

DÁIL ÉIREANN

AN COMHCHOISTE UM CHOMHSHAOL AGUS GHNÍOMHÚ AR SON NA HAERÁIDE

JOINT COMMITTEE ON ENVIRONMENT AND CLIMATE ACTION

Dé Máirt, 22 Meitheamh 2021

Tuesday, 22 June 2021

Tháinig an Comhchoiste le chéile ag 12.30 p.m.

The Joint Committee met at 12.30 p.m.

Comhaltaí a bhí i láthair/Members present:

Teachtaí Dála/Deputies	Seanadóirí/Senators
Richard Bruton,	Timmy Dooley,
Réada Cronin,	Alice-Mary Higgins,
Alan Farrell,	Pauline O'Reilly.
Darren O'Rourke,	
Christopher O'Sullivan,	
Bríd Smith,	
Jennifer Whitmore.	

Teachta/Deputy Brian Leddin sa Chathaoir/in the Chair.

Reduction of Carbon Emissions of 51% by 2030: Discussion (Resumed)

Chairman: I welcome to this meeting Mr. John Keane, president, Mr. Shane Fitzgerald, chair of the agricultural affairs committee and Ms Gillian Richardson, agricultural and rural affairs policy officer from Macra na Feirme . I also welcome Dr. Oliver Moore from UCC. On behalf of the committee, I thank and welcome you all for attending today's meeting to share your expertise.

I will begin with a note on privilege. I remind witnesses of the long-standing parliamentary practice that they should not criticise or make charges against any person or entity, by name or in such a way as to make him, her, or it identifiable, or to otherwise engage in speech that might be regarded as damaging to the good name of the person or entity. Therefore, if a witness's statements are potentially defamatory in relation to an identifiable person or entity, he or she will be directed to discontinue their remarks. It is imperative that witnesses comply with any such direction. For witnesses who are attending remotely, from outside the Leinster House campus, there are some limitations to parliamentary privilege. As such, they may not benefit from the same level of immunity from legal proceedings as does a witness who is physically present. Members of the committee are reminded of the long-standing parliamentary practice to the effect that they should not comment on, criticise, or make charges against a person outside the Houses, or an official, either by name or in such a way as to make him or her identifiable. I remind members that they are only allowed to participate in this meeting if they are physically located on the Leinster House complex. In this regard, I ask all members prior to making their contributions to the meeting that they confirmed that they are on the grounds of the Leinster House campus. For anyone watching this meeting online, Oireachtas Members and witnesses are accessing this meeting remotely. Only I, as Chair, and the necessary staff essential to the running of the meeting are physically present in the committee room. Due to these circumstances, and the large number of people attending the meeting remotely, I ask that everyone bear with us should any technical issues arise. I will now call on Mr. Keane to make his opening statement.

Mr. John Keane: I thank the committee for the opportunity to speak. It is a great privilege to speak in front of it on some of the important issues we face. I am the president of Macra na Feirme and I have been for the past six weeks. I am joined today by Mr. Shane Fitzgerald, the national agricultural affairs chairperson and Ms Gillian Richardson, the national policy officer within Macra na Feirme.

Agriculture is one of the main land uses in Ireland. As a result, it has a major role to play within our habitat, water quality and our greenhouse gas emissions profile. Our landscape is like no other in any of the member states across the EU, with 72% of the land under agricultural usage. Agriculture is Ireland's leading indigenous industry, with approximately 164,000 people employed in it. The fabric of rural Ireland and the countryside, is made up of family farms. They go about their business on a daily basis, doing their best to produce sustainably produced, premium-brand leading products that command a global premium right across the global market.

The target reduction of 51% by 2030 is almost twice what was agreed approximately two years ago by the previous Government. If it were applied to agriculture, it is approximately three times the previous target, which was set two years ago. As an industry and as young farmers, we feel that the lack of understanding and consideration for biogenic methane can have major impacts both now and into the future, as we develop our careers. Given the scientific

basis which highlights the short-lived nature of the gas, we must account methane differently, as has been demonstrated in other jurisdictions.

Sectoral targets delivered under the climate action Bill must be both realistic and achievable. We must not disadvantage Irish farmers or remove their productive efficiencies by restricting their ability to produce top-quality produce. When we compare ourselves to our EU member states on an emissions per unit produce basis, we Irish farmers are not only the best but are leaders. Our dairy sector is the best across the European Union and is among the top such sectors around the world. Our beef sector is among the best of our European counterparts.

The important point in terms of climate and our embracing of technologies and of the environmental challenge that lies ahead is consideration for the impact of generation renewal, the encouragement of young farmers and young people and how they can drive practices and address challenges on farms. On an ever-increasing basis, we see highly educated, highly motivated young people accessing the sector and driving forward new and improved practices. It is important that any climate actions in respect of the environment, water quality or biodiversity take cognisance of the importance that young farmers and young people can play in driving this important change. Looking at the statistics over the past 20 or 30 years, the numbers of young farmers and of active farmers under the age of 35 continue to diminish. It cannot be left that young farmers are forgotten and that provisions are not made. Macra na Feirme believes that benefiting young farmers, providing support for young farmers and driving generational renewal will not only have a positive impact on young farmers but will have a major effect on the environmental impact of agriculture.

Certainty for the future must be provided for young farmers. Any young people entering into different businesses and different occupations within a sector, whether public or private, always look for certainty in their careers and for a ladder or pathway to climb. Young farmers and farmers in general face ever-increasing challenges such as legislative burdens or challenges in respect of produce and input costs. We need to provide an environment that is friendly to young farmers; one that encourages and provides pathways into the future and which drives generational renewal. We also have to drive and improve our environmental impact. As young farmers, we are fully committed to playing our role in addressing environmental challenges. Macra na Feirme has never been found wanting in embracing new technologies, in putting forward challenging policies or in embracing what needs to be done to address change. We recognise the important role we have both as farmers and as young farmers. The distinct situation we are in lies in our ability to sequester carbon in conjunction with reducing our emissions. It is a very important role and I have no doubt that we will play it. Given appropriate time and policies that are achievable and complementary to current farming practices, which deliver on economic success for the future of farming, we, as young farmers, will respond and continue to improve our environmental impact. I thank the committee for the opportunity to speak and I look forward to questions from members.

Chairman: I thank Mr. Keane for his statement. It was remiss of me not to congratulate him on his recent election as president of Macra na Feirme. I congratulate him and wish him well in the year ahead. I call Dr. Moore.

Dr. Oliver Moore: I am Dr. Oliver Moore of the Centre for Co-operative Studies in University College Cork and ARC2020, a European think-tank focused on the Common Agricultural Policy, CAP, and other agrifood policy matters. I thank the committee for the opportunity to speak today. My focus is on three areas that have the potential to significantly impact climate change mitigation, adaptation, biodiversity and other public goods. These are organic farming,

eco schemes and our approach to scrub or agroforestry. What I am presenting orally today is a shortened version of a longer, fully referenced submission. Please refer to this for more substantial considerations and evidence.

Organic farming can be described as a brilliant all-rounder in the delivery of public goods. The latest organic regulation states that:

Organic farming is an overall system of farm management and food production that combines best environmental [and climate] practices, a high level of biodiversity, the preservation of natural resources, the application of high [animal] welfare standards ...

Research, which I reference in my submission, shows enhanced environmental benefits in the areas of biodiversity, landscape, soil, ground and surface water, climate and air, energy and reduced exposure to pesticides for workers and consumers. However, there is little Irish research into organics and sustainability. I would draw the committee's attention to organic farming's positive performance in a series of publications on biodiversity by Dr. Eileen Power and Dr. Jane Stout of Trinity College Dublin. Research suggests that organic farms can also be more viable, according to both Dan Clavin's research in Ireland and more generally. According to the EU biodiversity strategy, between 10% and 20% more employment per hectare is provided by organic farms. That is based on OECD figures. Organic farming also provides women with an easier entry point into farming, according to the organic action plan, and has a younger age base. Organic farming can thus synergise coherently with Our Rural Future, the new policy document the Government released recently.

Ireland suits organic farming due to our clean green image, the length of our grazing season and the fact that we are an agrifood exporter to EU markets that increasingly want it. Looking forward, organic farming is well positioned as regards the carbon budget, an EU carbon border adjustment mechanism that will most likely impact imported mineral fertilisers, tightening EU rules on animal welfare, pesticides and more. In reality, however, farm viability needs to be further strengthened. There is leakage from sheep meat and to a lesser extent beef into the conventional sector. We lack an economy of scale as we have a diffuse spread of farmers and a payment rate well below the EU average, as the Irish Farmers Association, IFA, pointed out recently. Ireland has one of the lowest shares of organic farmland in the whole of the EU. We have an organic action plan that is both unambitious and unlikely to succeed. The Department of Agriculture, Food and the Marine spends approximately €15 million of its €1.8 billion budget on organic farming directly, according to information I received from it last week. Bord Bia dedicates about 2% of its budget to organic farming. The target for last year was 5% organic farming and the updated target is 7.5% by 2030. In that context, the amount of money being spent is clearly far too low. However, supports are emerging, through the EU organic action plan in particular, for research and development through Horizon Europe's agriculture, forestry and rural areas intervention, which will dedicate at least 30% of funds to "topics specific to or relevant for the organic sector." That is a great opportunity.

In that context, there is a need for a comprehensive, full agrifood system approach to developing organics at policy, production, research, extension services, processing, distribution, advocacy and consumption ends. This must be done simultaneously and publicly, so as to develop confidence in the sector. This should be coupled with the levelling of the playing field by fully complying with EU and national environmental law and targets for water quality, reducing absolute emissions, and more. A comprehensive new organic action plan is needed. There is a range of recommendations in my longer submission, but the highlights include far higher

payment rates of about €500 per hectare for grassland systems, which was also recommended by the IFA, and proportionally more for arable land and horticulture, at €600 and €700 per hectare, respectively, or priority access to all other agri-environmental schemes. Either would do but at the moment the situation is untenable. A scoring prioritisation for direct selling organic producers would also help, as would immediate progression towards dedicating 7.5% of both the Department and Bord Bia's budgets to organic areas by 2026. I also recommend the establishment of an organic advocacy organisation with initial funding of €150,000 per year and a trial European innovation partnership, EIP, for conversion to organic farming using blockchain technology to achieve group organic certification, as per the new organic regulation. It will be possible to have group certification for organics very soon. That technology should be used to make that possible and it should reduce the costs. We would have a roll-out of this approach on a regional basis by 2026 and market blockchain alignment thereafter. In other words, consumers can tap into those products as well. Finally, I suggest mandated, ring-fenced and rising levels of organic public procurement with no conflation with the Bord Bia quality assurance scheme, as has happened previously.

This can be done. Irish authorities need to learn from best practices elsewhere, such as in Austria, Denmark and France, as detailed in the longer submission. Eco schemes are also important. The final trials are on next week. This is the second policy area of intervention I am recommending. Eco schemes will be an integral part of CAP. The four areas the Department is likely to focus on are climate change, sustainable use of resources, biodiversity, and animal welfare. I recommend encouraging a verifiable reduction in and-or working without the use of fertiliser and pesticides as an eco scheme; prioritising high nature value habitats; increasing riparian zones and careful catch crop integration; enhancing and widening the definition of existing habitats to include ponds, wet grasslands, wetlands and wet flushes; and retaining winter stubble on arable fields. I do not think animal welfare and precision farming should be included as eco schemes because they are not about income foregone and costs incurred and they are not on a per hectare basis. They are done on a per kilogram basis and we need to take a per hectare approach when it comes to eco schemes because they are landscape measures.

We also need a new approach to scrub and a new agroforestry scheme. There are promising signs that the new CAP will allow a proportion of land to have scrub and still count as an eligible acre. This could add 55,000 eligible acres in the next CAP. Carefully managed, this could lead to native forestry regeneration. Ireland's agroforestry scheme needs to be lengthened and broadened. Currently, it provides support for just five years, which is ridiculous for people trying to grow trees. It should be for 10 to 15 years. At the same time, the replanting obligation should be relaxed to give farmers the opportunity to try agroforestry. More than 20 years of trials in Loughgall have shown amazing results for sheep integrated with trees, including a longer grazing season, better health in animals, better soil quality and so on. That research must be looked at. There is a long agroforestry section in the joint agrifood policy document from Environmental Pillar, Stop Climate Chaos and SWAN that came out recently and I recommend the committee look at that.

The European Court of Auditors published a CAP and climate change report yesterday. I emphasise its second recommendation, which is to preserve carbon-rich soils such as peatlands and wetlands. That relates to the proposed new good agricultural and environmental condition or GAEC 2. This was one of only three recommendations in this report, which found damning evidence that CAP had no significant impact on climate change mitigation or adaptation after €100 billion being spent on it. The report stated that we have to focus on carbon-rich soils so I would also recommend maintaining a strong GAEC 2 in next week's trials while also using eco

schemes to further supplement farmers' incomes in a related way.

Real, comprehensive support is needed for the organic sector and ambitious and impactful eco schemes need to be put in place. Remember, they are only one-year schemes. A new attitude to scrub and tree integration into farmlands is also needed. These are clear pathways with which we can soberly face into the rapidly emerging climate and biodiversity collapses happening all around us. Farming has its role to play now in a real and just transition and these are some ways we can help do that.

Chairman: I thank Dr. Moore. I will now invite members to raise their hands and I will bring them in in order. As this meeting is confined to a maximum of two hours, I propose that each member be given two minutes to address questions to the witnesses, in order to ensure that all members get an opportunity to pose their questions. We will go for a second or indeed a third round if we have time. Is that agreed? Agreed. Deputy Bruton is up first.

Deputy Richard Bruton: I thank the representatives for the two presentations. I will get straight into it since we have only two minutes. I wonder could Dr. Moore give us some simple numbers. For example, if a hectare switches to non-organic farming to organic, what sort of a gain in methane and nitrous oxides, that is, in greenhouse gases can we expect? That would give us some sort of indicator of the scale of what could be achieved.

Turning to Mr. Keane, I am very much aware of the New Zealand model, whereby there is a net-zero target overall, as I understand it, but the biogenic methane target is a reduction of between 24% and 47% by 2050. The position we are in is that the target for 2030 from agriculture is about 10% achieved from 50% uptake of those Teagasc measures. From Mr. Keane's point of view, how do we go beyond that 10%, which is modest? If we even got to 15% we would probably still be talking about trying to get 70% from transport and so on, so how do we stretch that? On another point, does he agree that if one looks beyond agriculture to the whole supply chain for food and the way it works, the consumer is driving us away from high-carbon methodologies? Will consumers start to switch? Does he expect pressure coming from the consumer to force change in agriculture beyond that?

The final question I have relates to land use and sequestration. We were told last week that overall, land is actually emitting 5.5 million tonnes, leaving aside the biogenic methane. Consequently, paying for sequestration that has been done in the past is not an option. What we would really have to do is start paying for improvements that sequester carbon from here onwards. What do our guests think would be the practical policy measures that would encourage farming to diversify or to drain some of these lands that are very high carbon retainers? What sort of instruments would they like to see that would put us in a situation where, looking to the future, farmers would be generating part of their income from carbon farming and part of it from more traditional food delivery? I just want to get an understanding of what instruments and policies our guests would like to see.

Dr. Oliver Moore: It is always an interesting one. The basic issue is that Ireland must reduce our absolute emissions. Organic performs better per hectare but per kilo it is debatable. The core difference is there are no mineral fertilisers used on an organic farm at all. Such fertilisers are a huge part of the carbon footprint of Irish agriculture. In addition, there is an automatically lower stocking rate and there is no nitrates derogation so per hectare, the overall land impact of an organic farm is much smaller than that of a conventional one. The exact amount of difference depends on whether one looks at it per kilo or per hectare. It is a conundrum in that sense but it is clear a larger amount of organic farms in Ireland would result in lower over-

all and absolute emissions because mineral fertiliser would not be used and there would be a lower stocking rate. It is hard to actually define the difference because one must think about it in either per kilo or per hectare terms. The core point is we must reduce our absolute emissions. If we can keep farm numbers reasonably steady, organic farms are good, and potentially better, for employment and if there is a market for their produce from them, then it is worth making that transition. However it is down to how one counts things as well. I hope that addresses the Deputy's question.

Mr. John Keane: I thank Deputy Bruton for the questions. I will start with the 10% target by 2030 for the reduction of biogenic methane, which is the current target that has been set and agreed, and how we can stretch beyond that. We might look at where Irish agriculture is at now in terms of its biogenic methane output, and as Dr. Moore has said, in terms of our per-unit production. The first point to make on this, and it is important, is that we can look at our overall figure, which is widely and regularly quoted but we can also take that down to a smaller scale and the output we have per unit of produce and how efficient we are on that on a global or European scale. To break that down even further, if one considers a litre of milk one buys in a shop and the amount of carbon output by the production, one can compare it to the size of a bag of sugar. That is roughly, in a visual context, what we are outputting per unit of produce at the moment where milk is concerned. If one transfers that to South America or to some of our European counterparts, then that bag of sugar turns into a loaf of bread or turns the size of half a freezer. That is where we are in efficiency terms in Ireland with produce overall.

Extending that beyond where we are now was raised. We should look at the marginal abatement cost curve, MACC, developed by Teagasc a number of years ago and at the interventions and mitigations put together for that. There is improvement through genetics, which looks at improving the genetics of our herds to reduce the methane produced. It is an ongoing process and is accounted for both with respect to the indices on the beef side of things but also with the economic breeding index, EBI, on the dairy side. That is ongoing work and progress is being made with the Irish Cattle Breeding Federation, ICBF. An acceleration of that and increased focus on it through breeding and those practices on farms can definitely lead to better results. We can consider the age at slaughter from the beef herd and from dairy cattle transferring through that as well. We could have a greater focus on reducing the age at slaughter and improving the genetics which are being brought through that. We in Macra have advocated for a long number of years for the introduction of a sexed semen lab in Ireland to reduce and improve the efficiencies coming from the dairy herd in terms of a beef context, which are transferring into the beef herd. We welcome that the development of that sexing lab which is to be in place over the next couple of years. We see it as being a very important tool in that element of things. The signpost farm programme was recently launched by Teagasc and more than 40 industry partners. Its ambition is to reduce biogenic methane but also to reduce the overall impact of the sector. We are looking at the output of sector at present on a per-kilo-produced basis on the dairy side of things as about one for one. The ambition under the signpost programme is bring that to 0.7 kg and below. I might call on Mr. Fitzgerald to talk the committee through this briefly as he is involved in the programme himself.

Mr. Shane Fitzgerald: I thank Mr. Keane. To give the committee a bit of background information about myself, I am a dairy farmer in County Waterford. It could be called an intensive part of the country from a dairy point of view. My dad and I are in partnership but our farm is part of the Glanbia-Teagasc future farm programme. We are adapting all the latest technologies that Mr. Keane has mentioned there, including the MACC, the protected urea, the low-emission slurry spreading, clover and all of that. We are adopting all that. We are a hub of this new sign-

post programme. I suppose the committee has heard of it before. There are 100 farms taking part in it, between dairy, beef and sheep. It is going to stream out to all the discussion groups as well from the 100 signpost farms. One might look at it like spokes of a wheel. There are the monitor farms in the middle which are in the future farm programme, the Signpost farms outside that and then the discussion groups outside that. From the dairy point of view there are 18,000 farmers branching off that again so it is all knowledge transfer. All these carbon mitigation and climate mitigation strategies will be implemented and we will try to transfer it out to all farms because while it is okay if the top 10% or 20% of young progressive farmers do it, It is important that everyone does it. There has to be a whole industry approach. That is what makes the signpost programme so good. It should make a real change.

Mr. Keane mentioned that there are targets to reduce the CO₂ equivalent per kilogram of fat and protein corrected milk to 0.7 kg or lower than what it is in New Zealand. It is 1.3 kg on our farm at the moment. Having done some analysis and figures, we have found that if we reduce the use of chemical fertiliser by 20% and use all protected urea on the farm, we could reach that target.

In biodiversity we are trying to achieve targets of 10% across all farms. On our farm we already have 18% biodiversity according to studies that have been done. We are trying to show that these technologies work on farms and to make sure that people adapt them. It is important that young people are involved in this process. Generational renewal cannot be emphasised enough when it comes to this area. We are most likely to adapt to change and, as has been shown over the years, we will adapt to change faster than older people no matter what is involved. Younger people will adapt more quickly and be proactive. They are progressive and educated.

I will touch on other ways to increase our carbon sequestration and Dr. Moore's points on forestry. The first step has to be to manage and maintain the quality of the hedgerows and habitats we already have on farms. A significant amount of flora and fauna are already on farms, but they are not currently being looked after sufficiently. Simple measures that we will be doing on our farms as part of the future farm programme include moving fences out 1.5 m from hedgerows and keeping pesticides and fertiliser away from hedgerows. They are small changes but can have a huge impact on the overall level of biodiversity on farms without having to create new habitats. The foundation for habitats in respect of environmental sustainability is to maintain, retain, create and enhance. We have to maintain and enhance the existing habitats before we try to create new ones. That is key.

Previous measures as part of the green low-carbon agri-environment scheme, GLAS, asked us to plant new hedgerows but at the same time people were cutting their hedgerows into a box shape which does not make sense. We have to be incentivised to do these things. That is key. These indicators have gone the wrong way over time. It did not happen overnight and it will take time for things to go the other way. I often say that in my father's time he would have been given a grant or incentivised to remove hedgerows but it is now going to be the other way around. Things happen in cycles. We need time. As I said, the importance of generational renewal cannot be over emphasised, whether it is water quality, biodiversity or emissions overall. We need to be supported on that.

Chairman: Dr. Moore raised his hand. Did he want to come back in on those questions?

Dr. Oliver Moore: There is a conundrum in terms of kilos versus hectares. We need to get both going because we cannot afford not to. Farming takes up three quarters of all the land in

Ireland. We have to think about the per hectare impact. There are only four countries left with a nitrates directive derogation in Europe, namely, Belgium, Ireland, Denmark and the Netherlands. It is being phased out in Denmark and the Netherlands.

The conundrum is that the rules of the nitrates directive derogation farmers operate under are stricter and better. They are the rules every farmer should have to stick to an extent. There is integration of clover, better trading, low emissions slurry spreading and so on. The conundrum is that we are aiming to increase the cow herd by 170,000 or 180,000 by 2027. We are not aiming for stabilisation in that area. There is potential for overall stabilisation but that means a loss to the beef sector.

It is a much better performance in terms of the rules that derogation farmers have to operate under. It will not help us to reduce our absolute emissions and we have to do that. We need to work out ways through the signpost programme and other initiatives to fast track, through the just transition funds, the availability of all of these technologies to other farmers, not just derogation farmers, while concurrently increasing rapidly the growth of the organic sector. It is a viable option for farmers because there is a €20 billion market in France and Germany alone for organics.

One of the problems with a lot of the agri-environmental schemes and so on is not just that they pay more than organics, it is that there are no markets for the produce. There is no distinct or separate market; there is just the generic market. For example, in the results-based environmental agri pilot, REAP, scheme there is an initiative whereby farmers can get up to €400 per hectare for managing grasses in a particular way but there is no output for that beyond the standard markets. Organic farmers are paid half of that but there is a market. Only 300 people signed up to the organic farming scheme when it was recently offered because farmers were advised to go into the REAP scheme instead as it paid €400 per hectare.

As the IFA said, organic farming needs a €500 per hectare payment so that it is comparable with the basic agri-environmental schemes in Ireland and the rest of Europe. Payments in the rest of Europe can be up to €1,000 or more for arable farming. There are even payments of over €2,000 for fruiting bushes in conversion. An Irish farmer who wants to put in fruiting bushes will get €300 under an organic scheme but his or her competitor in, I understand, Estonia will get €2,100 per hectare. That is most extreme example I am aware of, but it goes to show that we are below average.

If we want farmers to be able to transition, we need to pay them properly. We have an extensive grazing season in Ireland, which is the longest in western Europe. That is a good thing. We will always have a certain amount of grass and livestock, which is a competitive advantage we have. We cannot compete as well with the Mediterranean area for horticulture, but we still need to grow our horticulture. Nevertheless, we need a sustainable level of livestock production, to rapidly increase our organic farming and horticulture and to maintain our tillage.

We need to use the carbon budget spending to help farmers to transition and make eco-schemes attractive so that farmers want to use them. We need to make them attractive and impactful and introduce things like stubble fields in order that carbon is kept in and birds have feed. There are simple agronomic practices available under eco-schemes. We need to help farmers. The biodiversity regeneration in a dairying environment, BRIDE, project is an amazing example of biodiversity maintenance in the Cork and Waterford area. It involves intensive dairy production but each farm has worked to improve its ecological performance. Where can I buy BRIDE produce? I cannot buy it. A local creamery would have to be developed. It would

probably have five people working in it but had 50 people working in it 50 years ago. That is the problem.

We need regional-level agroecological transition in order that I can buy food that is produced to higher standards. That is where the new rural policy announced by the Government recently has some potential. It has some interesting and innovative ideas for clustering developments in towns and villages. We need to create an infrastructure that supports as much local and regional agroecological employment in food processing as possible, while also acknowledging the fact that we have a long grazing season and produce meat and dairy to a good standard.

Chairman: I thank Dr. Moore. Other members are keen to come in. I will allow Mr. Keane in before we take other questions.

Mr. John Keane: I am conscious that I did not get to answer the remaining couple of points from Deputy Bruton. He asked whether consumers will drive change in terms of farming practices. My answer to that is that I really hope so. As we have touched on, we as Irish farmers are recognised as being the best from the environmental, water quality and biodiversity points of view. We recognise that huge improvements can be made on all of those fronts. We know we have a long road to travel to improve standards but right now, we are world leaders. If consumers drive change towards better produce, improved standards and sustainability, that will drive consumers towards Irish produce.

In a global context, it is worrying that given that Irish farmers are as good as we are, policy-makers in the European Union are making policies and directing us on a farm to fork strategy and what is required on farms to improve the current situation, while at the same time they are engaging in negotiations with South American countries where traceability, the environmental impact and deforestation are among some of the hot topical issues in those countries. How do we strike an equilibrium between those two things, from a policy and leadership point of view, on an environmental and international leadership level and bring it back to our country? I find that a difficult square to circle. We could look at the UK market in terms of what we produce here in Ireland, the quality, reliability, traceability and the farm-family model. We could look at the imports coming from Australia. It would be interesting to do that as an example to see whether consumers are driven by price sensitivity or top-quality produce that is safe, traceable and produced on the island of Ireland. I hope consumers drive change in habits towards highly productive and efficient biodiversity and climate-friendly measures that are in practice here already. While recognising that we still have a road to travel, we are world leaders. I hope consumers drive change towards Irish produce.

Sequestration on farms and the leakage of carbon from soil over a long period of time was referred to. It is important to recognise the body of research conducted by Teagasc about ten days ago in its Tullamore research farm. It found that from different soil samples taken, carbon stored per hectare varied from 144 tonnes to 64 tonnes. If that were to be multiplied over the agricultural land across the country, it would mean that about 1,800 mega tonnes of carbon are currently stored in Irish soils under agricultural activity. That is the current level of carbon storage in Irish soils, if one were to take that example and expand it upwards. To put that into context, it is the equivalent about 90 times the annual emissions from agriculture in Ireland. In Macra na Feirme, we have proposals to deal with that. I am probably pre-empting questions that may be asked later on. Many of the members will be aware of the agricultural sustainability support and advice programme, ASSAP, which deals with water quality. It is a voluntary programme that farmers are engaged with in different catchment areas of water basins around the country. In Macra na Feirme, we have proposed that a similar programme is established to

deal with farm sequestration in terms of carbon, soils and nutrient practices that coincide with management practices. We foresee that if an advisory programme, a management programme, an assistance and education programme is established around that, it could drive on farm practices. We have seen this first-hand. My farm at home is involved in an ASSAP programme. We have seen advisors on farms and heard their advice, and we have seen a change in practice. If that can be implemented on a broader scale, in terms of carbon sequestration, it could have a major impact on emissions. It is important to recognise that. I posed a question to members of the Oireachtas joint committee on agriculture about two weeks ago. In terms of our current accounting and the Intergovernmental Panel on Climate Change, IPCC, and its overall regulations and accounting, whether we are aligned to the Kyoto Protocol or the Paris Agreement, will carbon that is sequestered in soils before 2030 count as mitigation against the emission from agriculture? If the members have any questions on this, they can reach out to us afterwards. I would be happy to engage with them. From my current understanding – granted I bow to the expertise of the committee – is that this is not the case. We have a huge role to play and we can have a major impact if we engage with these practices. As young farmers, we are more than happy to engage with them, but at the end of the day, they must account for something. They need to be liveable, real and deliver on farms and in terms of our emissions profile.

Chairman: I do not think Deputy Bruton was expecting such thorough and comprehensive answers to his questions. I thank Dr. Moore for providing them.

Deputy Jennifer Whitmore: My question follows on quite nicely from Deputy Bruton's one. The witnesses spoke about consumers and the part they can play. As a consumer, when I go into my local supermarket, it is very difficult, despite all my best efforts, to figure out what products are local, how they are grown, whether they are sustainable, what kind of nitrates or other fertilisers were used in their production. Would something like a carbon or biodiversity footprint label that demonstrates to the consumer the effort farmers are putting in, be they organic or traditional farmers, at a farm level and how that translates into the produce, be beneficial? Consumers want to do the right thing, but sometimes it is difficult for them to figure out what the right thing is. Would a carbon footprint label be beneficial to Macra na Feirme members?

Chairman: Is that question directed at Mr. Keane?

Deputy Jennifer Whitmore: The question is for Mr. Keane and Dr. Moore, and perhaps Mr. Fitzgerald as he is an on-the-ground farmer. From an organic farmer's perspective, labelling is very important. I do not know whether we have got organic labelling right in this country. I imagine a carbon footprint label would be beneficial from an organic farmer's perspective as well. It would take nitrates into consideration. We rely on consumers to make the correct decisions when they walk into a shop. Sometimes this means that they will have to pay more because they know that a product has been grown properly. I am interested to know the witnesses' views on that.

Mr. John Keane: I thank Deputy Whitmore for the question. There are a number of stands to that and, if she does not mind, I will let Mr. Fitzgerald come in on that also. In terms of consumers identifying local produce and what the farmer is doing on the ground to produce a piece of beef, vegetables or a pound of butter, I will refer to where we are at the moment and move on to what we consider are improvements. I refer to any Irish consumer who buys produce that has been produced in Ireland. Dr. Moore touched on this earlier in terms of the Bord Bia quality assurance and the logo. That looks nice on a piece of produce on a shelf but we, Bord Bia and us as farmers, can do much more in terms of what that means and what work goes into having

that stamp on a piece of produce.

From my point of view, as farmers - this will echo with Mr. Fitzgerald - there are about 300 requirements that we must meet on an annual or year-and-a-half audit from Bord Bia that assesses our farm in order to provide produce into that scheme. As Dr. Moore said, in terms of farms that are meeting a higher level of requirements or are derogation farms, those requirements are there also. On a practical level, for the consumer who goes into the farm, it is about headline items, as was touched on already, like the number of days at grass or days outside. It is in terms of animal friendly, animal welfare, animal housing, carbon footprint and the carbon navigator attached to the Bord Bia quality assurance mark that each farm gets when it carries out an audit. These are the on-farm actions that are ongoing to provide that. The consumer can get a sense of security from knowing that all that work is done behind the scenes by the farmer and from the Bord Bia assessment which determines where these farmers are at.

I note the role of the food ombudsman in the retail supplies, enacting the unfair trading practices legislation and guarding against those practices, and shortening supply chains and ensuring fairness of supply chains as well. In terms of food labelling and from a Macra na Feirme point of view, we would like to see efforts made to highlight what we do as farmers on both a carbon front and a wider sustainability front so that the story of what Irish farmers do can be told. Climate is hugely important, but we should include the water issue in Ireland and how efficient we are at using water in the production cycle. From a dairy point of view, 6 or 7 l of water are needed to produce 1 l of milk. Compare that with other countries in Europe, Asia or South America, it is upwards of 6,000, 7,000 or 8,000 l of water to produce that. The WHO has highlighted that water will be one of the restricting limiting factors by 2050 for world population growth. That is another strong element to our bow. We have much to do in respect of biodiversity but we have a good story to tell in that respect. If we can link the Bord Bia aspect, the model from carbon, what we are doing on water quality and our sustainability measures and communicate that to consumers on food labelling, while acknowledging the label on a food item is very small, whether that be through additional storage, the use of the technology or the use of smartphones, all of those are steps we can take to provide reassurance and tell the consumer the story of Irish farming. It is a positive one. It is simply a matter of communicating that further. Mr. Fitzgerald is part of the signpost programme and he might touch briefly on how he sees that story being communicated.

Mr. Shane Fitzgerald: I agree with everything Mr. Keane said. The energy and water usage on our farm is also measured annually. We will have figures on our farm showing exactly how much water or energy we used to produce a litre of milk. In the programme for Government and different action plans there were references to a food strategy such as a sustainability-type plan for all farms and figures coming from the national farm survey. If all those data can be linked into the figures, say, for the processors, that can be used on labels. People have also had other ideas. Mr. Keane mentioned communicating the message through the use of smartphones. For example, if there a code such as a QR code on a carton of milk to say it was produced on our farm, the customer could use their phone to bring them to a website that would show our farm and the exact carbon footprint used to produce that milk. The customer might be willing to pay a premium for that product and that would be our hope. Technology will play a part in this. I am always passionate about bring people to farms and communicating all we do on farms to improve sustainability. If it is possible to reach the consumer directly in the way Mr. Keane described, it would be definitely a good idea.

I know exactly what Deputy Whitmore was saying. It can be confusing and complicated. If

I go into a shop to pick up an item I find it difficult to see where it has been sourced. There are many different types of labels on items. You might know an item has been quality assured but you do not know exactly to what standard it has been produced. That type of initiative can only be a positive. It would have to be based on facts and figures and science. It cannot be a free-for-all either, as some farmers are not producing to a certain standard. We would need to have the data on it. That will be another key aspect of the signpost farm programme. Eventually we will have all these data and information from our farms, which many other countries will not have. Once we get all these figures on water usage, energy usage and carbon sequestration, Irish farms will come out on top. I think we will be world leaders once we have all these verifiable data. The consumer needs to know that and we need to tell our story in as many ways as possible. It is definitely a great idea.

Dr. Oliver Moore: One of the problems with the new Common Agricultural Policy is that monitoring and evaluation in an objective, neutral third party way will be likely restricted, which is not good for proving what we are supposed to be able to do. Individual cases such as signpost farms and so on can do very well but it looks like 40% of all our emissions will be from agriculture by 2030, according to the Environmental Protection Agency. Some 85% of our nitrogen pollution in rural areas comes from agriculture. We also have to bear in mind that agriculture is having a major impact. There are very few pristine rivers left and biodiversity indicators are going in the wrong way. In terms of carbon footprint, the dairy sector scores really well per kilogram, it is joint first with Austria, but the beef sector scores fifth and sheepmeat sector scores 11th. Consequently, we are the carbon leakage for other countries in Europe in the beef and sheepmeat sectors. There is much more to it. Outside Europe, feedlot systems can produce better efficiency per kilogram because they take up almost no land. There is much progress we need to make beyond individual farms.

In terms of labelling and coming up with a really good label that defines sustainability, we have come up with one and it is called organic. It exists and has done for decades, since at least 1991 when the pan-European organic regulation first came in. Some of the literature I included with my longer submission showed using 12 different sustainability metrics, the organic sector outperforms the conventional sector in ten, it performs the same in one, and it performs worse in one. When one goes through all the categories that are necessary, the organic sector outperforms the conventional sector. The areas where it is questionable is on per hectare versus per kilogram with respect to climate and to yield. They are the two areas where it falls down. One of them, depending on how one conceptualises the issue, is whether it is a per hectare absolute emissions issue or a per kilo issue.

If we are heading towards 40% emissions from agriculture by 2030 we need to think in absolute terms. We need to comprehensively develop the organic sector in order that farmers have the option of moving to organic production if it suits them. I refer to spending €150,000 a year on an organic advocacy initiative as part of a full spectrum development of the organic sector in order that consumers will see the organic logo and know what it means when they see it. Bord Bia spends €1 million promoting the organic sector at home and abroad. Clearly, it is not enough not when we have a target of 7.5% of farmland to be under organic production by 2030. The last target was 5% of farmland to be under organic production by 2020 and we got to somewhere between 1.6% and 2.4% depending on how one looks at the figures. We completely failed. We have put the exact same types of systems in place to completely fail again. That is doing a disservice to farmers. The organic market is growing faster than the conventional market. Some 5,000 farmers a year are joining the organic scheme in France. France is a very comparable country to Ireland. The dairy sector is predominant in the north west of France

and the rest of France has a mixture of tillage, vineyards fruit and so on and beef production is everywhere. It is a comparable country to Ireland and it was an organic laggard 20 years ago.

We need to give consumers an option. We need to promote the organic label and logo better. We need a full spectrum approach to sustainability. We should bear in mind, as I pointed out in my submission, employment rates are higher in the organic sector and organic farmers tend to be younger. In Austria 26% to 27% of farmland is organic and it has the youngest farming cohort in Europe. It could be a coincidence or it could be that we need to do research to identify what farmers and potential farmers want, what people who need access to land want and what consumers want. There is a great deal of work not being done. Under the new Horizon Europe, which is Europe's main funding for scientific research, 30% of that money will be available to promote the organic sector, the full spectrum, including in research and development. Teagasc, Bord Bia, and the Department of Agriculture, Food and the Marine, have an obligation to access that money to develop the organic sector properly to give farmers a real opportunity to diversify into organic farming if it suits them.

Chairman: I thank Dr. Moore for that response and Deputy Whitmore for her questions. I will bring in Deputy Christopher O'Sullivan.

Deputy Christopher O'Sullivan: I welcome our guests and thank them for their presentations. Most of my questions are for Mr. Keane and Macra na Feirme. It is great to hear about the different sciences and the advances in sciences in terms of reductions in emissions. I would like to hear more about that at the end of our discussion.

I note Macra na Feirme urged a "No" vote on the Climate Action and Low Carbon Development (Amendment) Bill. I want to pick up on a few points that were made in urging that "No" vote. Would Mr. Keane and Macra na Feirme acknowledge farming and agriculture get special treatment in that Bill, not only with the definition of the special characteristics of biogenic methane but in acknowledging the special socioeconomic benefits of agriculture? No other sector gets such treatment in the Bill. Many people were urging for a split budget, as they have in New Zealand but is the definition of biogenic methane and the acknowledgement of the important role of agriculture not essentially almost acting as a split budget? It is essentially saying that potentially, agriculture will do the least heavy lifting, acknowledging biogenic methane and the socioeconomic importance of agriculture, which no other sector gets. Will Mr. Keane comment on that and does he accept that?

We have heard from Macra na Feirme and other groups that this Bill would decimate farming and rural Ireland. Much of that related to the fact that carbon sequestration and carbon capture would not be accounted for in carbon budgeting. Will Mr. Keane accept that is not the case and that the definition of a climate neutral economy does include sinks and sources? Therefore, carbon sequestration and carbon capture will be included in the accounting. It was unfair of many commentators to suggest it would not be when the Bill explicitly defines a climate neutral economy. The same applies to carbon leakage, which is also defined in the Bill. They were a couple of comments on some of the narrative around the climate action Bill and how it would damage farming when in fact, I believe agriculture received a quite specific mention in the Bill that would indicate it probably will do the least of the heavy lifting, compared to energy or electricity, which probably will do the heaviest of the lifting.

I agree 100% that Irish farmers produce the best quality product. Report after report suggests that but we can all testify that Irish produce, whether it is beef, milk, dairy or cheese, is the best. Mr. Keane said in his statement we were also the best in terms of biodiversity. Can he

elaborate on that or get a source? I note that Dr. Moore stated that all the biodiversity indicators are going in the wrong direction. There is a contradiction there and perhaps both witnesses will be able to comment on that point.

With regard to the BRIDE valley scheme Dr. Moore mentioned, those results-based schemes are the future. The quality, outcome and income for farmers still remains viable but farms are greatly improved in terms of biodiversity results, whether it is wetlands, hedgerows, mixed swards or mixed species. They are seeing the results and increase on farms, especially in bird life. The results are improving after only a few years. I attended many of the farmers' protests last week. Farmers are on board for those types of schemes, as long as they get properly awarded. I am 100% behind those types of schemes which will not impact output but will improve biodiversity, carbon sinks and sequestration. Significant work is being done by Teagasc on hedgerows, in particular, being sources of carbon capture, and that is the way forward.

Those are my questions and I appreciate the witnesses for coming in.

Chairman: Mindful of the nature of Deputy O'Sullivan's questions, I would like if we could keep the discussion looking forward. Our guests have much to tell us about how agriculture can play its role and they have done so already and may elaborate on that. While the Deputy's questions are valid, I do not want to put our guests on the spot either.

Deputy Christopher O'Sullivan: Their response to the content of the statement.

Chairman: I will leave it to our witnesses to answer as they see fit but we want to find solutions, keep looking forward and find a way which works for farmers, in our work.

Mr. John Keane: I thank Deputy Christopher O'Sullivan for the questions. I will deal with the first part in its entirety, in terms of the climate action Bill and where we were coming at it from. I am conscious of the efforts made for the biogenic methane element of the Bill and recognising the socioeconomic impact of farming and the provision for that. The key word the Deputy used was "potentially". As farmers and young people living in rural Ireland, certainty around the future, what it will look like and how we play a role in that is fundamental to growth of our businesses.

To break that down to a practical level of how the word "potentially" impacts, in terms of making alternative arrangements for biogenic methane, a young farmer leaving a level 6, 7 or 8 in Teagasc will potentially go home to farm on a livestock enterprise and plans to grow and diversify a business and make investment. Time and time again, from a young farmers point of view, in terms of submissions we have made to the Department of Agriculture, Food and the Marine and to numerous Governments over many years, access to credit, finance and land always have been highlighted as the key constraints for young farmers entering farming.

If you take that as the context of someone coming home at a relatively young age, in their mid-20s, investing significant amounts of time, investment and finances, whether that be taking on debt from a bank, investing in facilities or capital investment and if you expect someone in 2021 to make that investment and plan for five, ten or 15 years of repayments without certainty on their capacity to meet those repayments, that is a difficult place for anyone to come from. That is one essence of where we were coming from.

Deputy Christopher O'Sullivan: The word "potentially" was in my phrase. It is defined as "is" in the Bill and the socioeconomic benefits of agriculture are defined on the Bill. Is there any acceptance or acknowledgment of that?

Mr. John Keane: There is definitely an acknowledgment of it being present in the Bill, in terms of the socioeconomic impact and the importance is recognised on numerous fronts. Even in our opening statement, we recognised the importance of Ireland's largest indigenous industry to every rural community throughout the country. We all establish that and I appreciate the Deputy recognises how important it is to the fabric of rural Ireland.

In terms of meeting that transition on the biogenic methane, we realise we have a role to play. I am not denying we have a role to play but 2030 is approximately nine years away from now. We will need time to address this. We will need space, science, technology and support. We are not shying away from it, we are just saying short-term implications, whether a national herd cut or reductions in whatever that may be, can have long-lasting impacts into the future but can also have a massive impact on young farmers who have started in the past couple of years or who will start farming in the coming years. I urge people to be conscious of that kind of instrument, which if brought in can have huge ramifications. I know I am focusing on the young farmers but it can have an effect on farmers at all levels. However, it can have a major impact on the young farmers I represent.

The Deputy spoke about the sinks and sources and the recognising of that from agriculture. I touched on it a small bit when I answered Deputy Bruton's question. Our previous experience, from an accounting point of view, if we look back over years in terms of land planted under forestry and where that was accounted for in terms of the carbon accounting, not all was being attributed to agriculture. As farmers, we are willing to introduce these kinds of measures on agricultural land but previous experience shows us it needs to be accounted for farming and against farming, as opposed to being leaked out to other sectors. If we are doing something, be that in soil, forestry or hedgerow management, it should be counted for farming and agricultural activity, as opposed to being leaked out to other sectors. If we can do that, it will be hugely positive but it needs to be supported.

In terms of the biodiversity point of view and moving forward, the Deputy mentioned the results-based scheme in terms of the BRIDE project. From our point of view, if we look at the green architecture policy that Macra launched a number of weeks ago and the headline items from that in terms of eco-schemes and delivering biodiversity, our proposals are about it being complementary. It must be complementary to practices which are going on farms. We encourage results-based schemes. If we can show consumers, legislators and policymakers what we are doing on farm and the results coming from it, that can only be positive. We are definitely encouraging of that.

It must complement the farming practices we are doing. If farmers are making this impact on the environment to improve it, we must be duly supported. It must be equal and provided across all farming enterprises. Dr. Moore touched on this earlier, in terms of looking at some farmers who are perceived as being more intensive but are implementing really effective environmental measures. Those farmers will also need access to programmes to improve the biodiversity and climate and water elements of the impact of their farms. We must allow schemes to give access to all farmers and they must be complementary. It is really important in terms of results, that we can show what we are doing is having a major impact and they can deliver. I hope I have not missed any part of Deputy O'Sullivan's questions.

Deputy Christopher O'Sullivan: No, that was perfect. I thank Mr. Keane.

Dr. Oliver Moore: To get a background on biodiversity first, Europe has lost approximately half of all its farmland birds since 1980. In less than my lifetime, half of all the birds have gone.

I was born in 1974. As a starting point, things are not going well in terms of biodiversity. In Ireland, 85% of habitats are considered to be of bad ecological status. The position with approximately one third of wild bees and two thirds of bird species is concerning. Basically, those birds are on either a red or an amber list and the bees are threatened with extinction. Yet, when one looks at schemes such as the biodiversity regeneration in a dairying environment, BRIDE, project or the research carried out by Professor Eileen Power and Professor Jane Stout on organic dairy farms compared with conventional farms in Ireland, one can see options to improve biodiversity through farming initiatives. Likewise, if we can stop the loss of our semi-natural grasslands and use eco schemes and other initiatives to help high nature value farmers blossom, biodiversity can blossom too. For example, there was research in Finland which found that extensive organic cattle grazing was better than any biodiversity measure because it meant that the insects in the grass fields were still alive. Dung beetles were available for birds to eat. Dung beetles are good for the soil. They make different pores in the ground from those made by earthworms so that improves filtration, and they have not been killed by a wormer. Then the bird does not get killed by eating a sick dung beetle. If we increase organic extensive farming in Ireland, we do not use pesticides in that context and we do not have the wormers or the veterinary products to the same level. That ends up increasing the biodiversity performance of rural Ireland and of agriculture.

It is not just the organics. It works with projects such as BRIDE as well. We must use the eco schemes in the CAP now. Next week, when the Minister is in Europe arguing about the GAEC and climate elements of the CAP, as well as the eco scheme elements, let us keep the GAECs strong environmentally and use eco schemes to help farmers transition, especially farmers who potentially stand to gain from convergence, that is, farmers with low entitlements but who are in high nature value farming areas. If we are clever with the schemes from Pillar 2 and the eco schemes and the conditionality in Pillar 1, we can start a sustainable transition from a biodiversity perspective. The need clearly exists with all the significant species in decline, with ground nesting birds, in particular, having a very difficult time in Ireland and with the evidence from BRIDE and from organic farming. We have very little evidence from organic farming in Ireland because no research money is put into it. The little amount we have shows that the biodiversity performance is better on an organic farm. We have to start fast-tracking these things. We have a just transition fund, potentially, through the carbon tax. We must start helping farmers to transition to even better performance and using projects such as BRIDE and initiatives such as the Organic Initiative to signpost the way.

Deputy Réada Cronin: I thank the witnesses for their presentations. Dr. Moore mentioned that organic farms provide 10% to 20% more employment per hectare. Could he outline why that is the case? Also, is there a problem with uptake in the schemes that already exist? Could more be done in that regard? We also hear Irish agriculture's green credentials being promoted as the most efficient at producing milk and beef. How useful are those metrics and are there other metrics for which Dr. Moore could advocate?

I will ask all my questions because I do not know if I will get a chance to come in again later. Are there figures for the carbon abatement potential of the proposals on organics, agroforestry and eco schemes? Are organics or agroforestry considered in Teagasc's marginal abatement cost curve? If not, why is that the case?

I also have a brief question for Macra na Feirme. What is its position on organic farming, given that it provides 10% to 20% more employment per hectare and that it tends to keep younger people in farming and to attract them back to farming?

Dr. Oliver Moore: The figures of 10% to 20% higher employment rates come from the OECD and are on page 8 in the EU biodiversity strategy. It is partly why the EU biodiversity strategy and the broader green deal seek to increase the organic acreage utilisable land area to 25% by 2030. Ireland will be lucky to get to its target of 7.5%, but I would like to see it getting to 7.5% rather than aim higher and not get there, frankly. The reason organic is better for employment is, in part, because it is more labour intensive. To put it straightforwardly, it tends to replace chemicals with hands. One has to do the work and sometimes literally do the weeding. For example, in east Galway there are two organic horticulture holdings that I know of and that are worth talking about now, Green Earth Organics and Beechlawn Organic Farm. Between them, they have approximately 100 acres of land and employ 50 people. That is 50 people employed; that is rural regeneration. How will the number of people employed in any other context in farming in Ireland reach such levels? It is just not going to happen. Horticulture in general takes up approximately 0.5% of the land area of Ireland and employs almost 5% of the people in farming, so horticulture is more labour intensive and that has good aspects to it. It has to be regulated properly. There should be social conditionality in the CAP because of that.

Organics employ more people because of the slightly higher labour element. Organics also tend to gravitate towards mixed farming in certain contexts. For example, sheep and cattle are often carried together to reduce the worm loads in sheep. Agroforestry suits organics. There is also growing one's own cereal crops for one's feed. All these things increase employment because there is more than one thing taking place on the farm, so there is more than one person feeding in advice, inputs, seeds and bacterial inoculations in the case of organic horticulture. It is more labour intensive, it is potentially mixed and can engage more with rural assets in the community. The creamery is not going to make money from selling fertiliser and pesticides, but we do not have a fertiliser industry in Ireland anyway. The ICI factory is gone. We do not have a car industry either so transport has a great deal of potential to reach climate targets without disrupting rural Ireland unduly. It is things like that. Where I live in Cloughjordan, there are 3 ha of a community-owned farm. There are 1.5 labour units employed on it. There are ten volunteers employed under a European scheme. There are two people employed to manage those 12 people and we are setting up a market in a couple of weeks to sell produce through a food hub, which employs people as well. There are over a dozen people employed on 3 hectares when one gets savvy about schemes and so forth. It is because of those types of things that organics employs more people generally.

As regards uptake, the uptake was very poor because the REAP scheme was better funded. For some reason, we ran a scheme that was organic-light and paid twice as much. Advisers just advised people to opt for that as it was easy and like the rural environment protection scheme, REPS, again. The problem with doing that is that when the economy bites again they will just drop it because there is no market and there is no evidence that one is getting money coming in for the money going out. That happened with REPS. There were 55,000 farmers, perhaps even 60,000 farmers, in the REPS. Then when the economy tightened it was seen as a cost and it was cut, at the bottom of a press release. That is not acceptable. With organic, one spends money in basic payments, but one brings in revenue as well on top, typically a premium. The uptake did not happen because other schemes were more attractive. That should not have happened. It should not have been that way. That is why I am suggesting that the organic payments need to be as high as, if not higher than, the other payments.

Organic is not included in the Teagasc MACC. It should be. The agriculture committee had Gillian Westbrook from the Irish Organic Association, IOA, before it last week and she spoke about that as well. In addition, organics is being discussed again at 3.30 p.m. in the agriculture

committee. Both meetings have been given detailed presentations on organic agriculture. I would recommend that the committee checks those out.

It is a useful marker that Ireland is efficient at producing dairy. Ireland is joint top in Europe with Austria in that regard. It is a relevant marker and must come into the equation. Any deviation from that needs to be assessed for impact. The general trend of the EU green deal is towards reducing these inputs where possible and increasing organic farming where possible. The trend makes sense because this Titanic is heading towards the iceberg and we need to steer it away. I earlier quoted the biodiversity figures. We have seen the climate figures. We have opportunities. Organic farming suits Ireland. We have the longest grazing season in western Europe so Ireland is already appropriate for organic. We can transition more quickly and easily than other countries that would have to struggle. It suits the traditional British and Irish breeds.

Mr. John Keane: I thank the Deputy for her questions. I can respond on questions about the abatement curve and the inclusion or exclusion of forestry. Land use change management is inclusive of forestry. The abatement curve covers pasture management, tillage management under cover crops, tillage management under straw incorporation and water table management in organic soils, alongside forestry. I can forward those figures to the committee. We have those figures.

It is important to recognise, as I am sure committee members are aware of, the issues around licensing and felling that arose earlier this year and at the back-end of last year. That provided an issue for the industry on an immediate basis. We need to provide certainty for farmers as we move into the future because if farmers are going to commit to a business, enterprise or to establishing a piece of forestry on their land, they are going to need certainty that they can harvest a crop for which there will be an economic return. That is important from the point of view of all farmers. To answer the question directly, land use change and land use management, the management of forestry and organic style management are included within the marginal abatement curve.

Macra na Feirme has always been very positive towards organic farming. Common Agricultural Policy, CAP, negotiations are ongoing within Europe at the moment. We have looked for direct payments for young farmers under Pillar 1 funding but there have been sound bites from Europe to the effect that the young farmer payment could include a certain element of organic farming. We are not against organic farming but young farmers have been a minority in farming for 30 or 40 years and we need supports across all our farming enterprises, including our young organic farmers and farmers involved in tillage, dairy, beef, poultry, pigs, or whatever the sector may be. We need support for all those farmers under CAP.

Another issue was highlighted by Dr. Moore. Macra na Feirme will try to facilitate growth and ambition, while recognising the increased labour need. From a policy and delivery point of view in agriculture at the moment, there are challenges in the sector, as farmers across the country would highlight, to getting labour and skilled labour for on-farm tasks. To coincide with the growth in organics and agriculture even as it is, a considerable labour demand needs to be met. There needs to be further development of programmes within Teagasc to deliver a more skilled labour force, to upskill people and encourage them into agriculture. We must create pathways for more people to come into the industry and, in particular, into the industries that Dr. Moore referred to, namely, organic and conventional farming. We can develop all these enterprises but many farms are struggling for skilled labour as it is. We need to develop that aspect to facilitate and encourage changes in practices. There are a number of strands to the issue.

Mr. Shane Fitzgerald: I will make a comment about the employment that organic creates, an issue on which Mr. Keane touched. Macra na Feirme is not against organic farming. It sounds great when you hear Dr. Moore speaking about different ways to support the economy and provide employment. However, it is very difficult to get people to do that type of work. As Dr. Moore mentioned, it is labour intensive. As a farmer on the ground, it is sometimes impractical and that is the biggest problem. Farming is tough. It requires long hours and physical work. It is becoming harder to get people to do that type of work and more often that not, you are relying on people from eastern Europe or other places to do that work because Irish people will not do it. If any of the committee members have children, they will know that many young people do not want to do the hard graft and labour, the long hours and weekend work. The whole area around labour is probably the biggest barrier to farmers going into organic farming. The difficulty is in attracting not only skilled labour but also people willing to do manual, physical labour. Many dairy farmers find it difficult to get people to milk their cows, never mind to go weaning for hours on end. It is difficult. If something happens, the market is not there and you end up getting paid a conventional price after you have put long hours and hard work into producing a premium product, it is difficult to justify. I am speaking as a farmer on the ground. There are many barriers there. It all sounds great in theory but from a practical point of view, it is difficult and there are high barriers for farmers to get over.

Chairman: I thank Mr. Fitzgerald. Before I go around for a second round of questions, I might take the opportunity to build on the question asked by Deputy Cronin, which is an interesting one. The three witnesses have given comprehensive answers to that question. We are getting somewhere interesting. I am certainly not an expert on agriculture, far from it indeed, but the fundamental question I want to ask is whether organic farming is the way forward for Irish farming. Deputy Cronin got there before me. I will stick with that issue for a few minutes. I take the points about labour that Mr. Keane and Mr. Fitzgerald have made and, with those in mind, I might direct the question to Dr. Moore. Labour is a serious concern. It seems to me that the availability of labour is linked to the cost of labour and the reward associated with it. It seems to come back to the idea that farmers who are involved in organic farming should get a better payment and there should be more money for those who get into it. That would surely attract more people into the sector but perhaps that is a simplistic take on the issue. I am interested to hear Dr. Moore's comments because this piece about rural regeneration is key. I acknowledge Macra na Feirme's report from a few weeks ago in which it looked into the matter in great detail. I will put that question to Dr. Moore first and will then return to the representatives of Macra na Feirme.

Dr. Oliver Moore: Labour is obviously the key consideration for organic farming. There are a couple of elements around rural regeneration. Up to 20% of the working week of a civil servant can soon be done from home or from the local village according to the new rural policy. There are many interesting things happening with rural regeneration. When the basic payment is so low in organic horticulture to begin with, it makes it difficult for Irish organic horticulture to compete with horticulture coming from the rest of Europe. It is already tough because the yield can be higher in warmer parts of Europe than it is here. However, the payment rate is so low that a higher payment rate would optimise the production. A range of public goods is provided by organic farming. I listed five or six core and four or five supplementary public goods. When that level of public goods is being delivered, the payment rates should at least be doubled. Those rates should be €500 for grassland, €600 for tillage and €700 for horticulture. Perhaps it should be even more to fast-track incentivising fruiting bushes and trees. Extra supports are given for those things in countries where they are successful. We have a real opportunity to import substitutes in fruiting bushes, trees and apples. Highbank Orchards in Kilkenny is an

example. Con Traas in south Tipperary is not organic but he is a careful and specific farmer with an amazing orchard and a very low use of industry and inputs. We could be an amazing producer of organic fruits as well as organic vegetables but we need to be incentivised properly at the start because we are delivering a certain level of public good. There is income forgone and costs incurred, which is why the payment is made, but public goods are being delivered in the first place.

I agree completely about being cautious. It is only a context of every single section of the food system that is organic-relevant being promoted and developed at one and the same time that will leave farmers willing to make the jump. If 1,000 people joined the organic farming scheme next year, the price would collapse and we do not want that. We want a third level qualification in organics available in Ireland and enough experts in reseeding to help farmers reseed fields. We want all the elements I mentioned earlier, such as production, extension, processing, distribution, research and development and marketing, being developed at one and the same time, and the farming community must know this is happening. If just one element is to be developed, it is basically too risky.

I was glad to see the Minister of State, Senator Hackett, announce a grant for organic processing recently. Processing is where we see the adding of value. People have an association with organic being local and regional aspects, to an extent, and this might limit the export potential of Irish organics. Perhaps there is a point with that. However, processed food travels further and people are more used to seeing processed food abroad. For example, we do not want to see French milk on an Irish supermarket shelf but we are fine seeing French cheese. In the same way, we can send Irish cheese abroad but Irish milk is more awkward. We need to increase the ability for organic food to be processed locally, regionally and for export.

There must be a full spectrum of development to give farmers confidence. We do not want lots of extra work and transitioning for no market. We must spend more than €1 million per year on the marketing of organic food at home and abroad, that is for sure.

Mr. John Keane: I will touch on some of the key points. If we are looking at a solutions-based approach to deliver more on-farm labour, we can look at the Teagasc approach over the past number of years to distance-learning and part-time courses. There is a definitely a role with an expansion and integration of such a model on a wider level to offer the opportunity for people to engage in organic programmes and learning. We can look at the supports for education and training of farmers for this and if we are to meet the targets under the organic framework, we will need further education, training and associated development. We are also going to need development of on-farm advisory aspects.

We can look at the proof points of what has been delivered in the past and how that is delivered on the farm. We can look at the example of the ASSAP and water-based catchment areas, where advisers meet farmers and walk the land with them. They highlight areas for improvement and areas going really well. We can see the impact that has on on-farm practices. It is a model that works and it can be replicated.

There is the question of developing the ability of farmers to supply products, which is one side of this matter, but we need to expand market development. As Mr. Fitzgerald has said, we cannot put in resources to education and farmers, converting land to organics over a number of years, only to realise that produce will saturate the market. In such a case, not only would the new people entering the market suffer but those who have produced organics for a long number of years would also receive a lower price. That area must be protected also and a development

in supports must be designed in order to facilitate that.

From a young farmer's overarching perspective, there is definitely a role for organics. We would fully engage with this in order to provide an economic return for young farmers. In the context of where we are currently with farming, there must be a focus on that. We must focus on what is provided for young farmers in all aspects of farming, right across organics, tillage, dairying, beef, pigs and poultry. The focus must be on driving generational renewal on that front. In turn, if we have highly educated and motivated young people entering these sectors, evidence and previous experience demonstrates that these are the people likely to engage with new technologies and practice to drive change, and this in turn will drive environmental efficiency to improve our overall environmental impact.

Chairman: We will get to a second round of questioning but Senator Pauline O'Reilly has not contributed yet. If Deputy Bruton is okay to wait, I will bring in the Senator first.

Senator Pauline O'Reilly: I thank Deputy Bruton and the Chairman. I also thank the witnesses because this discussion has been really useful. I am thinking about the conversation overall, which dealt with many topics. There is the importance of a skilled labour force, adding value and some of the projects, such as the BRIDE project. It relates to intensive farming but there are some organic farms in Galway, which would be my constituency, including Green Earth Organics and Beechlawn. Mr. Con Traas does not have an organic farm but there is some value added to the product with a very small amount of land.

Some of these conversations can start from a very negative perspective and it might feel like a threat to farming when we are talking about a climate action Bill or climate action in general. High emissions are indicated in the Environmental Protection Agency report issued earlier. Does Macra acknowledge that we all want to find solutions? Are there other ways we could add to our report so better stakeholder engagement could happen? There is no point in all of us stepping out of the conversation and we must find ways to continue it and point out good practice. I acknowledge the point made by Mr. Keane and we must ensure all young farmers are supported. There may be a fear that if we use too much of a carrot in one area, we might not support farmers in other areas. The BRIDE project indicates there are ways of supporting farmers in different types of industry. I am interested in hearing thoughts about that stakeholder element.

Mr. John Keane: I thank the Senator. From the perspective of a young farmer and the Macra organisation, the narrative around farming and the environment can often be very negative. That is not necessarily down to farmers or an individual but there can be some finger-pointing at farmers. That is the perspective that is being put to us. As young farmers we are absolutely out to embrace the new technologies, farming practices and changes that would benefit the environment, biodiversity and water quality. Looking ten or 15 years down the line, if consumers are asking this of us and driving farmers to it, and if it benefits our farming practices and economic performance, it is something we must embrace and move towards.

There is the question of stakeholder involvement and feeling that we are part of a process. I am conscious that my experience is less than that of many those who are on this call but to succeed in any of these processes, we must encourage stakeholders and ensure they are part of the process. We must ensure that their input is heard right the way through, as opposed to looking for a perspective from a particular element once the process is nearly finished. There should be involvement with stakeholders, including farm organisations, young farmers and the environmental sector, all the way through. That can only produce a better perspective than not having

that element. The fear element comes from the fact that we are going through a vast amount of change within a short period of time, and we are looking to engage with that. For young farmers, a snapshot of the last three years of the targets set for farming between 2017 to now shows where the goalposts started, the rhetoric of where are we now and what we now have to aim for. Plans we might have put in place in 2017 and 2018 to deliver on targets or schemes might not be enough 12 or 24 months later. There has been a journey and change within a short period of time.

Farmers in general have to plan their businesses for a long number of years. We are making breeding decisions for herds that will affect them in three, four or five years time. The long-term planning aspect is important. Just because we do something today due to the fact we have the ambition to do something different in 18 months time does not mean we can adjust quickly. We made decisions a long time ago that already impact on what we are doing.

We need certainty and to be involved in the process. We have to embrace and engage with opportunities like this. In terms of getting our point of view across, feeling involved and ensuring that the sentiment of young farmers and farming in general are heard, more involvement from organisations during the process can only be positive as we move forward.

Chairman: Mr. Fitzgerald indicated. Does he want to come in?

Mr. Shane Fitzgerald: I have a quick follow-up. It is important that there is a whole industry approach. It is vital that everyone, including farm organisations, environmentalists, processors and farmers, work together. No one can do this on his or her own; there has to be an integrated approach. That is key. I am fairly active on Twitter – I am not sure if any of the other witnesses are – and noticed a lot of finger-pointing, arguments and blame game. That does not achieve anything and will not move anything forward.

On working together, Mr. Keane touched on the ASSAP programme a number of times. It is a very successful framework for water quality. Dr. Moore mentioned organics and the importance of advice and education in that regard. Biodiversity and habitat creation are also important. Why can ecologists not come onto farms and work closely with farmers? I have not seen that happen in any programmes I have been involved in and have never had an ecologist on my farm. Imagine if ecologists came out to every farm and a small percentage of a farm was allocated for biodiversity and a habitat. Imagine the impact that would have overall. We would not be long meeting our targets. At the moment I do not think ecologists are stepping inside farm gates.

The likes of the BRIDE project will work well and need to be rolled out nationwide. At the moment that has not happened. I have not been on a BRIDE farm yet, but I plan to visit one soon. They receive a lot of funding from the EU and need funding and incentives. An integrated approach is the way forward. That is how things will work. We all need to get on the same wavelength and get people who have expertise onto farms.

Farmers are busy and have many things going on. Young farmers are educated. Those running farms on a day-to-day basis need experts and people who have knowledge of the environment and can tell and show us what to do. We need to be incentivised with supports to do that. If we can do that we will get some positive change sooner rather than later.

Chairman: I thank Mr. Fitzgerald. For our sins, many of us are on Twitter and suffer daily. Did Dr. Moore want to come in on that?

Dr. Oliver Moore: That was mostly a point for Macra na Feirme. I agree that ecologists are part of BRIDE. That is how it works. It costs more, but it is money well spent. One could say it is part of rural regeneration. I am thinking of a more landscape approach to how the countryside is starting to be shaped. I agree that we need more initiatives like BRIDE where ecologists get involved in helping farmers to make the right decisions.

Chairman: I thank Dr Moore.

Deputy Richard Bruton: I thank the Chairman. To take up the last point and to plug my own view of this world, we need to move from looking at farming and climate to looking at the entire food sector and what is called the circular economy. In other words, we need to examine all of the impacts, including biodiversity and the entire supply chain from start to finish.

I was very taken with the point Mr. Keane made that a young farmer taking out a loan and considering the next number of years needs certainty. I have learned one thing from my small amount of experience in this field. If young farmers build their future plans on the basis that carbon will not be charged at €200 per tonne in other parts of the economy over the next decade, they could be making the wrong choices. We have to integrate carbon farming in whatever way we can, including carbon rewards for farmers, into the decisions that young farmers are taking and the thinking of the banks providing that funding.

In that context I again want to raise an issue. If agriculture has to find savings of 10% or 15% and the rest of the economy, including transport and buildings, has to find 70% savings, we will not be talking about €100 a tonne. We already know that other sectors of the economy will be taking on measures that will cost €300 a tonne and more. They will be very happy to pay farmers to reduce carbon at a lower cost than they could.

Where does that leave paying farmers to reduce stock levels, be it through the organic farming that Dr. Moore suggested or diversification? Do we need to think more seriously about what the environment will be like in a few years time when we will pay a lot to decarbonise transport? There will be opportunities for farmers to earn significant sums from doing things otherwise.

My next question is for two of the witnesses. Do we need to move to a pan-European CAP and trade model for agriculture which allows for more efficient production, something everyone has acknowledged, to be valued? That would centre production in the most productive member states. It would also involve border adjustments so that produce coming from South America or elsewhere could not come in via a system involving carbon leakage or what used to be known as dumping. That was mentioned by other speakers. What is the view of Dr. Moore and Mr. Keane on these things which will be upon us before we know it?

Chairman: I will go to Dr. Moore first.

Dr. Oliver Moore: The report released yesterday from the European Court of Auditors was very critical of the lack of CAP incentives to reduce livestock numbers and pointed out that agriculture emissions have not decreased in recent years. It referred to re-wetting peatlands and wetlands as being a good bang for our buck.

Farmers at this stage can be cognisant of a general direction of travel in that the EU and Irish targets for greenhouse gas are similar. I completely understand the concern given that there have continually been different messages. Eco-schemes will have a carbon farming dimension. That is part of what the Minister, Deputy McConalogue, will discuss in the final trilogues what

shape carbon farming will take. In my longer submission I suggested quite a few areas.

One of the problems with carbon farming is that it is slow to build and hard to measure and maintain. As Mr. Keane said, there is an issue with the Kyoto measurements versus Paris commitment measurements. Be that as it may, the practices that make sense for carbon building are the kind of practices that can come through eco-schemes and supplement farmer incomes, in particular in the Border, midlands and west regions.

Practices like reduced stocking numbers and increased intensification can be part of that. A verifiable reduction in nitrogen fertiliser use, measures to potentially introduce combusted farmyard manure, catch crops, stubble crops and so on can be paid for through eco-schemes and can help. I would voice concern about carbon trading. It could end up disadvantaging poorer regions in Europe whereby farmers may have carbon credits for the overall farm but part of their farm may be a mountainous Sitka spruce area in Leitrim and another part may be in a very lush and productive area elsewhere in the country. There are other considerations when it goes global or even pan-European. We must be careful about how we roll out carbon farming in terms of carbon trading. In the economy as it currently functions, there is potential for those who have less to be more exploited. In general terms, however, eco-schemes have the potential to increase carbon farming-type practices. This should certainly be taken up.

Mr. John Keane: I thank Deputy Bruton for the question. With regard to the movement over the next number of years in dealing with the emissions profile from agriculture, I am conscious of the earlier questions about the specific regard in the Bill for biogenic methane. Looking at the nature of that gas and how it breaks down within the atmosphere is extremely important. All of us must remain cognisant of that because of the short-lived cycle and its nature.

I am conscious of a few remarks made earlier. The overall figure for the national herd has actually decreased over the past three years. In dealing with that, there is a science element of the breakdown of methane within the atmosphere and how that works. That is recognised as being a ten, 12 or 15-year cycle and we must recognise that on one side of the equation. In terms of how this is offset in farming and how programmes are introduced on farms to deal with that, we will have the eco-schemes in the CAP first and foremost and we recognise that, depending on where the negotiations land next week, between 20% and 30% will be set aside for eco-schemes. These schemes will have a pivotal role on farm in delivering actual results in terms of sequestration, carbon sinks, carbon farming and environmentally-friendly farming on one side but they will also be very important in determining the attitudes of farmers towards how these programmes will be implemented. I know we had greening in the previous CAP but in terms of the most recent level of ambition and the targets about which we are now talking, this will be our farmers' first experience of what these will look like. If the measures introduced under these eco-schemes are not complementary and results-based and if actions are not deliverable from a farmer point of view, we are setting off on the wrong foot. They must be farmer-centred and farmer-friendly.

The Deputy asked about the wider context and whether organic farming has a role to play. Organic farming certainly has a role to play. A vast amount of research has been carried out by Teagasc on the marginal abatement curve and the use of low emission slurry spreading, protected urea and extended grazing. There is also ongoing research into mixed species foraging and the role they can play, as well as the roles grassland can play in carbon sequestration. All this science is ongoing and will bear fruit in time but agriculture will need time to provide the science to show that what we are doing and what we plan to do over the next decade can deliver.

I am also conscious of the ongoing Teagasc research on towers and soil sequestration, which is planning to deliver results over the next five, six or seven years. This is under certain management practices in terms of soil and how we manage soil. This is also a significant element.

Going back to the Kyoto Protocol and the Paris Agreement and the rewetting of peatlands and so forth, the issue there relates to productive farmland. Addressing that in a catch-all will not achieve economics or the desired objective because we need farmers on board to drive that. In terms of the reward for farmers for carbon farming, that is something we as young farmers would love to see and would engage with but we will need that for whatever economic return there will be from those supports for carbon farming and carbon sequestration. By the same token, if there are economic output or productive losses because of that, they must also be covered and measured. It is very difficult to expect someone to take on certain measures. It is like asking a shopkeeper to set aside a certain part of the shop and not stock goods in it. We need supports that can be equated to what is happening in farms.

The important element to remember is the wider implications for rural communities and economies and the important role farmers play in terms of investment. The re-investment of funds from farmers and the farming industry in rural economies is important. All these measures must continue to encourage farming and young farmers but they must also continue to encourage and grow the fabric of rural economies because rural Ireland needs those supports. Every single aspect of the fabric of rural Ireland, be it the local GAA club or Tidy Towns committee, will need farmers in those areas to ensure people remain living in these communities. All of that must be the approach we move forward with.

Deputy Christopher O’Sullivan: My question is for Mr. Keane. The Chairman said we need to look at solutions. I have asked a few witnesses who have appeared before us about a process, the name of which I have forgotten, that involves generating energy from waste material.

Chairman: The Deputy is referring to anaerobic digestion.

Deputy Christopher O’Sullivan: Yes. I recently visited an anaerobic digester in my locality and was blown away by the set-up and the fact that waste was being brought from the local piggery, chicken factory and farms. It was almost a co-operative-type operation where farmers from the hinterland would bring their waste to this facility. They guessed that it generated enough power to power a small town - about 1,000 homes. The waste that is left over after the energy is produced from the anaerobic digester is viable slurry to be spread on land with a far lower environmental impact than regular slurry. It really opened my eyes to something that could be done. I know other EU nations have rolled out anaerobic digesters to a far greater scale whereas Ireland is nowhere near where it should be. Does Mr. Keane have any suggestions on the role of anaerobic digestion in decarbonising farming in Ireland?

Chairman: Mr. Keane has about 60 seconds to cover a very important and significant area.

Mr. John Keane: I will keep it as brief as I can. Anaerobic digestion definitely has a role to play in a wider range of areas referred to by the Deputy, such as mitigating emissions and providing an opportunity for farmers to supply produce to anaerobic digesters and get a return from it. The barrier to increased engagement in it is the funding for setting up and providing input into the digester and an economic return for the output. The Deputy referred to the level across the EU. We are well below that level so if we are to increase it, we will need increased support for setting it up and a better price reward for what is produced.

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Chairman: That was nice and succinct. Our two hours have elapsed. I thank Mr. Keane, Mr. Fitzgerald and Dr. Moore for joining us today. It was a very enlightening session for me and, I expect, most members of the committee. It will certainly help us in our deliberations on the report which is to come next month.

The joint committee adjourned at 2.30 p.m. until 12.30 p.m. on Tuesday, 29 June 2021.