

# DÁIL ÉIREANN

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## AN COMHCHOISTE UM THALMHAÍOCHT, BIA AGUS MUIR

## JOINT COMMITTEE ON AGRICULTURE, FOOD AND THE MARINE

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*Dé Máirt, 17 Nollaig 2019*

*Tuesday, 17 December 2019*

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The Joint Committee met at 3.30 p.m.

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Comhaltaí a bhí i láthair / Members present:

Teachtaí Dála / Deputies

Seanadóirí / Senators

Jackie Cahill,	Rose Conway-Walsh,
Marcella Corcoran Kennedy,	Paul Daly,
Charlie McConalogue,	Tim Lombard,
Thomas Pringle,	Michelle Mulherin.
Brian Stanley.	

I láthair / In attendance: Deputy Michael Fitzmaurice.

Teachta / Deputy Pat Deering sa Chathaoir / in the Chair.

## **Business of Joint Committee**

**Chairman:** I remind members to ensure their mobile telephones are switched off. I propose to go into private session to deal with some housekeeping matters before returning to public session. Is that agreed? Agreed.

*The joint committee went into private session at 3.45 p.m. and resumed in public session at 4.07 p.m.*

## **Scrutiny of EU Legislative Proposals**

**Chairman:** No. 7 is scrutiny of EU legislative proposals under Schedule B. It is COM (2019) 619, a proposal for a regulation of the European Parliament and of the Council establishing a multi-annual management plan for bluefin tuna in the eastern Atlantic and the Mediterranean, amending Regulations (EC) No. 1936/2001, (EU) 2017/2107, and (EU) 2019/833 and repealing Regulation (EU) 2016/1627. It is proposed that this proposal warrants no further scrutiny. Is that agreed? Agreed.

*Sitting suspended at 4.08 p.m. and resumed in public session at 4.09 p.m.*

## **Irish Greyhound Industry: Irish Coursing Club**

**Chairman:** I remind members, witnesses and those in the Public Gallery to ensure sure that their mobile phones are switched off completely. This is the first session of today's two session programme. We will hear an update from the Irish Coursing Club about its plans to improve health and welfare for greyhounds. I welcome Mr. Histon from the Irish Coursing Club and thank him for coming before the committee to provide an update on the issue we discussed previously.

Witnesses are protected by absolute privilege in respect of their evidence to the committee. However, if they are directed by the committee to cease giving evidence on a particular matter and they continue to so do, they are entitled thereafter only to a qualified privilege in respect of their evidence. They are directed that only evidence connected with the subject matter of these proceedings is to be given and they are asked to respect the parliamentary practice to the effect that, where possible, they should not criticise or make charges against any person, persons or entity by name or in such a way as to make him, her or it identifiable. Members 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 House or an official either by name or in such a way as to make him or her identifiable.

**Mr. D.J. Histon:** I thank the Chairman and committee for inviting me here today on behalf of the Irish Coursing Club as a follow-up to a presentation delivered on 9 July on issues concerning the greyhound industry in Ireland. I propose to deal with traceability, prohibited substances testing, and illegal hunting as part of the follow-up as requested.

On the traceability model, the committee is aware that the Irish Greyhound Board, IGB, has commenced a tender process to secure a full IT-supported traceability system with a closing

date of 18 December. The Irish Coursing Club, ICC, met the IGB since our attendance before the committee last July and attended the Department of Agriculture, Food and the Marine's traceability facility in Clonakilty to receive a comprehensive review of that system. There are differences between the objectives and requirements of both the cattle and greyhound systems, but there are lessons that can be applied from the former. The cattle tracking system was developed with disease prevention and management as the main driver with limited movement of animals during its life cycle. The greyhound system is concerned with full knowledge as to location and status of any individual greyhound in an environment where there is significant movement during its life cycle.

The specification of the traceability model is all-encompassing and robust in tracking every life event of a greyhound and will require significant input from participants and management from regulators. The ICC is committed to supporting the IGB traceability model and has significant capability to offer to ensure the industry as a whole provides an appropriate solution to the knowledge gap that prevails, which must be remedied. As the committee is aware, the ICC operates the Irish greyhound stud book on an all-Ireland basis and has developed strong information links with the Greyhound Board of Great Britain, which will assist in supporting the traceability model.

The ICC stud book records pedigrees, matings and transfer of ownership and has never purported to be a traceability system. The ICC has significant information available to it as it records all matings, births, namings, transfers of ownership and issues identity cards for all thoroughbred greyhounds on the island of Ireland. Currently, all litters are inspected, tattooed and microchipped via ICC control stewards who also act as authorised welfare officers under the Welfare of Greyhounds Act 2011. The ICC issues greyhound breeding establishment licences as per the Welfare of Greyhounds Act 2011. The information required for a functioning traceability system is paramount, and as the tender process concludes, the ICC will provide support and expertise to ensure the systems are effective in delivering the desired outcomes. The ICC considers the inclusion of Northern Ireland as necessary for traceability, given movement of greyhounds between the Republic of Ireland and Northern Ireland, and this comes under our remit.

The ICC has enhanced its prohibited substance testing regime over recent years following a complete review of all processes, sanctions and scope. The cases are pleaded before an independent hearing committee and adjudicated upon by an administrative body that is subject to judicial review. While not a court of law it is required to act lawfully. Its members include a solicitor, veterinary surgeon and one other and all decisions are subject to appeal. The sanctions available to the independent hearing committee include financial penalties with a maximum permissible fine of €13,000 and exclusion orders. In the 2018 to 2019 season, a total of 149 tests took place and 98% reported negative. Of the three cases that proved positive, the greyhounds were suspended in each case for a period of six months during a coursing season and fines of €4,000 were levied on responsible persons, with one outstanding case due to be heard in January 2020. The purpose of testing and the associated penalties is to protect the welfare of the greyhound, to protect the integrity of coursing, to maintain public confidence in coursing, to maintain proper standards for all coursing participants, and to bring about a positive behavioural change. A sanction may be accompanied by an advisory notice to point out what changes in behaviour or attitude are required. The ICC operates a code of practice for the hare and the greyhound, and this is supported by the code of practice that operates under the Welfare of Greyhounds Act 2011. As with any code, it is the heightened standard the industry expects of participants while observing the legal statutory provisions as per the Welfare of Greyhounds

Act 2011, the Animal Health and Welfare Act 2013 and the rules of the ICC.

On illegal hunting, at the previous committee meeting of 9 July, there was Whiddy Island footage portrayed as illegal on the “Prime Time” programme and coloured with footage from some third-party event. This matter is the subject of legal correspondence and therefore I do not propose to comment on it today. Illegal hunting is ongoing throughout the country and is very easily identifiable from a layman’s perspective. The perpetrators typically travel in gangs with unmuzzled dogs. They enter lands uninsured without landowner permission, with the intent of killing the hare or multiple hares at any time of the year. They use this opportunity to conduct criminal acts such as theft, trespass and assault. The Garda, National Parks and Wildlife Service, and interested parties such as the IFA and the ICC are working diligently on this issue. Coursing clubs provide support with intelligence and monitoring of hare habitat. There have been a number of convictions recently by the authorities.

On rehoming, the ICC provides administrative support to the Irish Retired Greyhound Trust, IRGT, and other homing agencies by way of transfer of ownerships and microchip cert reissuance free of charge. We deal with numerous queries relating to rehoming and ensure all matters are dealt with in a professional manner. The Irish Retired Greyhound Trust has homed coursing greyhounds and the ICC met the committee of the IRGT recently to discuss how the ICC can contribute on a more formal basis by identifying new homing opportunities and providing financial support. It is unrealistic and inefficient to establish a separate trust and structure to home coursing greyhounds versus track greyhounds solely given the high level of crossover of people who partake in both codes. A new feature will be to note when a greyhound is homed on the registration system, so it will be evident when a greyhound is homed. The ICC has established a sub-committee to progress welfare and proposes funding measures to include prize money deductions, fundraising events, sponsorship and legacies to assist the IRGT in its work. All the foregoing is to be further agreed with the IRGT. Given the staggered start and restricted meetings this season due to rabbit haemorrhagic disease, RHD2, virus surveillance and monitoring, it was not possible to introduce the prize money deduction initiative this season, but a fundraiser will take place at the national meeting in 2020 to support homing initiatives, and such events will become an annual feature.

The ICC recognises the importance of a working traceability system with all responsible parties playing their part to ensure the industry can withstand scrutiny from any quarter regardless of agenda. The IGB has released the Indecon report, which has had significant implications for the overall industry, in particular the proposed closure of four tracks. These changes will contract both the number of participants and breeders overall in the industry, and the long-term implications of this strategy require comprehensive analysis by both codes and stakeholders when settling the detail of an overall industry welfare strategy. The ICC will always do what is required to ensure the future of the industry, although we do not have a statutory role *per se* or receive State funding.

**Deputy Jackie Cahill:** I thank Mr. Histon for his progress report. There is a line about maintaining public confidence in coursing. That is the job that the ICC has to do. I see that 98% of the tests were negative but 2% were positive. There is a substantial fine, considering that the prize money for coursing is at a low level. I suggest that when people who definitely transgress and then have a second transgression for doping, the trainer or owner of the dog in question should also be suspended. There is no mention of that happening in Mr. Histon’s report. At the end of the day, the person responsible for the dog has doped it. There can be no tolerance of that in the industry going forward. I fully respect that the ICC is very serious about doping and

ensuring that no doping is happening in the industry. If doping is found to have happened, both the dog and the person responsible for it should receive a suspension.

On revenue for the rehoming of dogs, the IGB was here a couple of weeks ago. It was taking a percentage of gate receipts, of the tote takings and from the restaurant. I fully accept that coursing is a completely different industry, held in the open. There are definitely no restaurants in coursing fields. Mr. Histon said that because of the delay in the start this year, there is no deduction from the prize money. I see the ICC is proposing a collection at the national coursing meeting. I respectfully suggest that the national coursing meeting is extremely well attended and there are extremely large crowds, so it would definitely be worthwhile putting a surcharge on the admission. When coursing was under threat this year due to the virus that was present in the rabbit population, the worth of the meeting to the town of Clonmel was well quoted. It is worth €12 million to €15 million to Clonmel. I propose placing a surcharge on admissions to the national coursing meeting so that a reasonable amount of money could be contributed by the ICC to the IGB's efforts for the rehoming of dogs. I accept that there is duplication and while duplication of rehoming of dogs is definitely not the way to go, looking after dogs after their racing lives is expensive. The ICC has to show that it is contributing as much as it can to ensure that we can show the public at large that greyhounds are being looked after throughout their lives when they are finished racing.

Illegal hunting is a serious problem in my part of the country. While I know there are some prosecutions under way, it is not nearly enough. The hare population is being threatened by it. We see pictures of ten and 12 hares being held up after being killed on a single day with these lurchers hunting across the countryside. It is a problem given the closure of Garda stations, although we are not going start arguing about that here. The fact is that it happens in rural areas and the nearest squad car can be a long way away when people report that there is a gang in their locality. Even aside from the number of hares that are being killed, people feel very vulnerable with these gangs roaming the countryside. There definitely has to be a lot more focus on it. Garda resources are an issue and there are even problems in that the gardaí cannot seize the dogs. They have to have a dog warden with them to seize the dogs if they catch them, so it needs to be co-ordinated. We have looked for the Department to come in to us on animal welfare. This issue has to be stamped out. Everyone likes to have the hare in its natural environment in the countryside but if a gang comes in with eight or ten lurchers, the hares have no chance. That illegal hunting is intolerable. We have to put more resources into ensuring that it is stamped out completely.

I welcome the progress report and fully accept that the ICC recognises that we have to restore public confidence in the sport. Getting financial resources behind welfare is key. There is a captive crowd in Clonmel and I would respectfully suggest that use should be made of it to ensure that there is a reasonable fund to achieve our objectives as regards welfare.

**Deputy Brian Stanley:** On traceability, in the presentation it was stated that the ICC considered inclusion of the North of Ireland as necessary given the movement of greyhounds between this State and the Six Counties and that this comes under its remit. Could Mr. Histon explain what way that works at the moment, what is in place and what the ICC intends doing? I can see the logic in it and that a traceability regime would not work if it simply stopped at a stream, bridge or ditch.

If I could comment on the seizure of the 12 greyhounds at Dublin Port, they were all registered with the Irish Greyhound Stud and apparently some of them had been racing. Obviously that is of great concern. While there may be issues in terms of the programme that was shown

on RTÉ some months ago, nobody would dispute that there are serious animal welfare issues in the industry. Coursing is fairly strong in my part of the country, and I hope that the coursing clubs would be vigilant and play their part in turning things around for the welfare of dogs and animals.

**Deputy Thomas Pringle:** We had the IGB here a couple of weeks ago. Figures were provided at that meeting on the number of dogs that died at IGB events. Does Mr. Histon have figures on the number of dogs dying at coursing events? Does that happen? I note there is some correspondence between the ICC and the Department on hares that died through the coursing events. Are there any figures on deaths of dogs?

**Senator Paul Daly:** Going back to traceability, which I know is in its infancy and has not even come into being yet, given that the IGB will be running the model but the ICC runs the stud book, can we have more detail on how the two organisations will go about correlating the stud book and the new system of traceability?

**Mr. D.J. Histon:** The first issue Deputy Cahill raised was testing. He indicated he would like to see greater sanctions against the owner, trainer or responsible person. As I intimated in my submission, it is an independent committee that delivers the sanctions. A wide array of sanctions is available to the committee, including exclusion orders against the individuals in question. Where we differ from other jurisdictions is that we suspend the greyhound immediately once the dog has tested positive. Pending a hearing, we suspend the dog immediately with a maximum period of six months in a coursing season. We have recently changed the rule for this season that in the event of a greyhound being found in breach of rule 88, it is not entitled to run in any further classic event. This limits the dog's competing ability so it is a fairly serious sanction. For a repeat offender, the fines are automatically ramped up and exclusion orders are available for the committee to invoke. We are independent of that so we do not issue the sanctions. We will certainly take on board the Deputy's point. I agree that we do not want people in the industry who are going to breach the rules and bring the sport into disrepute.

In terms of revenue and support to the retired greyhound trust, IRGT, as I said we currently provide a significant amount of administrative work which is quite time consuming. It is all very necessary and we are very happy to do it. As the Deputy said, we do not have the luxury of restaurants or other such facilities, unfortunately. From the prize money end, on a rough count it would come to about €900,000 in the round each year for all coursing meetings and all events at every coursing meeting. We would be looking at a 5% contribution from that. The Deputy is correct that the national meeting is certainly a good vehicle for fundraising given the large numbers who attend. We will certainly take on board his suggestion about a levy on the admission charge or some other way that would make a meaningful contribution to the IRGT, which does great work. I was involved with many of the welfare bodies in my previous role and have a good relationship with them. There is no point in us all trying to fight for the same space. We should work together to increase the number of homes available for all greyhounds, be they coursing or track dogs.

Illegal hunting will always be an issue. It is very difficult to police because it can happen any time of the day or night anywhere in the country. As we know, the resources of the Garda and National Parks and Wildlife Service are limited. We held a joint meeting with the Irish Farmers Association, the Department of Agriculture, Food and the Marine, the ISPCA, the PSNI and the NPWS. It was a very good meeting because we all set out our stalls with regard to how illegal hunting impacts on the various bodies and the best way to combat it. The PSNI gave an outline of Operation Lepus, which was how the authorities in the North tried to tackle

illegal hunting. Good information was shared. The superintendent in Swords gave a good outline of how the Garda in the area has tackled the issue. The superintendent in Kildare is also very focused on this issue and has brought a number of prosecutions. The NPWS has established a memorandum of understanding with the ISPCA, as the Deputy mentioned. Seizing the dogs is a difficulty. The problem is that dogs that are seized must be held and the court case can take a long time. To all intents and purposes, the dogs would probably be given back to the owners after the court case but there is an expense involved in keeping and maintaining the dogs during that time. There is no easy solution to the problem.

Deputy Stanley asked how we include Northern Ireland. The stud book we operate includes Northern Ireland, so it includes all thoroughbred greyhounds on the island. We also regulate the greyhound tracks. There are two greyhound tracks in the North that sit outside the IGB remit. As a semi-State body, the IGB's reach does not go beyond the Border, as the Deputy said. From that perspective, all the greyhounds are in the same system. They are in the stud book and in the race management system operated by the IGB. If a dog races in Northern Ireland, it is automatically on the IGB system. At all times, therefore, information is available on dogs' performances. Typically, a greyhound that races in Drumbo Park near Belfast would also race in Dundalk or Shelbourne Park and a dog that races in Derry would race in Lifford or another track in the west on this side of the Border. That crossover occurs naturally in any case.

**Deputy Brian Stanley:** I understand the reasons for the new regulations for the courses is that, for obvious reasons, the IGB cannot operate north of the Border.

**Mr. D.J. Histon:** That is correct.

**Deputy Brian Stanley:** Mr. Histon stated that the Irish Coursing Club issues greyhound breeding establishment licences as per the Welfare of Greyhounds Act 2011 and referred to a functioning traceability system. Will he elaborate on how that operates?

**Mr. D.J. Histon:** Greyhound breeding establishments are covered by the Welfare of Greyhounds Act 2011. If a person holds four or more brood bitches, he or she must hold a greyhound breeding establishment licence. We issue that licence.

I was also asked about the seizure of 12 greyhounds over the weekend by Revenue's customs officials. The controls in place worked because the shipment or transport did not take place and was caught where it should be caught, namely, at the port. The case is being investigated by the IGB and, I am sure, the Department. A number of issues arise related to the transport authorisation that is required under the EU transport regulations and the requirement to have Balai certificates and pet passports. There may also be issues under the Animal Health and Welfare Act and the Welfare of Greyhounds Act. There are a number of Acts in play that may or may not impact on this particular transport.

**Deputy Brian Stanley:** There is a concern that large numbers of greyhounds are being bred that are surplus to requirements. Some of the 12 greyhounds in the recent case had been used in racing. If the industry is well regulated, it is a matter of concern that some of the people involved in the sector, be it in coursing or track racing, which falls under the remit of the Irish Greyhound Board, decided to move these dogs outside the country or on to a third party to have them moved out of the country. What can the ICC do to curtail or stop this practice?

**Mr. D.J. Histon:** The export of greyhounds is very much part of the greyhound industry. A significant number of greyhounds - in excess of 80% - are exported to the UK. The sale and

transport of greyhounds is nothing new.

**Deputy Brian Stanley:** That is accepted.

**Mr. D.J. Histon:** Ireland has always been a breeding nation. We do not know the full detail of this case involving 12 greyhounds. We do not know what the owner's intentions were so I cannot comment on the case.

With regard to what the ICC and the industry can do about the issue, we could look to Australia for example. Greyhounds Australasia covers all greyhound territories in Australia and New Zealand. The organisation set up an export passport programme, which does not have statutory effect in that it is not federal law in Australia. It obligates an owner to complete a greyhound export form that outlines where the dog is to be sent, where it will reside and the purpose of the sale. Greyhounds Australasia did a review of every country to which Australian greyhounds were being exported and examined the welfare in each of those countries using certain criteria. These countries were then ranked and greyhound passports were no longer issued for export to countries that did not meet the export criteria. The owner, however, could still send the dog to these countries under federal law. The same applies here in respect of EU law and world trade law. This process added another layer of bureaucracy and put greater focus on exporting dogs to countries that may not necessarily have the appropriate welfare standards. The World Greyhound Racing Federation operated until some years ago and all the regulated greyhound racing jurisdictions were members. The organisation has waned in the past seven or eight years. There should be an appetite to reinvent it, harmonise welfare in all the member countries and agree what is and is not good practice in exporting to countries that may not necessarily have proper regulatory regimes or welfare regulations. That matter was discussed recently at a meeting in London with the Greyhound Board of Great Britain. I believe it also takes the view that it would be good to re-establish that organisation to get all those learnings into one place. We do not have to reinvent the wheel. If Australia has done something, for example, let us try to utilise its experience and apply it in each jurisdiction for the betterment of the industry in each area.

Deputy Pringle asked a question about the number of deaths. We have a clear record on the number of deaths of hares. We have very few fatalities. I do not have a number for the Deputy but it is extremely low because in coursing there are only two dogs at each course or event. In track racing, however, eight dogs will race in Australia and six dogs will race in Ireland. There are also different scenarios involved, with running on bends and so on whereas in coursing it is just a straight run up the field. The chances of injury are minimised for that reason alone.

**Deputy Thomas Pringle:** The number is low.

**Mr. D.J. Histon:** It would be very few.

**Chairman:** Senator Paul Daly asked a question on traceability.

**Mr. D.J. Histon:** He asked how the ICC will marry in with the traceability system. Currently, we provide daily all details on ownership and breeding to the IGB so we feed information to it. We met the IGB recently. It will introduce a microchipping and testing IT solution for all its tracks, as it indicated previously to the committee. We are working with it to provide the information it needs to run that. This system will involve displaying the identity card of the greyhound on a screen. The microchip will then be scanned and the dog will be shown on the screen. I do not want to speak on behalf of the IGB but that is the gist of what the system will

deliver. We are more than willing to play our part. As I have said all along, we are part of the industry and we want to play our part. We will do anything we can do for the betterment of the industry and the decent owners out there who are willing to do it. We will not be found wanting in that regard.

**Deputy Thomas Pringle:** Reference was made to the fact that illegal hunting activities are ongoing throughout the country and that it is very easily identifiable from a layman's perspective. As a layman, I do not know anything about coursing. How is it easily identifiable? If it is a coursing club event, then people from the ICC are present, but if I came across illegal hunting taking place, I would not want to confront them. How do I find out if the event is legal or not?

**Mr. D.J. Histon:** Probably the simplest way to describe it is that the dogs of those engaged in illegal hunting do not wear muzzles and, typically, they are not greyhounds. They enter the lands without permission, they do have any insurance and they could allow anywhere between two and five dogs to go after one animal, or they may very well let two hounds off the leash and then after a period release two further dogs to pursue the same hare. The end result is the death of the hare. From that point of view, the muzzle alone is the first thing one would look for. I have never seen an illegal hunting event taking place where the dogs wore muzzles.

**Deputy Thomas Pringle:** Is there a website that has the legal events listed?

**Mr. D.J. Histon:** The ICC is the official website for legal events. I guess that anything that is not legal would not appear on a website anywhere.

**Deputy Thomas Pringle:** Are all legal events advertised on the website?

**Mr. D.J. Histon:** Yes, all affiliate and park meetings are.

**Deputy Charlie McConalogue:** Mr. Histon outlined the measures in place in Australia concerning the export of greyhounds. He also made a comment on international trade and the laws in that regard. There has been a proposed Bill on the export of Irish greyhounds, which includes the establishment of a white list of countries to which it is in order to export greyhounds on the basis that they meet certain welfare standards. Given Mr. Histon's knowledge of the international legal backdrop, what is his assessment on how that measure would stand up and if it would be possible to introduce it here?

**Mr. D.J. Histon:** A white list will not stack up in terms of EU regulation or world trade. That is where the issue arises. At the same time, I still see merit in going down that road in terms of at least educating the greyhound public that certain countries are on a white list, even though the measure might not necessarily have the full legal effect one might like it to have. I hark back to Australia in that regard as well. Even though it does not have the backing of federal law, they still go to the bother of making an owner get a greyhound passport and giving all the details. It is a case of putting it to the forefront. Equally, what is important as well is that there is an opportunity to try to bring the countries identified as not being on the white list into alignment with proper welfare standards. Australia has done that as well. It has engaged with the countries that have fallen short in respect of correct welfare standards to try to bring them up to the right level. It is up to the countries concerned to engage on the issue, but there is an opportunity to raise all boats, so to speak, in regard to exports. Rather than saying we do not want to know anything about the country, let us see if we can help in any way and come from a positive point of view rather than a negative one.

**Chairman:** As there are no further questions, we will complete this section of the meeting.

I thank Mr. Histon very much for coming before the committee today and for his co-operation during the year. We had a number of meetings during the year on a very difficult subject and he was available at short notice on a number of occasions. That was very much appreciated. We will suspend the meeting until the next group of witnesses come in for the next part of the meeting. I wish Mr. Histon all the best for Christmas and the New Year.

**Mr. D.J. Histon:** I thank the Chairman.

*Sitting suspended at 4.44 p.m. and resumed at 4.48 p.m.*

### **Teagasc Annual Report 2018: Discussion**

**Chairman:** In session two we will discuss the Teagasc annual report for 2018. I welcome Professor Gerry Boyle, director, Dr. Frank O'Mara, director of research and Dr. Tom Kelly, director of knowledge transfer, advisory and education, from the agency. I thank them for coming before the committee to discuss Teagasc's annual report for 2018 and its plans for the future.

Before we begin, I draw the witnesses' attention to the fact that by virtue of section 17(2) (l) of the Defamation Act 2009, they are protected by absolute privilege in respect of their evidence to the committee. However, if they are directed by the Chair to cease giving evidence on a particular matter and they continue to do so, they are entitled thereafter only to a qualified privilege in respect of their evidence. They are directed that only evidence connected with the subject matter of these proceedings is to be given and they are asked to respect the parliamentary practice to the effect that, where possible, they should not criticise or make charges against any person, persons or entity by name or in such a way as to make him, her or it identifiable.

I remind members 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 invite Professor Boyle to make his opening statement.

**Professor Gerry Boyle:** I thank the Chairman and the committee for the opportunity for my colleagues, Dr. O'Mara and Dr. Kelly, and I to address the committee this afternoon. The committee asked us to focus on our 2018 annual report and on our current and future plans. I do not propose to read the statement in its entirety; I will just focus on some of the key points.

Last year, Teagasc's total expenditure was €185 million and this year, we anticipate an out-turn of €186 million. Approximately 70% of the total was funded through grant-in-aid, and that is 60% when expenditure on pensions is excluded. Teagasc is unique among non-commercial State-sponsored bodies in having sizeable expenditure funded through non-grant-in-aid sources, including advisory and education fees, farm receipts, services to industry, industry levies, and receipts from its successful participation in competitive research programmes. Currently, Teagasc employs approximately 1,262 permanent and contract staff. We have approximately 248 researchers, but not included in that total are 253 Walsh fellows, mainly at PhD level, and approximately 40 masters' students being trained on agricultural extension programmes, in collaboration with University College Dublin, UCD. Under our advisory programme, we have approximately 300 front-line advisers across all farming enterprises at our 51 advisory offices. Some 140 of these are in dry stock, mainly beef; 89 are in dairying; and 16 are in tillage. We have 76 subject matter specialists and these are a critical group of staff in that they provide a

bridge between research knowledge and its on-farm adoption through our front-line advisory services. Despite a significant reduction in the number of advisers over the past decade, we have maintained a client base of approximately 43,000. In addition, of course, we provide a service to all farmers.

The Teagasc education system is delivered through Teagasc's four colleges and three affiliated privately-owned colleges. We also partner with many institutes of technology, UCD and, more recently, University College Cork, UCC, to deliver higher level programmes. We have approximately 1,700 students enrolled in our colleges at present. College enrolments have slowed in recent years as the economic recovery has taken hold, but this trend has been substantially offset by enrolments in our part-time programmes delivered across our 12 advisory regions. Approximately 100,000 students are enrolled in these part-time programmes. That is about twice the level that prevailed prior to the establishment of the various incentivisation measures in the rural development programme, RDP, of the current CAP. In addition, Teagasc delivered a wide range of short courses to almost 6,500 people in rural areas.

In recent years, the agency has also set up an education and training programme known as ConnectEd. It is dedicated to the needs of rural professionals, such as private agricultural consultants, agribusiness, banks and other financial institutions. This service is the main vehicle through which we deliver, among other aspects of training, Teagasc's nutrient management planning programme.

I will briefly refer to some highlights in our reports, first from 2018 and then from this year. Last year was the year of the severe fodder crisis. Teagasc's advisers up and down the country played a major role in supporting farmers through that crisis, including clients and non-clients. We held a very successful open day in Grange in 2018 and this year there was a dairy open day in Cork. They are held in alternate years. There was also a crops open day at Oak Park. All of those events attracted substantial attendance.

In 2018, we published a major report, entitled Education Vision, on the future and long-term vision of agricultural education. One of the main outcomes was implemented this year, whereby all students entering agricultural colleges now must spend a minimum of two years in college before they can qualify at level 6. This year also saw the first students enrolled into the new Teagasc-UCC bachelor of agricultural science. This is a third-level programme that will be delivered at UCC and at Teagasc's Moorepark and Clonakilty campuses. Last year and this year, with the support of the National University of Ireland, Galway, NUIG, we organised a series of smart consent workshops.

On the research front, Teagasc led a successful consortium through Science Foundation Ireland, SFI. This endeavour was also supported by significant funding from the Department of Agriculture, Food and the Marine. This centre is known as the VistaMilk SFI Research Centre and it will engage in groundbreaking research on the application of precision-based systems across the dairy value chain, with an emphasis on pasture-based agriculture. This investment is worth approximately €40 million over six years, comprised of public and private funding, and approximately 40 companies are participating in the project.

As far as Horizon 2020 funds are concerned, Teagasc was successful in 2018 and 2019. We were ranked as the fifth most successful applicant for that funding in 2018 and third in 2019. The greenhouse gases abatement report was also published in 2018, popularly known as the Teagasc marginal abatement cost curve, MACC. This formed the basis of the Government's agricultural measures in its climate action plan published in June 2019. The agricultural sup-

port and advisory programme, ASAP, was also initiated in 2018 to address water quality on the nation's farms. It is a joint initiative of the Departments of Agriculture, Food and the Marine, Housing, Planning and Local Government, Teagasc and the dairy co-operatives. Teagasc has 20 advisers dedicated to the programme, with the co-operatives providing an additional ten. This service is provided free of charge to farmers.

Substantial investment is being put in place to enable Ireland to be Brexit-ready. The challenge associated with Brexit is to encourage food companies to diversify their exports and this will require significant innovation. With private and public support, Teagasc is investing €30 million in three major initiatives. These include the extension of its Moorepark Technology Limited pilot plant, at a cost of €10 million, the establishment of a prepared consumer food centre at Teagasc Ashtown, Castleknock, also at a cost of €10 million, and the investment of some €9 million, provided by the Department of Agriculture, Food and the Marine, in the development of what we call a food innovation hub at Teagasc Moorepark. Construction on that facility recently commenced.

Finally, looking forward to 2020, in the first quarter, Teagasc will launch its statement of strategy that will cover the period 2020-2022. We will also publish our regular sectoral roadmaps and these will provide an important input into the Government's successor to Food Wise 2025. A key objective for us next year will be to implement the Teagasc recommendations as published in the Government's climate action plan for the mitigation of greenhouse gases and ammonia. This will involve an intensive advisory campaign. We also intend that all Teagasc research and college farms will adhere to the highest standards of sustainability and we will launch a plan to secure sustainable profitability across the beef sector. There will be continued focus on good calf management on dairy farms to ensure the good health and welfare of calves and also a focus on working closely with dairy farmers to improve the beef quality of calves through the use of the dairy-beef index and sex semen.

A major open day on beef will be held in Grange next year and there will also be a sheep open day at Athenry. We intend to progress research on antimicrobial and anthelmintic resistance. Teagasc also plans next year to consolidate and enhance our research programme on the sustainable circular bio-economy, especially in the area of food. As I mentioned earlier, we plan to complete the construction of the food innovation hub at Teagasc Moorepark. We also intend to continue our support for Irish Aid's development efforts in Eritrea, Ethiopia, Kenya, Tanzania and Vietnam. I left out one measure and my apologies for that. I refer to our plan, now well advanced, to establish a CPD-accredited programme for all our Teagasc short courses.

**Chairman:** I thank Professor Boyle. We will now take questions from members, starting with Deputies Cahill, McConalogue and Stanley, in that order.

**Deputy Jackie Cahill:** I thank Professor Boyle and his delegation for that update report. Primary producers and farmers have never felt as much under siege as they now. Talking to them, it is evident that they feel the whole world is against them, whether with the economic challenges they are facing in their enterprises or with all the commentators blaming them for climate change. Morale in agricultural communities is extremely low at present and Teagasc has an important role to play in counteracting that. Teagasc can undertake research on climate change to show we are sustainable producers of food but it is essential that it is economically viable for producers.

On the last occasion Professor Boyle made a presentation to us he talked about salary levels for researchers and difficulties with retaining researchers. Is retention still an issue? It is a seri-

ous problem if one cannot retain people after having trained them to a high level. I would like to hear his view on that.

I have raised the issue of the dairy breeding policy and its impact on the beef industry with the professor before. As much as 60% of the product from the beef industry originates from dairy production. In the past many of the research farms had cross-bred herds. What is the composition of the herds on the research farms of Teagasc? What is the composition of the herds on the farms of the agricultural colleges?

Calf welfare and their value is a huge issue. Public confidence in the way we produce our food, etc., is paramount for us winning the battle as regards sustainable food producers. The Irish Cattle Breeding Federation, ICBF, is in the process of re-evaluating the economic breeding index, EBI, and how that is calculated. There people, including those in Teagasc, who hold a different view of the re-evaluation. I strongly believe that not enough emphasis was placed on the beef value of the dairy EBI in the past. Let us take, for example, the culled cow value and a 20% replacement rate. If a Friesian cow is worth €500 more than a cross-bred cow then that equates to €100 per annum for EBI. Similarly, for a calf, if there is €50 or €100 of a difference with half female and half male then that equates to a significant financial input into the EBI. It is imperative that we get the breeding policy correct. We can have a cow that can produce a reasonable amount of solids with a reasonable volume of milk, and also produce a calf that is of value to the beef industry. Our research must focus on that going forward. We cannot go down the New Zealand route. A bobby calf is unacceptable to the modern consumer, which is an issue that must be faced up to by the dairy industry. If we got the EBI correct it would be very significant in this regard.

I noticed that there are six advisers for the pig industry. The industry is extremely intensive and challenging but six advisers is a high ratio for the number of pig producers versus 89 advisers for dairy farming and 140 advisers for drystock farming. I appreciate that a high demand is placed on the six advisers and they must respond to very challenging issues. However, the ratio is fewer than 1:50, which seems very high.

Last January, when we visited Moorepark I mentioned the impact of cross-breeding. There is now a greater focus on the issue. I know dairy farmers who have cross-bred herds and they say that cross-breeding is very beneficial. However, the dairy industry cannot generate a waste product and we must be conscious of public perception. I look forward to the ICBF re-evaluating the EBI and I would like to hear the views and comments of Professor Boyle on the issue.

**Deputy Charlie McConalogue:** I will follow on from the last point made by Deputy Cahill. It is important to ensure the expansion of the dairy sector is done in a way that does not damage the beef sector overall. We must also ensure bull calves from the dairy sector are valuable to the beef chain. Comments have emanated from Teagasc over the last number of months on the amount of policy thought that was given to the expansion of the dairy herd and how expansion would impact on the beef sector. Teagasc indicated that not enough thought was given to the impact of such expansion on the beef sector. I would like to hear the views of Professor Boyle on the matter. What steps must be taken by Teagasc to ensure that the dairy sector positively contributes to the beef sector? How can we ensure that the beef sector remains profitable and a sustainable industry for the people who are purely beef farmers?

A point was made about sexed semen. The science offers potential but progress has been slow in recent years. How does Professor Boyle view that science? What role does it play? How quickly can it play a positive role on the male progeny to come off the dairy herd or the

beef progeny to come off the dairy herd?

Teagasc has produced a roadmap on climate change. I ask Professor Boyle to update us on progress. Is enough being done to tackle climate change? How quickly can actions be implemented? Tackling climate change is a big challenge. The roadmap and the marginal abatement cost curve, MACC, produced by Teagasc are very much agreed as being a way forward. However, a massive amount of work must be done to achieve the targets and it is important that the agricultural sector, as a whole, plays its role in that regard.

Teagasc plays an important role in education. The part-time Green Cert course has been subject to delays in the past. What is it like at the moment? Is there a sufficient number of places for the two-year programme?

Finally, the beef sector has been under massive economic and financial pressures in recent years. The beef sector is the largest part of the farming sector. How do we ensure that the beef sector is financially sustainable for farmers into the future? I ask because farmers are questioning themselves whether to continue in the beef sector as a result of what has happened over the last number of years. What is Teagasc's perspective on beef and ensuring there is a margin for farmers?

**Deputy Brian Stanley:** I thank the witnesses. On page 35 of the annual report there is mention of the fact that: "Teagasc have concluded their field study which investigated both the environmental and agronomic impact of a GM potato variety genetically engineered to resist late blight disease", which was conducted in both the Netherlands and Ireland. Obviously potato blight has been a curse of this country at times. I ask the witnesses to comment on GM. There are huge concerns about this island being associated with GM or it creeping in by stealth or in any other way. Will this have implications? There is a strong belief in a wide sector of society that we should be trying to market as GM free. Will the witnesses comment on this?

The next issue I want to raise is really glamorous altogether. It is with regard to slurry tanks. I do not know what the research has shown on this matter but recently it has been raised within and outside the farming community. This is with regard to the spread of disease since we moved to slatted units and slurry tanks. I can remember a time when it was not like that. The dung from where calves were bedded was stacked up and spread early in the year. People used to say frost killed any germs in it. It was spread on top of the land or ploughed in. Now, it is injected into the land. Many animals are housed over the winter period and the tanks will soon be opened. Antibiotics go into the tanks. It is not great in a situation where animals are becoming resistant to antibiotics in the same way as humans. In turn, this goes into the food chain. Are we susceptible to this also? There is also the spread of disease. If animals are carrying bacteria or disease it goes into the slurry tanks and then it is spread. With new technology, it is injected into the land as part of the spreading. Has Teagasc done research on this? I am glad to have had this opportunity to raise the issue.

There is only one very small mention of energy in the annual report. This is with regard to the energy in agriculture 2018 event, which took place in Gurteen College in Tipperary. At this stage, I do not know whether it is Teagasc's role or not. It was highlighted in the symposium in big bright lights that beef on its own does not provide a sustainable income. Having to depend on subsidies to pay the bills does not cut it. There has to be additionality. There has to be a second or third income on the same farm units. What is Teagasc doing in this regard? Do the witnesses see it as being somebody else's role? The Department of Communications, Climate Action and Environment has a big role and I was my party's spokesperson on that portfolio until

fairly recently. We are a long way behind other countries on this. We are a long way behind northern Italy and Germany. We are even a bit behind mother England. What is Teagasc's role in this? Are efforts being made to drive it down? Is there a role for Teagasc in it?

**Professor Gerry Boyle:** I will take some of the questions and my colleagues will chip in as appropriate. To start in reverse, Deputy Stanley raised the point about energy. To answer his specific question, yes, Teagasc has a role in it. The development of energy in agriculture and the use of biomass in particular has been very much affected by policy. We have gone through a number of phases in our research work on energy over the years, which has mainly followed the ebb and flow of policy. Specifically, we have mentioned the importance of energy efficiency in our marginal abatement cost curve as one of the mitigation options, although, as Deputy Stanley is aware, agriculture does not get the credit in terms of savings in fossil fuels because it is attributed to the energy sector at present. This is one initiative.

Early in the new year, we will commission a demonstration of an anaerobic digestion unit at our site in Grange. It is designed to utilise grass and other feedstock. It is mainly about the utilisation of grasses. It should have happened before now but, unfortunately, construction was affected by Carillion going bust a couple of years ago. I hope it will be completed prior to June next year. The whole point is to address exactly the issues about which Deputy Stanley is concerned. There is definitely potential for anaerobic digesters to use our grasslands and our ability to grow grass. The investment is very costly at present. If we look at the marginal abatement cost curve we identify this option as among the most costly mitigation options. There is also an issue with regard to the feed-in tariff if we were to convert, as we will be doing, the gas to biomethane, which will then be capable of being fed into the grid. The willingness of farmers to undertake this will depend very much on the feed-in tariff they get. We are aware of these issues. We are working very closely with Gas Networks Ireland and we intend to use the plant as a demonstration facility.

We are doing a lot of work on milk cooling. One of our foremost young researchers is featured in the staff profile on page 34 of the annual report. He is someone who has been highly trained, including in the United States, on cooling systems for milk and reducing energy utilisation.

On our own farms our plan is to install solar PV panels starting with our dairy farms and colleges and research farms. That project has commenced with an assessment. There is a lot happening on this. Mr. O'Mara will pick up on the point on the disease risk associated with slurry use and pathogens. The issue of antimicrobial resistance is an increasing concern. It is not just a concern for agriculture. As the Deputy said, it is a concern for the Department of Health, and the so-called one health strategy is very much to the fore.

Moving on to Deputy McConalogue's points with regard to the beef sector and the fundamental challenge of profitability in that sector, this is a long-running saga. This year has been exceptionally challenging, particularly for our top beef producers. I cannot think of another year in recent times where our best performing beef producers have had such a difficult situation. If we stand back from this year and look at the history of the production with regard to fattening and rearing, based on the Teagasc national farm survey, which is a positive outcome at one level, there is a small group of farmers who are able to make good profits from rearing and slightly higher from fattening but they are a very small group and they tend to be larger-scale producers operating to a high level of efficiency. It is possible to generate a net margin before single farm payment and other direct payments of in or around €500 per hectare. That is the key target. Unfortunately, the vast majority of beef producers do not generate a positive net margin.

The unfortunate consequence of this is that too many of our beef farmers eat into their single farm payment and that does not make sense. We have been reflecting on this. We will continue to work with those farmers who are receptive to new technology and so forth, or farmers who are generating positive net margins, but we have to recognise segmentation is greater within the beef sector than in other enterprises. We need to address our programmes accordingly. That is where our thinking lies at the minute. For example, there is a very large group of part-time farmers involved in the production of beef. They have particular needs. Some of them are exceptionally efficient but there are others in respect of whom we need to adjust our systems to suit their time constraints. Also, we need specific measures to address the needs of those farmers who may be elderly and who are finding it very challenging to manage their herds and, in particular, to maximise the single farm payment. We need to tailor measures to assist those farmers with the aim of maximising the retention of their single farm payments. My colleagues may pick up on this because it is a major preoccupation at present. It has been for a number of years. We have a number of programmes under way.

The Deputy also raised the issue of part-time programmes. Thankfully, we have moved through the heavy demand phase for part-time green certificate programmes. There was a period during which there were enrolments of 1,500, which was three times the normal rate. It is now more manageable. We have not yet migrated the part-time programme to the full-time programme. There is a different programme in operation. That transition will commence shortly or certainly in the new year.

The Deputy also raised the issue of sexed semen. I will leave that Dr. O'Mara. We issued a breeding statement on 3 December. It is on our website. There was a significant change from last year in regard to the use of sexed semen. We have advocated that it should be used, where possible, for breeding dairy replacements. If using Jersey genetics, the recommendation is to use only sexed semen. We will be implementing that advice on our own farms. There are obviously issues in regard to the availability of sexed semen, particularly fresh sexed semen. Dr. O'Mara will take that up.

I agree with the Deputy's implication that dairy expansion should be seen as a positive development, not only for the dairy farmers. The expansion in dairy can be leveraged for the benefit of other farmers, particularly traditional dry stock farmers. We are certainly promoting a number of initiatives in that respect. There are opportunities but there is a challenge in communicating them to farmers. We agree wholeheartedly that one of the key implications of dairy expansion is that it cannot be to the detriment of, or create problems for, our beef industry. Many of these points were also raised by Deputy Cahill.

A specific point on advisers was raised and I am happy to address it. The Deputy observed astutely that we have a quite satisfactory ratio, although our pig farmer clients would not agree. There is one major difference in that we managed to negotiate a levy worth about €350,000 per annum during the recession when the service was in danger of being abolished. Pig producers rallied around and agreed to a levy, which has enabled us to recruit a good ratio of advisers to pig farmers. It is more challenging to get support for a levy in the other sectors, as I am sure the Deputy is aware. We have a small contribution from dairy but we have none from the other enterprises. A small levy would enable us to put in place additional advisers and researchers.

Salary levels continue to be a major concern for us. Obviously, trying to persuade somebody who has finished a doctorate, which takes a minimum of four years on top of four years doing an undergraduate programme, to take up employment at a salary of €35,000 presents a major challenge. There is a challenge in recruiting top-class staff and retaining them. It tends to

be more difficult in some enterprises than in others. We are no different from other specialised groups across the public service, however. It definitely is an issue. We are certainly not able to compete with the private sector, nor would we want to. The challenge for us is competing with the university sector. It has somewhat more flexibility than we do in the setting of salaries.

Dr. O'Mara might pick up on some of the other points raised.

**Chairman:** Yes, I have a follow-up question. Is there much engagement with beef farmers regarding potential alternative enterprises that may be available to supplement their income?

**Professor Gerry Boyle:** In regard to what?

**Chairman:** Is Teagasc having conversations with its client beef farmers, or, more to the point, are they having conversations with it?

**Professor Gerry Boyle:** We are. We have an options programme whereby we sit down with all farmers and discuss their current circumstances and options. We certainly recognise opportunities within beef production. We would be asking farmers to look very closely at the possibilities associated with heifer rearing, for example. It gives a more continuous level of income. We also say we see opportunities in the rearing of dairy calves. We would be discussing those options. It is challenging in the beef sector because the demographics do not encourage people to embrace change. We need to segment the population and have a targeted series of measures along the lines suggested. Forestry is another example. I do not have to tell the Deputy that there are varying views on forestry. We can certainly show that, on marginal land, forestry is quite attractive relative to beef production. It is challenging, however, to persuade farmers.

**Chairman:** It is well known that beef farming is challenging and has been for a number of years. Does there need to be leadership within farm organisations and Teagasc to drive forward an agenda of alternatives that will be more profitable than what is currently in place?

**Professor Gerry Boyle:** It is interesting that the Chairman should raise that. I was speaking to some of my colleagues last weekend and number one on the agenda in terms of our response to the challenge associated with profitability was leadership. All of us need to step forward.

**Chairman:** That is not a criticism, by the way; it is just a point.

**Professor Gerry Boyle:** It is an important point. The only thing that makes me a little reluctant is that the farmer has to take the risk. We do not have to take the risk. We are in that position of privilege. Leadership is critical. Leadership was demonstrated in the past. Leadership played a big role in the expansion of the suckler herd in the 1990s. We need similar leadership now.

**Dr. Frank O'Mara:** Let me return to a couple of issues raised by Deputy Stanley, including slurry, disease and antibiotics. Antibiotic resistance is bringing this debate very much to the fore. Ireland has a unified strategy on that. The Department of Health and the Department of Agriculture, Food and the Marine are implementing a "one health" strategy owing to the linkages between what happens on farms and what happens with humans and food. We had a very good conference on the agriculture side about two weeks ago in Tullamore. People were talking about the issue of antibiotics used in animals getting into slurry and water and then into the food chain. It is a relatively recent area of research for us to get into. At this stage, because of the integrated nature of it, we would have researchers from our food safety side, our soil researchers and our animal researchers working together on the issue. The use of antibiotics in

Irish agriculture is relatively small. We do not have a very large pig sector where most of the antibiotic usage is concentrated.

On the ruminant side, the issue of greatest concern is the blanket use of antibiotics at drying off - dry cow therapy. That issue is being addressed through a programme involving Teagasc and Animal Health Ireland on selective dry cow therapy. It is still in pilot stage, but there are encouraging results. There is an encouraging reaction from farmers to the use of selective dry cow therapy rather than blanket dry cow therapy. I think we will see progress on that issue, but many issues remain to be teased out.

**Deputy Brian Stanley:** One issue is antibiotic resistance in animals and humans because of the way the link can be made. The other issue is that of disease control. Given the expansion in use of slurry tanks in recent years with greater amounts of slurry being spread, are there signs that it is assisting the spread of disease? There are some suggestions in the farming community and beyond that it is. I do not know the answer to it.

**Dr. Frank O'Mara:** Unfortunately, I do not know the answer to it either. I have no knowledge that there are any statistics or a report on that. Anecdotally, I am aware of several cases of botulism. In those cases, it was poultry litter that had been spread. There are one or two cases I happened to be aware of in my locality. I would not draw any conclusions on a national basis. I am not aware of any increase or outbreaks of disease related to the increased quantities of slurry that have to be spread as a result of more cattle being housed on slurry tanks.

A number of years ago we were involved in a European-funded research project on GM potatoes. The field work finished about three or four years ago. The purpose was to analyse the environmental impacts of growing a potato variety that was resistant to blight through genetic modification and compare that with conventional potatoes. There was no issue of stealth. It was probably the best-known trial we had going on at the time. The researchers involved did almost 100 public engagement events on the trial and it was widely reported in the media.

It obviously was licensed by the Environmental Protection Agency, EPA, because to do any field work with genetically modified organisms we need a licence. It was licensed by the EPA and was very public. It basically showed an enormous reduction in the use of fungicides because of the blight resistance. It might have been an 80% or 90% reduction in the use of fungicides and no impact on the environment in terms of the soil or the invertebrates that would inhabit the soil where the potatoes were grown. Those were the scientific findings. The use or non-use of GM potatoes goes wider than science. As scientists, we provide the information and the facts to come out of that trial. It is for society at large to decide if we should grow such crops. We provide the facts into that debate.

Deputy Cahill asked about our own dairy herds and crossbreeding. Approximately 30% of the cows in our dairy herds would be crossbred. We have a number of herds with no crossbreds, including the well-known next-generation herd which is our flagship herd for where the economic breeding index, EBI, can bring us in the future and what benefits will come from continuing to use the EBI. That is a non-crossbred herd. Our herds in the base station in Moorepark have no crossbreds and a number of our other herds might have up to 50% of crossbreds in them. It is a mixture across our herds.

**Deputy Jackie Cahill:** What about the agricultural college herds?

**Dr. Frank O'Mara:** Dr. Kelly could better answer that.

**Dr. Tom Kelly:** Three of our herds have crossbreds in them. I do not think any of them is as high as 50%. In Pallaskenry and Gurteen they are still black and white bred. There is an expansion plan for the Pallaskenry herd involving introducing some element of Jersey, mainly because it is out there in the industry and it wants to follow that trend.

**Deputy Jackie Cahill:** I do not agree with the point about the industry. I think the industry is moving away from crossbreds. Sexed semen will not solve the problem of the Jersey. They are still producing a calf that is of no benefit to the beef industry. We will have welfare issues. We need to remember that the modern consumer expects farming to be done in a sustainable manner. I believe the issues with crossbreeding have not been properly evaluated up to now. I believe the Irish Cattle Breeding Federation is in the process of putting a new EBI together. I think that will show the Jersey in a different economic environment. That is an argument for another time. I have made my point and will not labour it further.

**Professor Gerry Boyle:** That is a very important question about the composition of breed. I will undertake to provide the committee with that information. I was not aware that the Deputy was going to ask that question.

**Chairman:** What is the status of the implementation plan for the climate change roadmap?

**Dr. Frank O'Mara:** Dr. Kelly might want to comment on the advisory side. Work has commenced on training our advisers, advisers outside Teagasc and other professionals in industry. There is considerable work on some of the measures, in particular the fertiliser type, the slurry application method and, as always, general good husbandry. I always say the first thing farmers should do is run the business well and try to make maximum use of grass and so on. All those things contribute a low-carbon footprint. If we want to go further and reduce the inventory, we need to do things like using the protected urea and spreading the slurry with a low-emissions method and so on.

Our programmes will have a major emphasis on that in the coming years. We are planning - it might be under way - what we call a signpost farm programme around a number of demonstration farms. We have discussed with the co-ops having a major focus on the climate measures in the joint programmes we have with them. We have had similar discussions with the beef industry on having a demonstration farm campaign. It needs to go considerably beyond demonstration farms.

**Dr. Tom Kelly:** We need to do this holistically across our advice, research and education. We are embracing all the measures in the MAC in some way or other that we can feasibly do on our farms. As Dr. O'Mara mentioned, through our demonstration farm network, we are branding them as signpost farms specifically so that we can show that they are addressing these issues. We also take the approach that this is a job for every adviser and has been mainstreamed. Across every action we take, the climate issue needs to be there in the background in terms of what advice we give and even in our education programmes.

**Professor Gerry Boyle:** Deputy Cahill mentioned about farmers feeling under siege. It is on this issue, more than any other, that farmers feel that. One of the messages we hope to get across in our signpost farm initiative is that farmers generate emissions through their activities but they also contribute to sequestration. While there are technical issues about the credit to be given for sequestration and grasslands, we continue to do research and hopefully, in time, it will be included in the so-called national inventory.

Other Deputies have raised issues about the inclusion of woodlands, hedgerows and so forth, and that is a positive indication of what farmers can do to offset emissions.

**Deputy Marcella Corcoran Kennedy:** I appreciate the Chairman allowing me in because I might have to run to Topical Issue matters in the Dáil.

**Chairman:** The season of goodwill is just around the corner.

**Deputy Marcella Corcoran Kennedy:** I am watching proceedings in the Dáil like a hawk. I thank Professor Boyle and his colleagues for coming in this afternoon. How much is accrued from the industry levy? How is it imposed and collected?

According to the numbers provided, there are 501 researchers in Teagasc. What is the breadth of the research they are doing and what is done with the outcome of that research?

It is impressive that Ireland is the fifth most successful applicant for Horizon 2020. What types of projects are being funded?

Our guests have mentioned the challenges of Brexit and the investment that will be required. What does the innovation referred to in the report involve?

Is Teagasc doing anything about carbon farming? There has been much discussion about carbon farming at the Joint Committee on Climate Action to try and encourage farmers to sequester carbon. A number of methods such as sliver pasture, cover crops, mulching, composting and all of that kind of thing have been suggested. The restoration of wetlands, regenerative and conservation agriculture are things we heard about at this committee. Is that something Teagasc is examining and could be recommending for farmers in the future?

I turn to research on antimicrobial and anthelmintic resistance. Those are worrying developments that have happened over recent years. What kind of progress has been made on that kind of research?

**Deputy Thomas Pringle:** I want to ask about climate action and related fields that are part of Teagasc's priorities for next year. Should that not be a bigger part of what the organisation does, given the emissions that agriculture produces in Ireland? It is something we must tackle. The targets that Teagasc has proposed in the past are not insurmountable and farmers can still make a good living from their land while dealing positively with climate action. That is something that Teagasc needs to concentrate on more.

Could our guests explain why hedgerows are not included when counting the carbon production of farms at the moment? Hedgerows can provide medication for farmers and that is something that should be looked at more closely.

Teagasc has consultants to help farmers on their medication and agriculture plans. There is also the Agricultural Consultants Association and I wonder what relationship has Teagasc with that organisation? Is information passed between the bodies, or how does that work? The Agricultural Consultants Association provides information for a lot of farmers across the country. How does the information flow between the organisations? Are there costs involved?

**Professor Gerry Boyle:** There are two sets of industry levies. One is from the pig producers, as I mentioned, and that is worth €350,000 or thereabouts per annum. That levy is collected by Bord Bia and passed on to Teagasc. Professor O'Mara might have the figure for dairy producers. Is it €2.5 million?

**Dr. Frank O'Mara:** It is €1.6 million.

**Professor Gerry Boyle:** Some of that goes to processing food.

**Dr. Frank O'Mara:** Some goes into processing or food research. Some €1.1 million goes to production research.

**Professor Gerry Boyle:** We have 250 researchers and another 250 PhD students and that is where the figure of 500 comes from. The PhD students are junior researchers and are a very important resource for us.

Approximately half of the 250 researchers are contract staff. Horizon 2020 funding, for example, enables us to recruit contract staff and implement research programmes. The PhD programme is globally unique. We have the highest concentration in Ireland of PhD students in a single subject area. It is a fantastic way for us to break open new frontiers. That is the way it is done. A student would devote perhaps four years to a new research programme. We do work on antimicrobial and anthelmintic resistance and use a PhD student to look at new frontiers of research.

The Deputy asked about the breadth of research. Our research activity addresses Irish agriculture and food processing. We have a programme on animal production and grassland which covers all of our ruminant agriculture and the monogastric pig sector. We have a programme on tillage and land use which covers all the cropping programmes plus forestry. We also have an environmental programme which addresses issues such as water quality, climate change, biodiversity and so forth. We also have a rural economy programme to address the economic issues. We also have a food programme to address challenges around food processing, mainly in dairy and meat production, principally beef.

The Deputy asked about Brexit and we have a role in that. Companies are, and will be, diversifying but products that are going into new markets often must be modified. I give the example of China, which is important for us because it consumes a lot of our infant formula. Thankfully, that sector is growing in double digits, but the Chinese do not seem to like our cheddar cheese. We have a cheese for China programme and a laboratory in Fujian Agriculture and Forestry University. That is an example of what our investment in Moorepark will allow us to do.

Our investment at Ashtown relates to what is called prepared consumer foods, which is quite a heterogeneous sector. That sector is very much dependent on the UK market and we will be helping companies in that area. That relates to the likes of pre-prepared meals. Our innovation will be supporting such companies to develop more competitive production and processing lines. For example, we have a beef programme under way where we are looking at the relationship between the breed of animals and the taste and tenderness of the meat. That is what we mean by innovation.

The important issue of carbon farming was raised. My colleagues may wish to comment on that. A lot of the issues raised, such as regenerative agriculture, cover crops etc., are very relevant to tillage systems. We are well aware of those developments. One aspect of the programme that we developed in recent years concerns the soil microbiome. That is very similar to work on the human microbiome that we have been engaged in for several years with collaborators in University College Cork. We have now extended that analysis to animals and soil. The heart of regenerative agriculture is understanding the microbial life of the soil as well its physi-

cal structure and the role of nutrients. The main aspect of carbon farming that we advocate concerns grasslands and how to manage them to enrich their carbon content. That is a central plank of our work regarding nutrient management on farms. That includes the old recommendation around the use of lime to improve organic matter and so on.

The management of wetlands was mentioned. That features strongly in our marginal abatement cost curve. It is a very important area and we are not the only body with an interest in it. Bord na Móna is doing a lot of interesting work and has many interesting ideas. We are certainly involved as well. I might ask Dr. O'Mara to comment on research on antimicrobial resistance, AMR, and anthelmintic resistance.

I take Deputy Pringle's point. Perhaps climate action did not get enough prominence in my opening comments. It forms a massive part of our work now because it cuts across all areas. We talk about sustainability in a holistic sense. We are not just concerned with environmental sustainability, although that is obviously central. We also talk about economic and social sustainability, as well as another dimension that does not get enough mention, namely, farmers' capability to change. That is really at the heart of sustainability. That is what it is all about.

We have already invested substantial resources at both advisory and research level. Dr. O'Mara set out the programme we will be rolling out next year. It will require significant additional resources, particularly in the advisory area. We are talking about persuading people to change. That is what our advisory role is all about.

I have discussed the issue of hedgerows with Deputy Fitzmaurice on a couple of occasions. We strongly encourage farmers to put woodlands on their farms, especially on dairy farms. We are strongly encouraging the establishment of hedgerows. We will be doing that on our own farms. At the moment they are not included in the so-called national inventory. There is a lot of research to be done on the calculation of carbon sequestration contributions. That work has not really begun in earnest. There are a couple of sites around the country where that is happening and we certainly hope to accelerate it, particularly where hedgerows are concerned.

The Agricultural Consultants Association, ACA, was referred to. Dr. Kelly might address that as it comes into his area of responsibility.

**Dr. Tom Kelly:** As Deputy Pringle knows, the Agricultural Consultants Association is quite a large body with about 150 members. They are private consultants like ourselves, scattered throughout the country in different towns and servicing different parishes. Many SMEs are members. Three or four people are employed. The ACA had a lot of work when the green low-carbon agri-environment scheme, GLAS, was in operation. We also supplied the GLAS planning service to our clients. We concentrated on our own clients and the ACA served other interested farmers. Consultants' work on GLAS came to an end about two years ago, as did our own. Several members of the ACA bid for work that we outsourced. They were not successful. We had to give it to the most competitive supplier. FRS Farm Relief Services won that contract.

We have an ongoing relationship with the ACA in that we still buy services from private consultants. They also buy services from us. We set up the ConnectEd programme in recent years to cater to that demand as well as the wider demand for private consultants who are not members of the ACA and do not want to be part of a consultants' organisation. We provided services to them under the knowledge transfer, KT, programme, which was in operation for the last three years and concluded in July. It was obligatory for advisers to implement the profit monitor technique and draw up a nutrient management and fertiliser plan for the farm. We sup-

ply the software for both of those tasks. The only requirement is a fee to cover the cost of the support service. We employ somebody on a contract basis to support those services. Clients do not pay commercial rates for the software. They pay a reduced rate. As I say, they are customers of the ConnectEd programme, along with others. Many people buy those services from us, including solicitors' practices.

A report by Mr. Jim Power was launched recently. One of the recommendations was for us to formalise our working relationships through a memorandum of understanding. We are very open to that and we look forward to agreeing that memorandum. We hope to have the opportunity to work with the ACA. Its members reach a large clientele that we cannot reach with our current staff numbers. They are needed, and we feel obligated to support them fully.

Individually, we have working relationships at local level and at national level. For about the first six years of my ten years in this job we had a very good relationship. We sat down with the executives of the ACA twice a year and worked out issues around GLAS and other schemes that were very hot at the time. However, the ACA is a voluntary organisation. It is an NGO that appoints a president every year or every second year, so we find it quite difficult to have a continuous relationship with it. Depending on who is in office, we may work very well with them or we may not. I hope that answers the question.

**Senator Paul Daly:** I wish to apologise for missing the presentation due to a vote in the Seanad. I also missed the beginning of my colleagues' questions. I just have one question. If it has already been covered I will accept that. I can look it up in the transcript. How will Teagasc's advisory and research strategy have to change as a result of last week's announcements pertaining to the EU green deal? I refer specifically to the proposal for such a significant reduction in fertiliser.

**Deputy Michael Fitzmaurice:** I thank the witnesses for their presentation. The first issue I will address is hedgerows. Professor Boyle and others met me on this issue a while ago. The information we have at the moment, based on the Department's statements to the Joint Committee on Climate Action, is that there is a possibility that agricultural emissions could be reduced by between 8% and 10% throughout the country. The Department's officials say they hope to reach a figure of 20% or 30%, whatever they mean by that. Perhaps Professor Boyle is up to speed on that.

There are 137,000 farmers throughout the country. The witnesses have said that Teagasc has 43,000 members. Are they worried that only one farmer in three is engaging with Teagasc, looking at new technology and so on? There are not enough private companies and there may be people who are not engaging with anybody at all. Is that a worry?

Turning to Dr Kelly, and to follow up on Deputy Pringle's question on trying to get farmers to do things better with new technology, programmes and research, on the €165 million or whatever part of that, 60% or 70%, is Government funding, would it be worthwhile to ensure that there is a tie-in with private planners around the country? FRS Farm Relief Services, the private planners, did the GLAS programme for Teagasc, because the agency would not have had these resources. Would it be worthwhile to form some relationship and to talk to these companies in order that when any new technology arrives, be it carbon navigators or whatever, we are working together to make things better, even if it is State-funded and the price involved is the cost involved in keeping the programme going? Dr. Kelly mentioned that there is a problem with the yearly period. Did he suggest that a three-year period might work better? It is not about us and them but it would be better for the country as a whole that the information is out

there, be it for a planner on his or her own, Teagasc or the SEAI, as has been talked about. This might be helpful.

A second question, possibly to Professor Boyle, is that, at the moment, farmers are under pressure and getting the living daylights kicked both of them day in and day out by the media at the moment. A farmer now will nearly put his or her head down, which is the way it has gone if one is producing food. Like everyone else we all realise we need food to live, and if we do not have it, we are going nowhere. Has Teagasc done any research as to the big vegan debate where we put our chest out and hit back at those who want to be alarmist and are pumping a lot of money into putting out messages that might not be altogether the greatest message in the world for human health?

A third question concerns our importation of soya and such produce. Is there any research programme on whether we might be able to do more - we do not have an ideal climate and I would be the first to say that - to grow more protein crops here to reduce our requirement to bring in such produce from abroad? Professor Boyle mentioned the big beef farmer is making some money but the reality is that we have to deal with family farms regardless of whether we like it because that is the composition of most farms. Have we done any research on seeing if a cow could work two calves profitably with enough milk, that is, her own calf and another one along with that. I was looking at the breed of Fleckvieh cows in Austria, and they look acceptable to both sides in the type of animal that it is.

I agree with Deputy Cahill that Teagasc must show leadership in the whole dairy sector. Maybe I am incorrect, but a statement went to the media that Teagasc had not thought about the calves issue. We have to cut to the chase on this because we cannot be breeding calves as things stand. Every farmer, be they a dairy, beef, sheep or pig farmer, is brought up to stay up all night when an animal is born to ensure that animal lives. We cannot have a situation where calves are being born with a worthless value. I do not care if it offends some people but we must cut to the chase on some of these cross-bred or Jersey animals because it will not do anything for our image. We want the very best in animal welfare and these breeds will not do anything for the image we require.

Does Teagasc still believe in derogations when one discusses climate change? Does it look at maximum stocking rates? I am hearing that it is 3.6 to 3.7 cows to the hectare. In normal circumstances that would be a little outlandish. We need to bring things back to normality. In fairness to the British or Holstein Friesian breeds, we need to start producing a calf if we are going to be in a working relationship. At one time in my neck of the woods a farmer might have had ten cows. Every farmer would then go down to the south, as it was called at that time, and buy five, six or ten calves, but they were right calves in that they were proper animals. Some were Herefords but they made good cattle. We have gone away from that now and Teagasc needs to show leadership to see if we can haul that back.

What are Teagasc's views on the single farm payment for the future? Will it be more focused on environmental matters?

I am aware that Teagasc has done work on anaerobic digestion. Certain things like forestry have been mentioned. What involvement has Teagasc or does it have an input in clear-fell or planting, which is at a standstill? Environmentally, we have gone mad as a country as everyone is objecting to everything now.

Can Teagasc place more of an emphasis on land, from Donegal down to Clare, out to the

River Shannon, and maybe including a bit of Monaghan and west Cork, which is more marginal land that is not ideally suited for dairy farming? Parts of it will be but on the whole it is not. Is an emphasis being put on how some parts of these lands can be made sustainable for beef or sheep farmers?

Also on the environmental side, there is no point in saying that beef farmers should be rearing the calves from the dairy farmer because that will only drive the beef farmers mad. Can something be worked out, whereby having looked at different types of cows, it could be ensured that the second calf was reared and there was enough milk but not too much milk? That might be a way forward that would also help the dairyman, if the right product was being produced.

The other thing is that at one time when Teagasc would issue a statement, it was virtually the gospel. Many farmers went down the bull beef route as they had been told it was a new thing to do and that it was way forward. Many people were left with a lot of stuff. We have to be very careful as to where people are steered. What are Teagasc's views? Is it involved in the task force and has it done research on the 36 months or on all of the different criteria that these farmers are looking for?

**Chairman:** I thank the Deputy and I have one final question from myself before I hand over to our witnesses for answers. Of the 43,000 clients that Teagasc has, has it a breakdown of those clients into the different sectors, be it dairy, beef, tillage, or whatever else? Is it possible to furnish that information?

**Professor Gerry Boyle:** Yes, we have. Does Dr. Kelly have that information with him?

**Dr. Tom Kelly:** I will give the Chairman figures on that, which are off the top of my head, . We have approximately 12,500 dairy clients within that figure. There are 3,500 tillage and other clients. The remainder are beef and sheep and I do not have the split between beef and sheep because that is almost impossible to arrive at.

**Chairman:** That is fine.

**Professor Gerry Boyle:** I will take some of the points and my colleagues can pick up on anything that I do not get around to dealing with. Senator Daly raised a very important point on the incoming European Commission and the remarks of the President of the Commission recently on the green deal. The protection of agriculture and the growth of chemical nitrogen, N, particularly on dairy farms in recent years, will be the key challenge for us and is clearly a cause of concern. There are two strategies we would strongly advocate. First, as referenced earlier by Dr. O'Mara, farmers need to be encouraged to move away from calcium ammonium nitrate, CAN, to protected urea, which we recommend as the alternative because it has the same efficacy in terms of grass yield but it does not have the negative consequence of CAN in terms of ammonia and greenhouse emissions. Second, for the long-term ability of the sector to harness the use of nitrogen, we need to encourage farmers to adopt clover in their swards. We know from our research that currently the efficiency of chemical nitrogen on average is only 24%. For every unit of nitrogen used only 24% is utilised to produce livestock products. The remainder either goes into the atmosphere or into the ground water. We know from our work in Clonakilty, for example, that greater use of clover in swards not only makes economic sense, it is worth approximately an additional €50 per cow in terms of additional milk solids, but most important from the environmental point of view, the efficiency increases from the average of 24% to 40%. There is no question that there is a huge challenge in this area. Nitrogen sales is an obvious indicator to which everyone can point. We can talk all day long about the various

promotion campaigns etc., but unless we can turn the curve in regard to chemical use it will continue to be an issue of contention and affect our ability to adhere to our ammonia and greenhouse gas targets. We have the technology to deal with it. As in many areas of agriculture, the adoption of alternative practices is forever the challenge. I noted at many of our recent conferences an increasing awareness among farmers of the need to tackle these issues. Hopefully, this will be manifest in actual decision-making on farms.

Deputy Fitzmaurice raised a number of issues. I do not have the figure relating to hedgerows. Any such figure would be a highly speculative estimate because the hedgerows are varied in terms of species and that complicates any estimation. We do not yet have an idea on the biomass involved let alone the variety of species, so I am not in a position to comment on the Deputy's figure of 8%-10%. There are many areas under continuous review as far as the so-called national inventory of greenhouse gases is concerned. That is always the case. As sciences evolve and provide us with more concrete results, that then leads to the incorporation of different estimates of sequestration potential and mitigation into the national inventory. My own view would be that we are a long way off yet. We are set on a path to 2030 in regard to the current inventory and the measures and targets. Beyond that, one would hope that we will have the information that will enable us to broaden the sequestration options.

The Deputy raised an important point in regard to the 43,000 farmers but, of course, that does not represent the totality. As rightly stated by him, some farmers do not see the need for advisory support, which is fine, and they do not see the advantage in discussion groups or, maybe, they do not like participating in discussion groups. There are a number of other farmers who exercise their entitlement to use private advisers. As part of our work we hold a variety of open days, which is probably one of the main differences between ourselves and the private sector. Everyone is invited and there is no cost involved. In terms of breakdown, typically, it is 60-40. In other words, 60% of the attendance typically are Teagasc clients and 40% would be non-clients. All of the information that farmers receive on open days is freely available. A similar ratio attend our marquee at the Ploughing Championships. Naturally, we would like to have more but we are getting our message out through different fora.

Dr. Kelly addressed the issue of the relationship with the ACA. I reiterate his point that we are very open to having a memorandum of understanding if that would help the dialogue. Again, most of our research information is publicly available but we provide tailor-made presentations through our ConnectEd programme. We see that as an efficient vehicle through which ACA members who want access to our latest research can get it. I will ask Dr. O'Mara to comment on the issues around veganism, flexitarianism and so on. Teagasc is absolutely convinced about the comprehensive and nutritional benefits of meat and dairy products, in respect of which there is an abundance of evidence, such that there is no need for people to add supplements to create that well-rounded nutritional package we all need for our health. More important, we know from our work that the grass based system provides additional nutritional value. This has been well documented in recent years in our work at Moorepark.

On the issue of low value calves, none of us here is unaware of this challenge. It is a complex issue. I do not believe it is all down to jerseys. There has been a huge change in recent times in the size of the calf because the dairy farmer wants an easy calving cow and a cow that will return to milk and fertility quickly. Less than 20 years ago, we had a massive problem with fertility of our dairy cows. It virtually collapsed. We are only now reaching the point of recovering the position we were in before that collapse in fertility. It was suggested that if we were to rid ourselves of the jerseys and jersey crosses, we would solve the issue. We would not.

Our preference is to examine the opportunities that exist for the selection of calves in the marts. It is important buyers have full and transparent information on the potential value of an animal, including its beef potential. This will happen in the not too distant future. We would also argue that in the selection of bulls for dairy cows in regard to their beef trades as per the dairy beef index, that within the spread of quality, farmers should choose the animal that best delivers the outcome in beef terms. That is how it will happen in the future. We all know that prior to the introduction of the dairy quota, 80% of beef was sourced from the dairy herd. The percentage is now 60%, but it is growing. It is inevitable that more dairy calves will come onto the market to be reared as beef animals. That is a challenge for us all. The options that the Deputy proposed are important. We believe that a large contribution can be made in the rearing of dairy calves, but I take his point that some sort of combination might be attractive if we can get an animal that is that good. One of the problems in the suckler sector is that the efficiency metrics are poor. We seem to have a real problem. For example, one metric that has been stubbornly poor is the failure of many suckler cows to produce a calf per year. That situation is worsening.

The Deputy also raised the issue of derogations. The derogation is important, but it ties into Senator Daly's point about nitrogen. Look north of the Border. It is evident that, if we do not manage to implement the measures laid out in the marginal abatement cost curve, MACC, there will be restrictions on nitrogen use in particular. There is no question about it, as that is the easiest way to do it. Due to the concerns about ammonia in Northern Ireland, the restrictions have virtually halted any development in the dairy industry there. We are alert to that issue.

I am not aware of the stocking rates that the Deputy mentioned. Is Dr. O'Mara?

**Dr. Frank O'Mara:** Some of the milking platforms.

**Professor Gerry Boyle:** Probably on the platform, but not the average across the farm.

I agree with the Deputy on the single farm payment. We anticipate a greater restriction in respect of environmental issues. We are involved in the task force. Perhaps Dr. O'Mara will take up this point. We were also involved in the forum before it. We have a specific role to play in the provision of technical advice.

Regarding afforestation and so on, I have been making the argument for some time that, if one considers our mitigation or sequestration measures, planting new forestry is the single largest sequestration opportunity that we have. Going by memory, it accounts for 2 metric tonnes of sequestration. Thankfully, that is already in the bank and we will benefit from it up to 2030. As the Deputy rightly said, however, planting this year is down to approximately 4,000 ha. That is approximately the same as last year. The figure has not fallen below that level, but it is terribly low relative to our target rate. We have been engaging in a promotion campaign for the past while. We are trying to encourage farmers and to understand what the obstacles and blockages are. Undoubtedly, part of it is social. Issues that cannot be summarised in rational economic terms are preventing plantations. Speaking personally, the requirement to plant in perpetuity needs to be examined. People do not like their land being locked into semi-permanent use. I must say that I have a vested interest, as I have a small forest.

Perhaps Dr. O'Mara or Dr. Kelly want to take up the other points, for example, nutrition.

**Dr. Frank O'Mara:** I will try to sweep up some of those issues. Deputy Pringle asked whether we were undertaking enough work on climate change and greenhouse gas. Our research has given us the technologies to allow us to create a plan to meet our targets without a

cut in the national herd. It has been a successful research programme. It would have been great if we had had more money to spend on it, but we had what we had. The immediate challenge is in implementing the measures and achieving the reduction. Deputies Cahill and Fitzmaurice mentioned the lambasting of agriculture and farmers over this issue. The most powerful response that could be made is to reduce emissions from agriculture, which I hope will happen soon. It will be a great headline when that happens, as it has been going in the other direction for the past number of years.

Senator Daly asked about the green deal. The challenge for research is to go beyond the MACC. We have a certain level of technology developed and can achieve a certain level of mitigation, but if we are to participate in the green deal, we will have to go beyond the MACC. There is a great deal of research into developing new technologies around fertiliser, methane mitigation and sequestration, be that in grassland, hedgerows or wherever. Sequestration will have to form a part of agriculture's participation in a zero carbon future.

Regarding veganism, and as Professor Boyle stated, we are clear on the nutritional benefits of meat and dairy products. At particular stages, they are almost indispensable for certain cohorts of people. However, we are not public health experts and are not in a position to give dietary advice. We came upon an interesting piece of data recently. We have access to the national statistics on what people eat. A survey was carried out. Our research has divided it up into three cohorts: the people who have a good few jars and then a burger and chips on the way home, which is not a healthy diet, but we all have a stage of life where we do a little of that; the people who try to follow good nutritional advice; and the more traditional "meat and two veg" people. Surprisingly, the carbon footprints of the last two diets were the same. Obviously, those who follow good nutritional advice are not all vegans. Rather, they are people who are conscious of having a low meat and dairy intake. When everything they eat has its carbon footprint measured, though, it is no different than the diet of those who like their meat, dairy, potato and vegetable products. It is a complex debate. The people with the unhealthy diet had a much higher carbon footprint. It is bad for themselves and the environment. When what people eat is counted, however, moving towards a vegan-type diet might not be the solution. It is a nuanced debate. The good news story for agriculture will be when we see a headline about agricultural emissions falling 5% or whatever it might be.

Professor Boyle has addressed the calf issue, but it has been stated a couple of times that we did not think of the calves. What my colleague, Dr. Pat Dillon, actually said was that he had been part of the dairy activation group, which was set up around the time that Food Harvest 2020 was being dreamed up ten years ago. The group was considering what would need to happen on the ground, given the potential for an increase in milk production thanks to quotas going. The type of questions that came to the fore were, for example, where would the necessary cows, land, processing capacity and labour be found? He was saying that the increase in the number of calves was not flagged in that mix of priority issues. Hindsight is always 20:20, but it was not envisaged as an issue ten years ago. That is not to say that we have not been well aware in the past couple of years of the issue of the growing number of dairy calves and the changing dynamic in the farming community, that is, there are fewer farmers interested in rearing calves than there were 30 years ago when we had many more dairy cows. We have been working on the dairy beef index, which will help dairy farmers to select bulls to breed better calves after they finish with their replacement breeding. This has to be a major part of the solution. Sex semen, which was mentioned earlier, is another part of the solution. We see that going beyond the Jerseys because the problem cohort of calves are the male calves born when a farmer is trying to breed replacements. The more we can reduce the number of those, the less of a problem

we will have. It is certainly not only an issue with Jerseys. Of the approximate 200,000 calves exported this year, the majority were black and white. We have to think about the long term as well and how are we going to be able to rear those calves for a good future in Ireland. Live exports may not last forever.

This is a complex problem and the solution is not as simple as just a change in the EBI or anything like that. That in itself is a complex issue because the EBI is not just a group of people sitting around a table dreaming up ideas for more of this or that. An economic model is involved in putting weightings on things in the EBI, so we advise care in meddling with something that has been successful for dairy farmers for the past 20 years. We should stick to the principles of science in setting the weightings on the EBI. I am not stating that the EBI is not part of the solution, but there are other ways. I refer to sex semen and the dairy beef index that will turn around the problem much faster than can be achieved via the EBI.

Regarding those calves, we started a new research project at Grange. It involves a new self-contained herd of dairy beef calves. We are rearing three groups - Angus, high EBI Holsteins and low EBI Holsteins. The first results are coming in now - we do not have them yet - and that project will be ongoing for the next couple of years. The results will be very interesting. For me, the one thing that will come out of it is that management trumps all. If a farmer has a good calf but rears it badly, he or she is still going to lose money, while a farmer with a bad calf who rears it well will have a chance of making money. That aspect should not be lost in the story either.

The biggest contribution we can make is via advice and research on how to get the best performance out of calves on the farm, whatever type of calves they might be. The current issue regarding dairy calves is more a beef price issue than a dairy calf issue. If the price of beef was €4 or €4.50, then there would be no problem selling all the calves born in the country. The problem is we have a major profitability problem for every beef animal. For a suckler farmer, the calves are arriving and there is not much that can be done about that. They are coming-----

**Chairman:** That is also about supply and demand.

**Dr. Frank O'Mara:** It certainly is as well. We have about the same number of calves in the country as in recent years, but the balance is shifting. If there was profit in it, however, there would be farmers willing to buy them, and that is the challenge. On imported protein, there are two issues. Beans have been a reasonably successful crop in recent years. We have a research programme on other crops as well, such as soya beans, but they will be more challenging and require as much or more support as the beans to get going. The other side of this issue concerns how much protein we need. We are clear that there is overfeeding of protein to most of our animals, including pigs and cattle. In the MACC curve, cutting back protein levels is one of the things that will contribute to reducing emissions and that is an area we will address with the feed compounders. Especially when cows are at grass, there is no need for high protein in the diet.

**Deputy Michael Fitzmaurice:** I have one question. Professor Boyle mentioned clover. He is right that clover is good, but my understanding is that a fair bit of clover on land causes bloat in stock. Is that correct?

**Dr. Frank O'Mara:** It is a risk, but it is a management issue. Products can be put through the water system that will prevent bloat. It is not an unmanageable risk.

**Chairman:** I call Deputy Pringle, who has a follow-on question.

**Deputy Thomas Pringle:** I would like Dr. O'Mara's advice on climate change mitigation measures and how that feeds into national policy. The next CAP is where farmers are going to get paid for doing these things that are going to make a difference. How does Teagasc's advice feed through the Department and into the CAP? I am referring to urea, slurry, clover etc. This comes down to the fact that if farmers are being paid to do something, they will do it.

**Professor Gerry Boyle:** I might address that. There are several mechanisms. Firstly, we worked very closely with the Department in the preparation of the climate action plan. Most of the measures in the plan relating to agriculture stem, one way or another, from our research work. That is one channel. In addition, Food Wise 2025 is implemented through a steering group of which I am a member. All the CEOs of State bodies involved in agriculture sit on that committee and it is chaired by the Minister and climate action is a central plank in that process. Since the publication of the climate action plan, additional steering groups, of which we are members, have been set up. We work very closely, therefore, with the Department on this area.

**Deputy Thomas Pringle:** On the CAP, what effect-----

**Professor Gerry Boyle:** Clearly, the CAP is outside our direct control. There is, however, awareness and I anticipate - though it is not our responsibility - that many of the measures in the CAP will have to reflect the suite of measures we have proposed and are in the climate action plan. Incentivisation measures will be required at some level and the CAP is the obvious vehicle to push through those. Again, it is not our direct responsibility but that of the Department of Agriculture, Food and the Marine. That is, however, the way I think it will be driven.

**Chairman:** Turning to a final issue, Dr. O'Mara may have mentioned labour. One of the big challenges in the years to come will be the availability of labour. Are structures being put in place by Teagasc to deal with this issue? I refer to encouraging more joined up thinking. There is plenty of labour available in the agricultural community, if it could all be harnessed together.

**Dr. Tom Kelly:** A lot of emphasis has been placed on having structures in place, particularly regarding farm partnerships. Those partnerships could be within farm families or with farmers who want to step down their farming activity or who may need additional labour because of expansion, etc. That issue is being dealt with. We have resource specialists in place and Macra na Feirme is very involved through the land mobility service. This is a good example of where there is much collaboration between different organisations to ensure support systems are in place. There are ways of doing that and they start with the education level of people.

Even outside of those effects, we are working with farm relief services, FRS, and have been for some years, to provide short course training in milking skills, calf rearing etc. If a farmer wants to get somebody to help, he or she needs to trust that the helper knows what he or she is doing. The farmer does not want to have to spend all his or her time showing that person what to do or training him or her. This is a big step up, therefore. It has been difficult enough to convince people to release somebody during the first two weeks on the job, in January or whenever. I refer to that person going down to Kildalton or Clonakilty and spending two days a week for two weeks doing that kind of work there and then returning in a month's time and doing it again. That is, however, really effective in respect of training programmes for people. People on those farm courses will have great confidence when they return and farmers are telling us as well that those people come back very assured of what they are doing. The farmers themselves are even learning a few things or at least asking questions about how things are done.

**Professor Gerry Boyle:** There is one additional point, of which the Chair might be aware already. We had an interesting session on the application of lean principles to dairy farming, which is an idea borrowed from the industrial sector. Co-operatives use it but it can also be applied to farms. We are applying those principles to both pig and dairy farming. They allow farmers to identify more efficient uses of their time, the management of cow flows and the development of a standard operating procedure at calving time, milking and so on. Farmers waste a lot of time looking for implements or such and getting the milking kit out. That is an interesting development that we are doing a lot of work and research on.

**Deputy Michael Fitzmaurice:** In the context of Teagasc's study on labour, as the Chairman stated, a bigger problem is coming down the line. While farmers might be struggling to get help, especially in the labour-intensive sector, contractors do most of the work nowadays because the best advice was that a busy dairy farmer would be better off getting someone in to do the work. They are struggling. There needs to be a holistic view for the farmer and the contractor in order to make it attractive to enter the sector. There is an idea that some type of apprenticeship should be brought in. If we do not do that, we will continue to struggle in all areas and there is no point in saying that we will not.

**Chairman:** That is a valid point.

**Professor Gerry Boyle:** We have good relationships with a number of the contractor organisations. One of the issues we have identified is that there is a requirement for training. In an area such as land drainage, for example, it is very important that the contractors are trained to the highest possible level. We can provide that training through our ConnectEd system. The challenge is that contractors do not always have the resources to avail of that training.

**Chairman:** There are no further questions. I thank our guests and members for attending. This is our final meeting before the recess. I wish everybody a happy, peaceful and joyous Christmas. I thank those in the secretariat for their work during the year, the communications people on my right hand side for their patience with us from time to time and everybody else connected with the committee. In the past year we have had 31 meetings. We covered many different areas, from greyhounds to fodder crises to challenges in all sectors. I have no doubt that in the coming year, there will be many challenges to address. We will know how short or long the term is in due course. I wish everybody a happy and peaceful Christmas.

The joint committee adjourned at 6.45 p.m. until 3.30 p.m. on Tuesday, 21 January 2020.