build-up of aphids to that.

Would it not be better if we looked at all those things together? A GM event that could protect against those aphids may be the solution that would have a less direct impact on the environment. What I want you to think about is that, when you take one thing away, you sometimes create an unintended consequence. The thing that gives us the greatest balance, offers us the greatest protection and can be less impacting on the environment is to have a whole suite of opportunities, methods and technologies available, and to use them appropriately at the right time. That will be more sustainable in the long term.

***Sarah Mukherjee*:** Likewise, our members supply conventional and organic farmers as well, so we do not see a difference. Anyone who can make a profit in what is a very challenging UK farming marketplace at the moment is to be applauded. Michael is absolutely right. I have talked to a lot of farmers over many years, and increasingly they do not necessarily see the division between conventional and organic. They have land that they want to sustainably produce; they want to hand it over in a better condition than it is now for their children and their grandchildren.

Sometimes it is high input; sometimes it is low input; sometimes it is organic and sometimes it is conventional. It is whatever works for that land. I take your point: sometimes, it can be easy to see a polarised debate in particular arguments that go on. Beneath that, there is a huge body of farming, exactly as Michael said, that is looking at the best use of whatever is available, and every tool in the box for the soil and land conditions.

Q273 **Sandy Martin:** Why do you think, apart from milk, the vast majority of organic produce in this country has to be imported?

Chair: There are quite a lot of organic vegetables, I think.

***Michael Hambly*:** We have a very successful business in Riverford produce in the south-west, which is producing a lot of vegetables. There is a considerable amount of organic beef and lamb production as well throughout the country. I do not have the statistics to hand.

Sandy Martin: No, neither do I, Mr Hambly.

Chair: It might be an interesting statistic for us to get, really.

Sandy Martin: We were handed it in the meeting we had with the Danish group, which is one of the reasons why I brought it up.

Q274 **Chair:** They have their own figures, but not ours, I do not think. Does the AHDB have figures on it?

***Dr Grantley-Smith*:** We would have the information. I will provide it to you.

Chair: Please do. I see the whole thing as being complementary to each other. I do not see the great division that you see, Sandy. There is organic, there is conventional and there could be GM in the future. I think we can all live together.

Sandy Martin: I absolutely agree it needs to be complementary, but you cannot have something that is complementary when only one of the things is happening. I want to see agriculture in this country provide a full range of opportunities for itself, and I am not sure that is happening.

Chair: I think there are more organics out there than you believe, but if we get the figures, we can clarify this.

Q275 **Angela Smith:** Can I just ask Sarah the question that I asked the previous panel? It is really appropriate for Sarah. As part of the suite of measures that one can take to manage a growing environment, there is still a role for crop protection. Do you feel that your industry needs incentivising, in terms of the licensing regime, to be more innovative? You get very short-term licences, frankly, given the upfront investment that you have to put in.

***Sarah Mukherjee*:** Yes. It costs, I believe, more than £200 million now to bring a new product to market, and it takes 10 years. As far as I am aware, there have been no new active substances tabled for registration in the last 18 months or so. That probably gives you a reasonable answer to your question in terms of how difficult it is to vault those very high regulations. We are not asking for a bonfire of the regulations at all; it is absolutely right that there is significant and robust challenge. But, if you were a small, innovative start-up, there is no way you would have pockets deep enough to get a new product to market.

Angela Smith: It is almost as though the European Union is frightened to give the go-ahead to a licence; it is almost like it does not want to give it for too long just in case. That will probably be an issue for the UK as well, with licensing.

Chair: It will.

Q276 **Angela Smith:** We need to avoid that and think about the long term.

***Sarah Mukherjee*:** Exactly, yes, and how that might change the whole agri-chemical landscape, because, with longer-term licences, there may be more opportunities for niche products, for example.

Q277 **Chair:** Are there any last comments you would like to make?

***Dr Grantley-Smith*:** I have one point about responsiveness to the market, which was raised. We should not forget that the cereals industry has responded quite well to market. There are a whole range of new and developing products, whether they are free-froms, flatbreads or whatever. These need different raw materials, which the industry is prepared to produce to ensure that the market gets what it wants.

Chair: Yes. Linking to the market is probably the other side; we are doing it all the time, but probably should even more so as we move forward. Can I thank you all? As you can see, we have quite a controversial debate among ourselves as well as with you. It was very good evidence. Thank you. It will all play a part in our report looking at Brexit, trade and the future arrangements we may or may not have with the European Union. Thank you very much for joining in our session this afternoon and for your evidence.