



Horticultural Sector Committee

Corrected oral evidence: Development of the horticultural sector

Thursday 30 March 2023

10.30 am

Watch the meeting

Members present: Lord Redesdale (The Chair); Baroness Buscombe; Lord Carter of Coles; Lord Colgrain; Lord Curry of Kirkharle; Baroness Fookes; Lord Sahota; Baroness Walmsley; Lord Watson of Wyre Forest; Baroness Willis of Summertown.

Evidence Session No. 5

Heard in Public

Questions 69 - 75

Witnesses

[I](#): Professor Tim Benton, Research Director, Chatham House; Lord Deben, Chair, Climate Change Committee; Dr Chris Thorogood, Deputy Director, Oxford Botanic Gardens & Arboretum, University of Oxford.

Examination of witnesses

Professor Tim Benton, Lord Deben and Dr Chris Thorogood.

Q69 **The Chair:** Thank you all for coming this morning, especially Lord Deben, as I know you have been doing a lot of press today on the committee's report.

Lord Deben: Yes.

The Chair: To start, could each of you give us a background introduction, and focus on what challenges climate change poses to the horticultural sector in the UK now and in the future?

Lord Deben: First, I must declare an interest in that I have quite a lot of garden and do a considerable amount of growing my own vegetables and suchlike. We are a small organic farm so one has an immediate, direct interest in and influence on these matters.

I also have to say that, when addressing right-wing audiences, I normally talk about how the spring starts 17 days earlier than it did when they were young, which gets you in the right position with people who might be a little antagonistic about climate change. Then I talk about the fact that, although the blossom comes out then, the pollinators are not yet there. That starts to frighten people because they begin to understand what we are really discussing: the fact that human beings have so altered the conditions in which we live on this planet that we must recognise that as far-reaching, and the garden is a useful way of doing that because people recognise it. Connecting with people's own experience is a crucially important part of what we must do. That is why in the Climate Change Committee I banned the use of the phrase "kilowatt hour". I do not think anybody knows what a kilowatt hour is; you cannot taste it, touch it, feel it or smell it. People tell you what it is and then you forget because it does not mean anything to you, but people's bills do mean something. You refer money to bills: "This will put your bill up by so much or take it down by so much". That seems to be the way to do it.

That is why horticulture is crucially important, as it is closer to people than other things. It is not just about the horticultural industry but about horticulture and the public. It is absolutely essential that we put together a land use policy that takes climate change fully into account, and that policy has to take horticulture very seriously as part of the mix. Many years ago, I remember being the first Minister to allow the horticultural industry exemptions for water use during hot periods. Until that point, the horticultural industry came under the same rules when there was a hosepipe ban. It was covered by that; it did not count. The industry is very much undertreated by Defra. That was certainly true then and it is very true now. Defra still does not understand how important it is. It is important right across the board, not just as far as climate change is concerned. Obviously, it is important for diet. For me, one of the difficulties in climate change has been that the Government refuse to

understand that we must change our diet if we are to meet our climate change demands. Horticulture has an important part to play in that.

Many things in the horticultural industry have to be put right. Its attitude towards packaging is not as good as in many other industries. The use of peat has been far too prolonged; the argument that somehow or other the industry cannot do without peat is just not true. I am pleased to see that the horticultural spokesmen on television and suchlike are much more forward in this than the industry. We need to deal with that.

The industry is also crucial in some other policy areas that we must not forget. If you are going to plant a large number of trees, we must have the trees to plant. If you are going to increase biodiversity, we must have the seeds and plants to reverse the terrible destruction. For me, all these things come together. I am an absolute devotee of the Pope's concept in *Laudato Si'* where he says that climate change is the symptom of what we have done to the world and we have to deal with the disease. He delineates the disease, and part of that is, of course, the fact that we have lost biodiversity, polluted the rivers, seas and land, and reduced the fertility of the land. That is the disease we should be dealing with. In a sense, climate change is the earth crying out for healing. If we look at it that way, we get a much better, more holistic view of why horticulture and a whole range of other things have to be treated right in the centre of anything we do about climate change.

Dr Chris Thorogood: In considering this question, I thought about the existing challenges facing the sector that will be exacerbated by climate change. Of course, there are many unknown variables in exactly how that will impact us. To start with, there is how we engage future generations with the importance of this industry. I am a botanist, but I think of horticulture here as well as botany—the study of plant sciences. I see at first hand the gap emerging among younger generations in their connectedness with nature, particularly with plants. As human beings, we are far more attuned to seeing animals in the world around us than plants; it is a phenomenon that social scientists have examined extensively. Horticulturists and botanists alike must work harder to engage people, particularly young people, with the importance of plants, horticulture and botany.

To grapple with the challenges ahead, we need to think about the generations who will be the custodians of our biodiversity, flora and the horticultural sector in future. There is little or no horticulture in many children's education. A lot of it falls under extracurricular activities and can be a nice add-on rather than intrinsically baked into their education. There should be more intentionality. When thinking about the answer to this question, I chatted to my team of education officers at Oxford botanical gardens. One of them told me that a survey completed in 2019 of 1,000 children between the ages of five and 16 showed that 82% could not identify an oak tree, 50% could not identify a bluebell and 42% did not recognise a dandelion. There is erosion of those skills over time as generations become less connected with nature. That is deeply worrying.

Even the first-year biology students I see as they come in—Kathy is laughing; she may have similar experience—occasionally say, “Oh, I don’t like plants at all”. That is quite surprising to hear from a biologist. They do not say it when they leave. We make sure of that, but the issue needs addressing. We need to address it in both primary and secondary education, in both plant biology and practical horticulture.

Professor Tim Benton: I will take a slightly different tack. Clearly, if you think about the production of fruit and vegetables from a societal rather than an ornamental perspective, they are typically insect-pollinated, so biodiversity is really important. They typically require a significant amount of water, greater than that for the dry grain crops in which we have specialised. They are perhaps more sensitive to many pests and diseases. There are many other factors that make them, in the long run, more climate sensitive, including the fact that for donkey’s years we have underinvested in researching them, particularly in the UK where we have primarily focused on wheat, with a little bit of research money on tomatoes. Climate sensitivity is one thing.

Secondly, and I am sure John can speak at length about this, the predictive science associated with how extreme weather will evolve is still relatively uncertain. We have a good idea of the central tendency of climate change, about how that will translate into our weather through things such as the waviness of the jet stream, blocking patterns, extreme heat and so on. To some extent, our climate models underestimate, perhaps by as much as an order of magnitude, the way that extreme weather will impact on us. We have the climate sensitivity of horticulture and then a relatively conservative risk assessment of the impacts of extreme weather.

Thirdly, everybody globally might want to eat a healthy diet, but the world currently produces a third of the fruit and vegetables necessary for five a day, 50% too much grain, four times too much vegetable oil and 14 times too much sugar, from a nutritional perspective. That means that fruit and vegetables are pricy and calories cheap, which, in turn, contributes to poor health impacts. From an NHS perspective, poor diets in the UK are associated year on year with the same levels of mortality and ill health as we had during Covid, but we tend not to talk about it. When we look ahead, human health is an important thing to think about in relation to the role of our fruit and vegetables, and we need more of them.

Lastly, tying all that together, in the UK our horticultural sector is very weak in the sense that most of what we consume here is imported, particularly at certain times of the year. We rely very much on imported fruit and vegetables from a nutritional security perspective. If nothing else, 2022 raised up on the agenda the necessity of thinking about the security of our fruit and vegetable supply.

Putting all that together, we need more fruit and vegetables. We are less certain about the import capacity for fruit and vegetables, certainly looking ahead at the geopolitical tensions in the world. We also face

climate sensitivity in fruit and vegetable production. From my perspective, there are a lot of red flags in this space. We should do a lot more about investing in the issues germane to it: water, research, and finding incentives to upregulate to grow more fruit and vegetables in the UK, so that we have more resilience in our food system from the point of view of health and nutritional security as well as climate security.

Q70 **Lord Colgrain:** My question is in two parts. How does the horticultural sector and its supply chain contribute to climate change and environmental damage? Equally as important, how easy is it for farmers and growers to measure their individual environmental impact? Can we start with you, Professor?

Professor Tim Benton: Did you mean me? Sorry, I had to get up at half-past three this morning for a meeting in Japan and my eyes are not focusing very well. How can the horticultural sector and its supply chain contribute to climate change? There are many different headings, such as the pollution arising from nitrogen use in fertiliser, including the eutrophication of water courses, the climate emissions from nitrous oxide, et cetera. Last week, there was a significant news item following a report about particulate matter caused by nitrogen use on agricultural land and how that impacts on respiratory health in cities. Phosphorus fertiliser does similar sorts of things. There are greenhouse gases.

You can look at emissions from a sector on a per hectare or per kilo basis, or in many other different kinds of life-cycle analysis. On a per hectare basis, greenhouse gas emissions are quite significant from the horticultural sector. On a per kilo basis, they are nothing like the size of other emissions; for example, Poore and Nemecek's paper says that beef emits 60 kilograms of carbon-equivalent greenhouse gas per kilo of production, while tomatoes emit 1.4, peas 0.9, and root vegetables and apples 0.4. Of course, the amount of beef you grow on a hectare is relatively small compared to the amount of apples you might harvest, so on a hectare basis it looks worse. As we mentioned in passing, pesticide use in horticulture is notoriously intensive, which has impacts on soil health and biodiversity in the broader landscape.

Finally, there is an issue of soil health with compaction from agricultural machinery, although there is much to be done in the robotisation of fruit-picking. There is also erosion, salination, acidification and pesticide pollution within soil environments. There are a large number of factors. Greenhouse gases are obviously germane to climate change. As John said very cogently, you have to think about the system as a whole. We cannot just fix greenhouse gases and ignore the impacts on soils or biodiversity.

Lord Colgrain: How does an individual grower calculate their emissions and why should they be calculating them?

Professor Tim Benton: The notorious mantra that you cannot manage it if you do not measure it is sometimes pushed too far. It is extremely complicated to measure environmental impacts, both on farms and from a systemic perspective. One issue from the systemic perspective is that,

if you grow a lot of fruit and vegetables and they are outgraded and thrown away, whose responsibility are the associated greenhouse gases? Is that the farmer or the system as a whole and some of the incentives?

My own background is as a professor of ecology—I am wearing a bee tie for anybody who is interested in pollinators. My experience from many years ago is that in assessing biodiversity on a farm it is practically impossible to work out the difference between what that farm operation is doing, as opposed to the wider landscape issues. It is really difficult. Of course, you can develop proxies for doing it, but to a certain extent it would be better managed as a governmental-level national survey, perhaps associated with a land use strategy, rather than putting the responsibility on individual farmers to measure things that are technically complex and expensive to do.

Lord Deben: You cannot measure them unless there is an agreed comparator. The problem is that the Government have been slow to suggest those comparators. The perfect is the enemy of the good. It is true that we do not have a lot of the things that we would like. We are working on those, but we must have some way of doing this for the moment. Secondly, almost before you move to the detail that we are talking about, the industry ought to recognise that it needs to do some general things to play its part in fighting climate change. Obviously, there is reducing its use of water to what is necessary. As a country, we are very wasteful with water. We will not have enough water and everybody has to reduce its use, but the horticultural industry, which needs water, must particularly do so. It is necessary for it to be much tougher about its run-offs.

Those basic things could be dealt with in advance of measurement. When I go around horticultural establishments, I do not always see even the simplest of arrangements—long before we get to the measurements bit. We need to develop measurements. The Government ought to have a series of measurements. It is not good enough to say, “Well, we haven’t got all the science”. You start with what you have and then improve on it. That is how you lead life. I do not know why the Government do not understand that they should work as you do at home, doing your best with what you have. When you find something else, you add it or take it away, depending on what it is. The two go together.

For the industry at the moment, we ought to be trumpeting some of the simple things to do. I mentioned packaging. It is not just peat but the use of plastic, which can be eradicated. It really is possible and the industry could do that together, which would lower the price of alternatives as you would then get mass production. Not using plastic could make a huge difference. All of us at home know about the pile of plastic pots we have in order to get a delightful flower. I hope we all reuse and reuse those, but frankly I could not reuse all the ones I have, even though I try hard to do so. That is not a sensible use of plastic.

Baroness Willis of Summertown: I totally agree. Related to that, Tim, you did not mention the carbon footprint associated with flying in plants

from all over the world. I was slightly taken aback, when I went around the Horticultural Trades Association, by how many tropical plants come from Costa Rica. An awful lot of other stuff comes from Colombia. Is anyone doing any work on the carbon footprint associated with flying in horticultural crops? Do you have any thoughts about that?

Professor Tim Benton: I am holding up a paper that I looked at yesterday. You cannot see the details, but there are lots of reds and greens showing different fruits and vegetables consumed in the UK and their associated footprints. Of course, the biggest are things such as asparagus that are flown in. Part of the issue for you to collectively think through is where the UK horticultural sector fits in with the UK food system on a consumption basis. Clearly, if you were to target just a single thing, it would be air freight, cold-chain infrastructure and things of that sort rather than what necessarily goes on in the fields. I can leave a reference to the paper.

Q71 **Lord Curry of Kirkharle:** I need to declare my interests. I farmed all my life until six years ago, but not in horticulture. Like Lord Deben, I have a garden. I am a trustee of Clinton Devon Estates. The session last week included evidence from the Institute for Agriculture and Horticulture. I was responsible for establishing TIAH. I currently chair the steering group looking at the What Works centre, which Defra commissioned through AHDB. I think that covers everything.

Lord Deben, what more can the horticultural sector do to meet government targets for the environment and net zero? You are rather critical of government policy. Is there more the Government can do to assist the sector to meet those targets?

Lord Deben: I am sorry to sound critical of government policy, but my job is to keep their feet to the fire. I do that whichever Government it might be. I can also be critical of the Opposition. If I may say so to Lord Watson, we would get further if only the Opposition were more precise in what they would do and pressed the Government on the precise issues rather than the generality of how much better they would do it. The real problem is that our politics does not concentrate on details. Therefore, government can get away with generalities of statements, motherhood and apple pie, rather than getting down to the real issues of what we actually do. That is why your question is helpful.

Fundamentally, the industry needs as much security and confidence as it can get. Anybody in farming or horticulture realises that there is a huge amount of uncertainty; it is called the weather. It is very difficult and you have to work with it. It is also called prices, which are very much affected by production, so you never know where you are. It is a difficult area to be in, so, where there could be certainty, it is important to have it. It seems to me that the Government have not put their generalities into the particularities on which the industry can depend.

It is hugely interrelated with the agricultural industry as a whole. We are only just getting details of what the Government intend to do over ELMS,

but we still do not have the details we need. As a farmer, I do not know what decisions to make in terms of what the Government mean, because I do not know. Part of the reason why I do these things is that it is important, and the Government should be more precise. The industry needs to recognise that the best way to deal with these things is to be in advance of what the Government might do. You then do things at the time and to the convenience of the industry. The horticultural industry has not been good at ganging together to say, "Now, this is bound to come, so how can we do it together now and make those decisions while we're making the terms?" It would be much easier then. If the industry is not careful, the Government will make decisions without its input. If the industry sets out to meet what it knows to be the general demands in a particular way, you begin to get an industry that can do that in the most cost-effective manner.

There should be many more co-operative arrangements through the Horticultural Trades Association and others to set a programme to which the industry commits—a bit like the NFU did with its reductions by 2040, even with the drawbacks in that. After all, there are operators big enough to back that. Notcutts, Hillier and a whole series of people could come together to lead that. Perhaps the Chelsea Flower Show could be one of the occasions when, every year, the industry would say, "This is our journey, and this where we've got this year and this is what we're going to do next year". It would then be driving the Government and, when the Government finally did what they should be doing, they would be doing it in the context of the industry having seen what is material, what is the most important part of that materiality, how we start on that, how we move on to the next thing and what the timing would be.

Lord Curry of Kirkharle: Professor Benton said that our production is currently in decline overall, and you said you were concerned about that. We are more and more dependent on imports, and, as we have seen, that is an extremely vulnerable position to be in. We should produce more. We are aware of the environmental impacts of producing more, such as the use of water. Is there something specific we should do more of? Should the Government give grant aid, for reservoirs or whatever, to assist a more efficient use of water?

Lord Deben: The Government should certainly make possible easier planning and financing of water conservation, in the sense of reservoirs, particularly in the east of England where I come from. We are now officially known as a semi-arid area. It will be really difficult if we do not keep as much water as we can when the rain comes down, as it does, in huge gollops and then we do not have any for the rest of the year. That is important.

Horticulture is an industry that can take the customer into its confidence, perhaps more effectively than almost any other industry. People like the horticultural industry. The information it gives should be much clearer that this plant and that product is made or produced in England, Wales or Scotland. We need that feeling, just as we have begun to get with

vegetables bought locally. In every garden centre, that ought to be clear. If there are to be border adjustments, as the Government say they will start thinking about from the end of this year, we ought to recognise they must include the horticultural industry. It is a necessary part of that. I do not see how we move properly on climate change unless we have border adjustments. The Americans and the rest of Europe think so, too. It is important to do that, but the industry needs to be in there; otherwise, the border adjustments will all be about steel and so on, not about things from which the industry could benefit.

Q72 Lord Watson of Wyre Forest: Before I ask Professor Benton about food systems, perhaps I might reply to Lord Deben. I will amplify his views to the Opposition. It is an absolute pleasure to be on this committee. If I were not on it, I would have paid for tickets to hear Lord Deben's masterclass this morning. I will even send the shadow Secretary of State the *Hansard* and will ensure he reads it.

Professor Benton, you are on record as saying that healthy diets are more sustainable diets. What are the barriers to facilitating a transition to more sustainable diets?

Professor Tim Benton: Where to start? There is a plethora of barriers. One is ideology, particularly the swing towards the right and the libertarian view that it is not government's role to push hard for the public health benefits that come from people adopting healthier diets and that it is absolutely down to individualism to drive the industry. The power of consumers is overegged by industry. Whether in tobacco or fossil fuel consumption, industry often uses the argument: "Until consumers change their mind, we will continue to grow". To a certain extent that is a greenwashing issue. Most consumers, who are also citizens, are constrained daily in their choices about what they consume. The first thing is ideology.

Secondly, there is market access and price. As I said earlier, for most people in the world a healthy diet is a luxury. You can see that at the moment with the cost of living crisis and some of the issues to do with our fruit and vegetable supply chain and not being able to get hold of stuff. The majority of people can happily afford a calorie-dense lifestyle because calories are freely available in supermarkets. Fruit and vegetables are much less available and are pricier. The market issue can be tackled. Part of the reason why fruit and vegetables are so much more expensive is that we do not invest in producing them, so they are rare and market dynamics apply. We did some modelling a few years ago as part of the global panel. On a worldwide basis, if you took agricultural subsidies off dry grains—soy, rice, wheat, et cetera—and put them on to fruit and vegetable production, you would increase availability, reduce the price of fruit and vegetables and make ultra-processed food and a range of other things more expensive. It is not necessarily about regulating but about making the market work to deliver incentives.

Many years ago when I started working as a civil servant, I was told that the role of government, the social licence given to government, is to step

in when there is market failure. From a public health perspective, and from a biodiversity and climate perspective, we have market failure in that people cannot access the right sorts of things for a healthy diet. There are many barriers. There is a whole range of social issues to do with how markets work from a marketing perspective and the aspirational nature of that. I was in Malaysia a few years ago doing some food security stuff. I talked to people in real poverty in the slums who said their aspiration was to eat fried chicken every day. They see that as being what rich people do. All these things come together to say that there are institutional, governance, regulatory and market issues that make it a hard push, but they are all surmountable without necessarily thinking of it as, "We will tell you as a nanny state what to eat".

Finally, at a Chatham House food security conference a couple of years ago, a leading multinational food company said, "There is a lot of worry in the political sphere about nanny statism and telling you what to eat. As a director of this company, I want to let you know that there is a nanny state, and it's us. We decide what you eat".

Lord Watson of Wyre Forest: On that point, we have seen a reduction in meat consumption by about 20% in the past decade. Where the ultra-processed food industry fills a vacuum in giving meat-alternative products, are you concerned that sustainable gain might be lost because of its production methods?

Professor Tim Benton: Baroness Worthington said last night in a meeting I chaired that there are three tragedies in sustainability. There is the tragedy of the commons and collective action. There is the tragedy of the horizon, as Mark Carney put it—that everything seems to be long-term. Then there is the tragedy of incumbency. There is often debate about the fact that it is easy to see from an industry and business perspective, where you worry primarily about economic growth and income generation, that if you do something that might lose income over here you need to invest in raising income over there. Alternative proteins are very business-friendly and pro economic growth, but they potentially fall into the trap in the long run of providing lots of cheap burgers full of salt and fat that do not contribute to solving the health problems or the environmental problem.

Lord Deben: I think you have been far too nice about it, if you do not mind me saying so.

Professor Tim Benton: Of course.

Lord Deben: You go into some trendy operation and they say, "Of course, we don't have dairy milk. We have almond milk". There is nothing worse for the environment than almond milk. Only oat milk is roughly comparable. The argument against dairy milk is pretty difficult to uphold, but let us say you can. You have to choose between these things. A whole lot of the stuff that is being landed on people on the basis that it is good for climate change is actually very bad indeed. The horrible, round, green things that people add to everything are grown by destroying the

water in Florida totally. We really have to stop this being taken over by the vegans as if that is the issue. It is not. The issue is to look at all these things and to recognise that big business will, in fact, try to find something to sell you if you do not buy that. We are left very often buying something that is worse for you and worse for the environment.

Lord Watson of Wyre Forest: It is an avocado.

Lord Deben: I am sorry. I do not know why, but it is a word that always escapes me, mainly because I hate them. I like the taste, but I know I should not have them.

Baroness Buscombe: Lord Deben, you started off by talking about people who were a bit climate change-sceptic being right wing, which I find a little bizarre, if I may say so. Is there not an issue that climate change is confusing in the sense that, actually, a lot of people are making a lot of money out of it and not pointing people in the right direction?

Professor Benton, is the key not the cost of growing the right things? Can small growers afford to do the right thing in terms of growing fruit and vegetables in order to meet net zero? Is net zero affordable? Is it viable for our growers in this country?

Professor Tim Benton: If Lord Curry had given me his question about net-zero targets and all the rest of it earlier, I would have said, "What are they?" It is very difficult because we do not have a coherent pathway to meet net zero. If you are a farmer, what does net zero mean and how do you weight net zero alongside biodiversity and so on?

As a non-horticultural example, there is a big debate, as Lord Deben mentioned earlier, about how much meat should be produced from a climate change perspective. That leads to the notion that the footprint of beef is bigger than the footprint of chicken so you should switch from red meat to chicken, in an overly simplistic view. Actually, if you reduce meat enough, the best thing is to have pasture-fed beef, not chicken, and use that pasture-fed beef as part of a mixed farming approach with circularity. You have biodiversity benefits. You have nutrient benefits and so on.

It all comes down, which is why I flagged it earlier, to whether you are thinking about things per hectare, whether you are thinking about things per kilo, whether you are thinking about the absolute or relative costs, and then, of course, it becomes really confusing from a farmer perspective. How do you balance them? They are social issues. The best thing, as I am always saying to my colleagues who are farmers, is to do what you think is right under your notion, which is often passed down and very strong in the industry, that you should be stewards of the land. Many farmers say to me, "I wish I could make a living out of farming in a more sustainable way, but I can't", so the issue then comes to: is that the fault of farming? Clearly not. It is the fault of the market.

How do you correct the market failure that farmers are not being rewarded and consumers are being forced to make choices that are contrary to their long-term benefits? That is where things like subsidy reform, taxes, various incentives and trade policy all fit together if you want to drive the system in a new direction, and it is not just about "Let's convince the farmers", or, "Let's convince the consumers". It is about getting the system to work so that it delivers the public goods.

Dr Chris Thorogood: It is also about clarity of information for those consumers, which is something that has come up a few times. One of the questions earlier on was about how easy it is for farmers and growers to measure their environmental impact, as well as for consumers. In any garden centre you go to at the moment, you will be overwhelmed by all the pesticides that you can use, and there is strong scientific evidence to show that that correlates with a significant decline in birds, for obvious reasons. They are promoted in such a way that a consumer might think, "Oh, this is perfectly safe for me to use. The messaging looks friendly. I see it next to this plant that I am about to buy, so it is logical for me to buy all this together". We can do a lot better in informing consumers to make good decisions as well.

Q73 **Baroness Walmsley:** Thank you for saying that, Chris. I think birds are good pesticides. I do not have a single greenfly in my garden.

Coming to Professor Benton again for this question, which goes back to something you said in your introduction, how do targets to increase biodiversity align with the desirability of increasing domestic food production? Do you think the sustainable farming initiative and other ELMS programmes are helping in that direction? Maybe you could point us in the direction of some good examples.

Professor Tim Benton: Do we need to increase domestic food production? I would ask that question. We certainly need to—

Baroness Walmsley: We are importing a lot.

Professor Tim Benton: We certainly need to increase domestic horticulture. It all comes down again to the systemic view that if you are changing the balance of meat, calories, in the sense of starches and vegetable oils, and fruit and vegetables, it is absolutely not a given that you need to produce more of everything to fulfil food security needs. There are three ways of thinking about food security. One is whether we are providing food to the starving. Generally, that does not apply in the UK. The dominant political and industry narrative is, "Are we keeping the supermarket shelves full?" That does not align with the real definition of food security, which is about the provision of healthy diets for all people at all times in an affordable way.

When it comes to thinking about our domestic food security needs, I would say it is about changing the balance, and if we are eating less beef from a livestock perspective, and partly from a climate change perspective, there will be land that will be used in different ways. We can talk about the details of that if you want. That is the first premise: do we

need to produce more food? We need to produce more of some and less of others. How does that then align?

Then there are two prominent discourses about biodiversity. One is that we need to produce more food and therefore we need to intensify our land use. How do we preserve biodiversity? We put a fence around nature and we have land-sparing ideas. Instead, if you think about how we produce what we can sustainably in a way that is health providing, the land footprint often goes down because of the excessive use of land in the livestock industry—excessive not in a pejorative sense; it is just very large on a global basis.

It is possible then to think about land sharing, in the sense that the predominant biodiversity is undisturbed habitats, but in Europe we have had 10,000 years of working with nature in a farming situation, so we have a co-evolved biodiversity that is natural to farmland in Europe—corncrakes and a whole range of small insects. That is important global biodiversity which is at risk from an intensification perspective, because you need mixed farming, heterogeneity, an embedded softer farming landscape and a whole range of other things.

Those two notions, land sparing and a fence around nature versus finding ways to fit the requirements from public health and the market perspective into the available land, allow you to think about adopting more agroecological approaches, but you need then to change the market incentives again. For me, it all comes down to how you get the market incentives right to allow us to have a culturally supportive, mental health-supportive and biodiversity-supportive landscape that is producing the right sort of food that takes the pressure off the NHS, and the land as well, and provides incomes to farmers, and that requires significant rejigging of the incentives.

Baroness Walmsley: Do you think the sustainable farming initiative is moving in the right direction? Has it had enough time to show that it is moving in the right direction?

Professor Tim Benton: I have been involved in these discussions for donkey's years. Public money for public goods is conceptually a good idea. What are defined as public goods? How do you navigate the notion between land sparing and land sharing? I am still at a loss about how it will actually work in the real world as opposed to in pilot world. You could say that nutritional security is a public good and incentivise farmers to do more about growing fruit and vegetables instead of scrubbing up orchards and so on. It is very clear that the government strategy will not deliver at the scale that we really need to deliver from either a net-zero or a biodiversity perspective.

Q74 **Baroness Willis of Summertown:** I will ask my question quite quickly. Chris, the question in the briefing is about threats to UK biodiversity, but I would like to slightly change that. You have been managing a very successful arboretum and botanic garden for a number of years. What are the threats from the decline in biodiversity to the horticultural sector

either from your experience or more generally in the scene in the UK or internationally?

Dr Chris Thorogood: Thanks, Kathy. I like the question. I will answer it in stages. Many of the threats have been covered in detail, so I will not repeat those, but for emphasis the recent report from the BSBI, the Botanical Society of Britain and Ireland, stated that 53% of our native plants, including familiar plants such as heather and harebell, have declined in Britain. I do not know about your experience, but mine is that I have seen that. I do not see harebells in places where I remember seeing them as a child. We have seen those changes in our lifetime. Now, non-native plants species outnumber the native plant species in the wild in the UK. I do not want to labour the point, but we know the extent of the problem and how nature-deprived our country is, so we need to do better.

You asked about international observations, Kathy. I will share a small but, I think, fun one. My work takes me all over the world, and, as Baroness Fookes knows from my talk two days ago, I had the pleasure of spending some time with a tribe, an indigenous community, in Kalinga in the Philippines in a very remote wilderness. They show exemplary land management practice. Every time they fell a mature tree, they simply plant 10 new trees in its place. That is the rule they follow.

I cannot help but think about that sometimes when I see lots of mature trees being cut down. Just this week, I saw one being cut down for obscure reasons. I know tree planting is outwith the remit of this committee, but we talk a lot about ambitions and targets, and sometimes I wonder if they are overcomplicated or overambitious. I am not sure. I could not help but think that they kept things very simple, and they seemed to be very effective in their land management practice.

Coming back to your point, Kathy, the threats are very real both here and abroad. I recently got back from south-east Asia where I saw quite a lot of recent land conversion—deforestation—linked to palm oil production, which is a problem that is very far away, but we are part of it, of course, as consumers in the decisions that we make. For most people, that is simply out of sight and out of mind, and I just happen to have seen it first-hand. These problems are shared and they are international, but we must think about our own flora and biodiversity at home. We must do better. There are lots of things that we can do and there is science to inform that.

We have talked a lot today about the very real problems, but there are lots of opportunities, and quite simple things such as which wild flower mix you plant, if you are planting wild flowers, to support insect diversity. Is it based on evidence rather than just, "Oh, here is a wild flower mix. It looks nice. I've seen some bees"? Actually, there is very good data to suggest which plants are better and why. We must be informed by data first and foremost. There are opportunities to hand and, as I said, they must be informed and research led.

Baroness Fookes: Could I ask about seed banks? I know Kew has one and I think Oxford has one. Do you see a practical role for them in the here and now, as opposed to storing things for the future?

Dr Chris Thorogood: Thank you. That is a lovely question. It is one that Kathy would be able to answer better than I can, from her time at Kew. We do not have a seed bank at Oxford; we have a seed store, which is not the same thing at all. They are so important because they conserve plant diversity for the future. From my understanding—Kathy, please correct me if I am wrong—they are not wholly the answer because of recalcitrant seeds. You simply could not put some of the plants that I work on in my research in a seed bank. They would perish within days. They could be part of a solution to conserving biodiversity, but quite a small part, honestly.

Baroness Fookes: Are there many that you could not keep in that way?

Baroness Willis of Summertown: About 55%.

Baroness Fookes: That is a lot.

Baroness Willis of Summertown: It is a lot, sadly.

Q75 **The Chair:** Thank you. I get to ask the last question, but we are very tight on time now, so I will ask you for very brief answers. If there was one thing to ask of the Government, or the next Government, what would it be?

Dr Chris Thorogood: I come back to the point I made at the beginning. The world that our children are growing up in will present unprecedented challenges for food security and environmental degradation, which we have talked about at some length. We need to prepare them better for that. We are talking about problems that are emerging today that will grow and will be theirs. They will be the custodians of our biodiversity in the future. We will only protect what we know to care about, and we need to foster greater care among young children. There are many ways that we can do that, but we must place a greater emphasis on it. There is a start. Natural history is now front and centre in the curriculum, but there is more to do on plants and practical horticulture in education to inspire young people with their importance.

Professor Tim Benton: I have two brief points. First, recognise that nutritional security is part of national security, and invest in it accordingly, and, secondly, see public health through nutrition as a public good. That sounds trite, but it has huge implications for the UK farming sector, particularly horticulture. Building on the back of that and what John said right at the start, I was in Brussels the day before yesterday for a big agricultural meeting, and what farmers need is certainty of a sense of direction. After the flip-flopping of the last five or 10 years, no one has a clue of the direction of travel. We need some degree of certainty and detail.

The Chair: Lord Deben, you have two minutes.

Lord Deben: Politicians ought to remember that they are supposed to be leaders, and instead of waiting to do things till the *Daily Mail* is prepared to support them you need to do the things that need to be done, explain them clearly to the public, and do that which is right. It is right that we help people to feed better. It is not a nanny state. Everybody is affected every day by millions of pounds-worth of advertisements to get you to buy things that are bad for you. If the Government help you see the choices by labelling things sensibly so that you can do those things properly, that is not a nanny state; it is making individuals more able to make their own choices.

It seems to me more important than anything else that we breed a new breed of politicians who recognise that leadership is what you have to do. You are out there helping people to do the thing that is right, because if you do not, afterwards they will blame you for not doing it even though you thought you were following what they wanted.

The Chair: Thank you very much for the session this morning.