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# Teagasc Sheep Programme Peer Review 2016

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Final Report

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## 1. Introduction

Teagasc is committed to conducting thorough peer reviews of its research and knowledge transfer programmes on an approximate 5-year cycle. The purpose of each review is to:

- Assess if an effective and balanced portfolio of scientific research is being undertaken that effectively fulfils the stated mission of the programme and meets the needs of its stakeholders;
- Appraise the quality, relevance and impact of the research and knowledge transfer programmes;
- Identify how the research and knowledge transfer programmes could be improved to make best use of resources;
- Provide accountability for public funds expended.

This evaluation report presents the findings of a peer review of the Teagasc Sheep Programme conducted from November 28<sup>th</sup> - 29<sup>th</sup> 2016 as part of Teagasc's cyclical programme of reviews. A review of the Teagasc Sheep Programme in 2016 was also an action for 2016 in FoodWise 2025, the government's agri-food strategy statement. The review, which covered the years 2012 to 2015, was conducted under the auspices of the Director of Research and the Teagasc Business Planning and Performance Evaluation Department. A Peer Review Panel (PRP) comprised of the following members carried out the review:

Tom Moran (Chairman), Paddy Browne, Frank Crosby, Cormac Healy, Yvonne Johnston and Paul Kenyon. Kevin Heanue, Teagasc Evaluation Officer, provided secretarial assistance to the PRP. Details on the panel are contained in Appendix 5.

The review considered management, research and knowledge transfer activities. The management assessment focussed on strategy and organisation, while the research and knowledge transfer assessment focussed on quality, relevance and impact as well as the programme's sustainability, vitality and feasibility. The review was both retrospective and prospective with an emphasis on arriving at recommendations that would help to achieve improvement in the future. The peer review assessment criteria are outlined in Appendix 4.

The review, which included a two day series of meetings and presentations, took place at Teagasc Mellows Campus, Athenry, Co. Galway. Prior to that, the PRP had received a Programme Description and Self-Assessment document compiled by the Sheep Enterprise Leader, Head of Sheep KT and research and KT staff. This document provided an internal retrospective summary and appraisal of the Programme's structure, funding, staffing, performance and delivery over the period 2012-2015. Additionally, the PRP were provided with the Protocol that guided the Review Process, as well as 3 Teagasc Business plans with relevance for the Teagasc Sheep Programme (AGRIP 2016 Business Plan; 2016 Athenry Enterprise Business Plan; 2016 Animal & Bioscience Research Dept Business Plan), Teagasc's Technology Foresight Report (2016), Teagasc's 2015 Annual Report, the Teagasc Draft Statement of Strategy (2016-19), FoodWise 2025 and a copy of the 2002 Peer Review of the Sheep Programme. Although 2002 was the last time the sheep programme was reviewed as a separate entity, it was reviewed as part of AGRIP in 2011. During the 2 days of the on-site visit, the PRP met with Sheep Programme management and staff and also had a tour of the research farm and laboratory facilities in Athenry. Also during the visit, additional previously unscheduled meetings with Sheep Programme research and KT staff and post-docs were requested by the PRP.

At the outset of the on-site visit, the PRP received a comprehensive contextual overview of Teagasc from the Teagasc Director, Professor Gerry Boyle; Director of Research, Dr. Frank O'Mara and Head of Teagasc's Animal and Grassland Research and Innovation Programme

(AGRIP), Dr Pat Dillon. This provided the PRP with insights into the current Irish policy landscape as well as recent organisational change, staffing issues, funding levels and drivers of change. The role and remit of Teagasc in general, and AGRIP in particular, were elucidated alongside recent highlights. The Sheep Programme was also situated in terms of Food Wise 2025, Food Harvest 2020, Teagasc Technology Foresight (2016), the Sustainable, Healthy Agri-Food Research Plan (SHARP), and industry-led Development Plans for the Sheep sector.

The Teagasc Director; Director of Research and Head of AGRIP identified the following as issues where the PRP's feedback and comments would be particularly welcome:

- Collaboration with national and international universities
- Integration of KT and research
- The target research areas/themes within which to deploy new recruits
- Shortage of technical staff
- Deployment of resources within existing financial constraints

## **2. FoodWise 2025**

A review of Teagasc's sheep research and advisory programmes was a specific action identified under Food Wise 2025. Within Food Wise 2025, there are 15 actions identified specifically for the sheep sector.

1. Genetic improvement: focus on ewe fertility and on breeding resilience and resistance to diseases which impact on the productivity of flocks, such as foot-rot and on improving the consistency of product supplied to processors.
2. Work collaboratively with processors, Bord Bia, Teagasc and Sheep Ireland to modify the very seasonal nature of Ireland's sheepmeat supply, and maintain our presence, and access to markets throughout the year.
3. Increase farmer participation in Beef and Lamb Quality Assurance Scheme (BLQAS) to 90% in terms of proportion of output by 2025.
4. Add value to exports by further moving from exporting entire carcasses to pre-packaged boneless cuts through wider market access.
5. Engage further with Sheep Ireland on the design and implementation of breeding indices based on marketing insights.
6. Increase sheep farmer participation in Knowledge Transfer programmes.
7. Enhance hill farming systems by promoting greater integration with lowland sheep producers
8. DAFM to continue to support and engage with Sheep Ireland on their work to drive better genetic gain for the flock.
9. Underpin and further improve Ireland's sheep traceability system.
10. Teagasc to undertake a review of their sheep research and advisory programmes.
11. Improve the consumer perception of lamb with the younger demographic as a healthy, convenient protein choice.
12. Build a strong brand image for Irish lamb based on its sustainable grass based production to secure outlets and price premium.
13. Implement generic promotion of lamb across France, Belgium and Germany and compete for further EU funding post 2017.
14. Develop a Carbon Navigator tool for sheep producers.
15. Develop strong reputation for quality and environmental sustainability of Irish beef with customers, competent authorities in target markets and NGOs building on the Sustainable Beef and Lamb Assurance Scheme (Origin Green) and optimise the use of this brand reputation in the market place

### **3. The Sheep Sector in Ireland**

The economic contribution, flock size, role of lowland and hill sheep flocks, the processing sector and issues facing the sheep sector are important dimensions to understanding the sheep sector in Ireland.

#### **3.1. Economic contribution**

Production of sheep meat is widespread throughout the country. The sector generates €320 million output per annum which supports over 34,000 sheep farmers with a further 2,000 jobs in processing and related industry services. Net sheep production in 2015 was over 58,000 tonnes with an estimated 47,000 tonnes of sheep meat valued at approximately €230 million exported to over 30 markets. The UK and France are the main export destinations accounting for over 62 percent of export volumes. Two significant factors have driven export value growth in recent years, firstly diversification of our export market profile and secondly the move towards boneless product where it is now estimated that 65% of Ireland's sheep meat exports is in the form of boneless/break out product.

In the Teagasc 2014 National Farm Survey an average gross margin of €668/ha for lowland mid-season lambing flocks was achieved. The most profitable flocks generated a gross margin of €1,085/ha compared to €308 for the least profitable flocks. These figures compare favourably with systems of cattle production. However, only 8% of sheep flocks reared >1.6 lambs / ewe to the ram. This indicates that there is significant scope and potential to increase income by improving technical efficiency on many farms.

#### **3.2. Flock size**

In 2015, there were 35,254 sheep flocks in Ireland. The national ewe flock is currently 2.4 million ewes, a figure that has stabilised after a period of contraction since 1993. The average number of ewes is 71 rearing 1.3 lambs/ewe joined. Only 20 percent of flock owners have more than 150 head. The stocking rate on lowland farms is 7.3 ewes per hectare.

#### **3.3. Hill sheep / low land**

Approximately 80 percent of the national ewe flock is comprised of lowland ewes with hill breeds making up the remainder. Relatedly, the lowland sector contributes about 85 percent of lamb output with the balance coming from the hill flock. On most lowland farms, sheep production remains mainly a second enterprise. The hill sheep sector, although challenged to generate sufficient margins to maintain current levels of farming activity, is vitally important to the economic health of many remote rural communities and the maintenance of the natural landscape in many of Ireland's most scenic areas.

#### **3.4. Processing**

Sheep processing plants are distributed across Ireland and make a significant contribution to rural economies providing over 2,000 direct and indirect jobs. Moreover, processing plants are often located in towns or regions that are not recipients of external job creating or economic activity through foreign direct investment, for example. In total, 5 processing plants account for 95 percent of the national kill.

#### **3.5. Issues facing the sector**

Food Wise 2025 produced a comprehensive SWOT analysis for the sector (see Appendix 3 of this report), the thrust of which is reinforced agreed in the by Meat Industry Ireland Five Year Development Plan for the Irish Sheepmeat Sector to provide a fair assessment of the

sector's current position. The PRP agrees with the assessment of the sector's position outlined in these documents.

There is an acceptance that the application of the latest scientific knowledge to the business of sheep breeding in Ireland is only in its infancy in comparison to programmes for beef and dairy. However, the establishment of Sheep Ireland, buy in from stakeholders, previous momentum from the Sheep Technology Adoption Programme (STAP) introduced by DAFM and the current Knowledge Transfer Groups for sheep farmers under the Rural Development Programme 2014-2020 will continue to encourage improved breeding on farm and more broadly greater technology adoption at farm level.

Other broad issues facing the sector include maintaining the ewe flock and securing the production base; encouraging young farmers into the sector; the need for Ireland to be proactive and responsive to new global market opportunities where competition is extremely strong: helping build customer confidence in sourcing verifiable sustainably produced meat from Ireland: building on the natural and environmentally friendly image associated with sheep meat, together with Ireland's reputation in sustainable food production, to further enhance the marketing of Irish lamb.

#### **4. Sheep Programme within Teagasc**

As outlined in the Programme Description and Self-Assessment document, the aim of the Sheep Programme is to develop new knowledge and transfer this knowledge to the broader sheep industry to underpin the development of profitable, competitive and environmentally sustainable sheep production. Given the current and future challenges to food supply and to the environment, sustainable intensification of agricultural production is emerging as a priority for policymakers and international development agencies.

##### **4.1. Structure**

The Teagasc Sheep programme is a component of, and distributed across, Teagasc's AGRIP. The Sheep Programme is divided into the following 7 sub-programme areas:

- Grassland
- Genetics and Breeding
- Animal Health
- Animal Nutrition and Product Quality
- BETTER Sheep Farm Programme
- Sheep Specialists
- Advisory Service

The Programme Description and Self-Assessment document identified impact indicators for each of the 7 sub-programme areas.

To understand the structure of the Sheep Programme the starting point is that given the change to a programme structure in Teagasc in 2010, research for livestock enterprises (dairy, beef sheep and pigs) is situated within AGRIP. In AGRIP, there are three disciplinary-based Research Departments: Animal and Bioscience, Grassland Science and Livestock Systems Research. Sheep Programme personnel are distributed across these departments and most do not spend all their time on sheep-related research; a situation mirrored by dairy and beef researchers also. The main advantage of this structure is that expertise is pooled or provides a platform and is available to all enterprises. This is particularly so in the case of

genetics/breeding and grassland, a structure supported by the PRP as being the best use of available resources.

The research programme for any livestock enterprise (dairy, beef or sheep) draws directly on the expertise and resources of the three AGRIP departments, and will also extend to some of the expertise in departments of other Programmes (e.g. Food, Rural Economy and Development, and Crops, Environment and Land use). The Teagasc Sheep Research Programme comprises sections of:

1. Animal and Bioscience Research Department
2. Grassland Science Department
3. There is also a relatively small component of the Sheep Research Programme in one of the Food Programme Departments, Food Chemistry and Technology

The sheep Specialist Programme is part of Teagasc's KT Drystock Department also within the AGRIP Programme.

## **4.2. Resources**

There are 128 hectares of land available in Athenry, Co. Galway for the sheep research programme. In 2015, there were 23.6 research, specialist and other support staff (FTE) engaged on the programme. Including Walsh Fellows (PhD and Master's students) brings the total to 33.45 (FTE) (see Appendix 2 for more detail). Most of the sheep programme research physically takes place in the Teagasc Centre, Mellows Campus, Athenry, Co. Galway where it is managed as the Sheep Enterprise. Technical, farm and administration staff supporting the Sheep research programme is located within the Sheep Enterprise. Staff located at Teagasc Moorepark is predominately Walsh Fellows working on supervised genetic studies.



## 5. Review of Sheep Research Programme

### 5.1. Reflection on Quality

The PRP agreed that there is a good balance between applied and basic research within the research programme. It is focused on industry requirements and addressing constraints to production efficiency at farm and industry level. The PRP's observations on the sheep programme in terms of overall quality were:

#### Shared data/stats

The PRP recognise the need for, and the potential of, greater sharing across Teagasc of data, data analysis and statistical support which would be of considerable use to the sheep research programme.

#### Research Coverage

The PRP noted the internal identification of research weaknesses in the areas of GHG; reproduction, alternative forages and hill sheep. However, the PRP added the further areas of animal health and neonatal/perinatal mortality which should be a research focus. The PRP also recognised the need for additional research in relation to genetics. Seasonality in relation to early lamb production is an issue in the sector and was discussed with the PRP but the PRP concluded that sufficient research already exists on the issue and is available for dissemination by Sheep KT personnel.

#### Physical Resources

The PRP is confident that the physical resources are suitable for supporting the research programme. Specifically, the PRP were satisfied after their tour of the facilities and from speaking with programme staff that the animal facilities available to the programme were excellent and the lab facilities were fit for purpose. Concern was expressed by the staff about the use of leased land and the PRP agree that this should be kept under review. The PRP considered suggestions for a hill sheep research farm but concluded this was not a priority at this time and suggested that the hill sheep BETTER farms served this purpose.

#### Resources

The PRP recognise the need for a sufficient level of technical support to underpin the research programme. Technical support within the Sheep Programme has become heavily dependent on researchers, post-grad and casual students the latter of which need constant retraining with each new batch. This impedes the overall research programme in terms of its output and effectiveness and should be addressed.

#### Internal Communications

Given the dispersed nature of the research team across different departments within AGRIP it is important to ensure that there are opportunities and structures to enable internal communication among the research team in terms of their sheep, as opposed to other research focus, and between research staff and management. Currently, researchers in the sheep programme have Departmental meetings but not meetings as a sheep group. The PRP are of the view that such meetings would facilitate the work being done within the programme and would contribute to the overall development of knowledge relating to the sheep sector. Group discussions about on-going research programmes and prior to submission of research protocols would be particularly useful.

Overall, the PRP rated the quality of the work in the Sheep Research Programme to be **very good**

## 5.2. Reflection on Productivity

The PRP agreed on the following observations on the sheep research programme's scientific publications, other publications and external funding.

### Scientific Publications

The PRP observed and welcomed the increase in scientific publications from the Sheep Research programme over the review period. Over the review period, the number of publications per researcher, citations per publication and journal impact factors are relatively low. However, both the publication rate and impact factors of journals are increasing. The PRP agreed that part of the explanation is that 2 of the 6 research officers only joined the Sheep Research Programme in 2012 and overall about half the research team could be described as 'early career researchers'. As such, the PRP is satisfied that the upward trajectory in publication rate and journal impact factors will continue if the researchers are appropriately supported.

### Other publications

The contribution of research staff to papers presented at scientific conferences, number of technical reports and farming press articles over the review period has in most cases doubled, is generally well received by stakeholders and the sector generally and is a useful contribution to the Sheep Programme's KT activities.

### External funding

The PRP commended the significant increase in external funding as a proportion of income between 2012 and 2015. Research grants accounted for most of this increase but flagship KT events such as Sheep 2012 and 2015 and other conference sponsorship, although only making a small contribution, is included.

Overall, the PRP rated the productivity of the Sheep Research Programme to be **very good**

## 5.3. Reflection on Relevance & Impact

The PRP were impressed by the evidence of knowledge exchange and collaboration between stakeholders and researchers from discussions with both researchers and stakeholders during the site visit. Research carried out within the programme is informed by government policy and stakeholders. The Teagasc Sheep Research and KT programmes are reviewed twice per year by the Teagasc Sheep Stakeholders Committee which is representative of the broad sheep industry. A number of proposals have come from stakeholders that are now the focus of research projects. Examples are current studies on trace element supplementation of lambs and intensive finishing of light lambs. Other stakeholder-driven issues such as that of meat quality and international market requirements form part of stakeholder group discussions and input into the research programme.

Overall, the PRP rated the relevance and impact of the work in the Sheep Research Programme to be **excellent**

## 5.4. Reflection on Sustainability, Feasibility and Vision for the future

The PRP agreed on the following observations on the sheep research programme's technical support, research focus, staff development and expanding capabilities.

### Technical support

The PRP noted reduced resources in relation to technical staff and this needs to be addressed for future sustainability of the programme.

### Research focus

Gaps in research programmes on animal health, neonatal/perinatal mortality, environment issues including GHG, reproduction, alternative forages, out of season lamb including hill sheep production, and environmental programme for vulnerable hill areas were identified.

The PRP agree with the main technical, scientific and land use drivers of change identified by the Sheep Programme. The future research programme needs to have greater regard to increased international competition, the need for product differentiation on international markets with continued focus on market requirements in order to inform its areas of operation (Brexit/international trade negotiations, market access and market standards etc).

### Staff development

The PRP was pleased to hear from researchers that they have opportunities to travel abroad and to enrol in relevant courses and other professional development activity. The PRP noted that none of the staff had availed of sabbatical opportunities and would strongly encourage staff to avail of such opportunities both for personal professional development but also for network building, encouraging collaboration and increasing external funding possibilities.

### Expanding capabilities

The future success of the research programme will depend on sharing of data, expertise and greater collaboration within Teagasc and with appropriate organisations outside of Teagasc. For example, within Teagasc there is merit in building closer relationships with the social-science based research on technology adoption, knowledge transfer and extension carried out in the Rural Economy and Development Programme (REDP) in Athenry. Significant expertise relating to statistics, data gathering and analysis resides in that department also. The possibility of collaboration particularly statistical analysis and publication in high quality journals should be explored and encouraged.

Overall, the PRP rated the sustainability, vision and feasibility of the Sheep Research Programme to be **very good**

## 5.5. Conclusion

Although the Sheep Research Programme is somewhat limited by its size, career stage of some of its staff and reduced technical support, the team is clearly tracking in an upwards direction since the last review and is commended for this.

The research team clearly has support from stakeholders and needs to maintain this through constant interaction to ensure the work they undertake is relevant to current and future sectoral needs. Given the relatively small size of the team, it needs to consider means to increase its number of staff, especially technical but, also efficient mechanisms to work with other Teagasc and relevant non-Teagasc groups nationally and internationally to further increase capability and outputs.

## 6. Review of Sheep KT Programme

### 6.1. Reflection on Quality

The PRP noted a significant improvement and intensification of the KT programme in recent years. Some of the most recent outputs of the research programme have greatly aided the KT team in furthering best practice and implementation of results on commercial farms.

#### Client gains

The PRP recognise the committed, passionate and cohesive KT team who displayed good linkages with the sector in terms of client numbers and stakeholder interaction. This was acknowledged by the stakeholders. The client gains from the Sheep Programme KT activities were also clear to the PRP. The PRP noted the resource input into the training and coordination of KT teams including the regular in-service training and the concentration on old and new practices.

#### Best practice

The PRP noted the openness of the KT staff to incorporate international best practice into Sheep Programme KT activities, e.g. the use of info graphics and YOUTUBE in extension efforts in the UK or how in New Zealand, attendees at KT events are proactively challenged about their learning objective from the event. These innovations are complementary to implementing the Knowledge Transfer Groups scheme and the BETTER farm programme.

#### Conflicting demands

The PRP recognise that the involvement of Teagasc advisors in EU and Nationally funded schemes can impact on their ability to support technology adoption and hold technical events during the period March to May annually.

Overall, the PRP rated the quality of the Sheep KT Programme to be **excellent**

### 6.2. Reflection on Productivity

The PRP recognise that the increased resourcing of KT has enabled a significant improvement in activities and outcomes in the sector

#### Client reach

The Sheep KT Programme estimates that it has about 60% of the engaged sheep farmers as clients.

#### Sheep Events

The PRP noted the increased frequency of successful national and regional events led by Teagasc as a means of transferring knowledge to the industry. Each year there are 3 national sheep conferences (with audiences ranging from 300 – 800), more than 10 topic-driven public events and about 8 regional sheep seminars. In addition, there is a major sheep event every 3 years or so (Sheep 2012; 2015), where attendances can reach up to 15,000 people. These have been deemed very useful based on stakeholder feedback.

#### Discussion groups & other KT activities

The PRP acknowledged the significant increase in the number of discussion groups from 30 in 2012 to 140 in 2015. Out of 140 drystock advisors, 70 are involved with sheep discussion groups. There are 3 sheep specialists who regular in service training days for each of those 70 advisors in addition to other input to education programmes and training for new advisers and private consultants

The PRP noted how the 3 Sheep KT specialists are also actively engaged in producing articles for the press, technical notes/articles; conference papers, monthly newsletters and media contributions (TV, Radio, Internet). This is to be commended as a useful and cost effective knowledge transfer mechanism.

Overall, the PRP rated the productivity of the work in the Sheep KT Programme to be **excellent**

### **6.3. Reflection on Relevance and Impact**

The PRP recognised the continued relevance and increasingly positive impact of the KT programme.

As outlined above, the number of discussion groups has increased significantly. Stimulated by STAP, this increase in groups required a lot of start-up training for advisers who were deployed to facilitate the groups. The PRP recognise this as a deepening of engagement and an important up-skilling of the advisory resource. Performance parameters are increasing among sheep farmers as evidenced by the increased uptake of key technologies such as genetics and grass management. Innovations within the Sheep Programme such as the development of a grass ruler to promote grass measurement seek to encourage that momentum.

The stakeholder group proactively suggests KT activities and the PRP were given examples of the flexible response of the KT programme to these suggestions. Exit surveys from events are overwhelmingly positive.

Overall, the PRP rated the relevance and impact of the Sheep KT Programme to be **very good**

### **6.4. Reflection on Sustainability, Feasibility and Vision for the future**

The PRP recognise that recent progress on the current KT programme provides a sound basis for research dissemination and technology adoption on commercial farms.

The PRP specifically recognise:

- Direct farmer engagement through discussion groups
- A well-integrated structure for the dissemination of research findings (conferences, open days, industry events).
- The stakeholder group is active, works well and contributes to Programme activities.
- The BETTER Farm Programme is geographically well-balanced and there are a large number of well-run national and local public KT events.
- The Programme has excellent relationships with producer organisations and stakeholders, meat industry and also with the Department of Agriculture Food and the Marine (DAFM) including with its Veterinary Research Laboratories. At the same time, the programme has, and wishes to maintain, a high degree of independence. Supporting its KT activities, the programme has excellent relationships with local and national radio and press.

Reflecting comments about the research programme, the PRP suggested that the KT programme needs to increase its focus on animal health and in particular factors related to neonatal/perinatal mortality. In this context, collaboration with RVLs and Veterinary Ireland is important and needs to be further developed.

The PRP noted that the KT programme should increase its focus on issues related to market place requirements including lamb presentation and quality, food safety and traceability.

The PRP recommend that the KT programme remains open to new methods of KT and dissemination as they evolve.

The PRP acknowledge the important contribution the KT Walsh Fellowship Programme can make to KT processes and that it should be continued.

To assist in focusing the delivery of the KT programme, a lead sheep advisor should be identified in each region.

Overall, the PRP rated the sustainability, feasibility and vision of the Sheep KT Programme to be **very good**

## **6.5. Conclusion**

The Sheep KT programme is clearly successful and the team are congratulated for this. However, as acknowledged by the team they need to continue to evolve/develop new technology transfer methodologies and to avail of others used successfully elsewhere, to ensure greater farmer involvement and uptake of new technologies. They are also encouraged to publish the results they obtain to ensure findings can be built on.

## **7. Overall Sheep Programme**

The PRP were impressed by the responsiveness shown by Sheep Programme management to improve research and KT quality, productivity, relevance and impact since the last review in 2011. Management and staff outlined the main drivers of change for the sheep sector as:

- Improved technical efficiency through the use of better technologies:
- Sustainable intensification, where land is more intensively farmed within environmental limits; land use change from lower value to higher value systems;
- Finding markets for increased output and
- Increasing the marketability of sheep products within an increasingly competitive and discerning international market.

While the PRP agree with these they also wish to highlight that increased internationalisation and Brexit are also new significant change drivers that should contextualise the Sheep Programme activities.

The PRP were satisfied that the Sheep Programme leadership is aware of the 15 actions for the Sheep sector outlined in Food Wise 2025 and are conscious that some of the actions fall directly within the remit of the Teagasc Sheep Research and Knowledge Transfer programmes.

## 7.1. Reflection on Quality

Overall, the PRP was impressed by the Sheep Programme and noted that there has been a discernible improvement in the quality of the programme since its last review. The PRP particularly noted the dedication and work ethic of the Sheep Programme staff and its engagement with the peer review process.

There is a good balance between applied and basic research with the research programme very focused on industry requirements and addressing constraints to production efficiency at farm and industry level. Research and KT are very well integrated as evidenced by numerous joint events, presentations and publications. There are strong strategic alliances with industry and good access, links and relationships to commercial farms and animal resources. The Sheep Programme has excellent animal facilities and adequate laboratory facilities for parasitology and molecular studies.

The PRP consider that the impending retirements of key staff and gaps in certain support roles needs to be addressed. It is recognised that the research and KT programmes have a small, dedicated and effective administrative support team.

In summary, the PRP considers the overall quality of both the research and knowledge transfer elements of the Sheep Programme to be **very good**

## 7.2. Reflection on Productivity

In terms of research, the PRP are satisfied that the quality and productivity of research output is on an upward trajectory and there is no reason why this should not continue. Expanding external collaborations and strengthening technician support for research will help ensure this happens.

In terms of KT, the large-scale flagship (Sheep 2012; 2015) and smaller scale targeted events (Light Lamb, 2016) attract significant attendances. The PRP were appraised that there were no plans to expand the number of BETTER farms. Among other functions, these provide a vital data collecting service that contributes to research on the progeny of lambs that is fed into Sheep Ireland. BETTER farms are also critical for the parasitology research being carried out by the Sheep Programme. The PRP were also appraised that in contrast to the beef and dairy BETTER farm programmes which are also financially supported by stakeholders, the Sheep BETTER farms are solely funded by Teagasc. The PRP agree with the suggestion that some external funding for the Sheep BETTER farm programme, through resourcing a person, could increase research work around lamb mortality and parasitology.

Overall, the PRP rated the productivity of work in the Sheep Programme to be **very good** with some aspects **excellent**

### 7.3. Reflection on Relevance and Impact

The PRP meetings with stakeholders indicated a general satisfaction with the programme and a relationship with Teagasc which was positive and constructive. The stakeholders whose representatives were met by the PRP are clearly committed, critical and proactive in ensuring they inform the activities of the Sheep Programme. The PRP are satisfied from discussions with the stakeholders that the Sheep Programme is highly relevant to their needs, is valued by stakeholders and is responsive to their concerns. One example of this was the discussion of the light lamb model at a stakeholder meeting which was followed quickly by an event at Teagasc Athenry within a couple of months. This interaction and engagement with stakeholders should continue to be a feature of the programme as it allows for a dynamic and positive context in which it can evolve in the future.

One area where the PRP identified a deficiency in terms of the sector's challenges and Sheep Programme focus was in relation to market issues. A renewed look at the science-based aspects (e.g. traceability) of market-related issues (e.g. differentiation) by the Sheep Programme might be one way of identifying the possibility of closing that gap within the aims of the Sheep Programme.

Overall, the PRP rated the relevance and impact of the Sheep Programme to be **very good** with some aspects **excellent**

### 7.4. Reflection on Integration

The PRP noted a very strong relationship between the Sheep Enterprise Leader and the Head of Sheep KT. Major events such as National Sheep Conference, Sheep 2012 and Sheep 2015, Open Days and BETTER Farm events are all planned and organised by a committee comprised research, specialist and advisory staff. This ensures that all sections of the Programme have shared ownership of events. Equally, in-service training of advisers and private consultants is generally carried out in Athenry or on a BETTER Farm. Such training involves input from research and specialist staff and a visit to a research programme. For all Open Day and public events all stands at the events are manned by an adviser along with either a specialist or research officer.

Overall, the PRP rated the integration of the Sheep Programme to be **excellent**

### 7.5. Reflection on Sustainability, Vitality and Feasibility

The PRP recognised the highly cohesive and dedicated team involved in the Sheep Programme. The PRP were impressed by the comprehensive nature of the SWOT analysis presented, a fact all the more important as it was confirmed through discussion that the analysis was a combined effort from all staff. The PRP acknowledges the evidence that was presented to it about resource constraints, particularly in terms of the number of technicians to support research activities. In addition, the reduced availability of advisors around BPS time, for farm-related consultations, was raised by stakeholders. This was acknowledged by the PRP as a significant issue.

The PRP noted the relative small size of the research and KT teams which frequently comprise one person or half of one person. As a result, any prolonged staff absence could have a significant detrimental impact for an on-going research sub-programme or possibly



supervision of a Walsh Fellow. In addition, the current departmental structure combined with such small research teams diffuses the impact of the programme.

On the physical infrastructure side a large part of the research programme is based on leased land with a perception among staff of a potential risk of losing this land at short notice. This creates a feeling of uncertainty among some staff and at times has impacted morale. The use of leased land in itself is not seen by the PRP as a problem but it should be kept under review with a view to providing the certainty needed for planning research projects.

In the context of alignment with policy, the PRP question whether in addition to the 3 objectives of Productivity, Competitiveness; Sustainability; there should be a fourth objective – Differentiation. This aligns with the whole issue of traceability (for instance, electronic tagging). Relatedly, the PRP noted that there was no explicit consideration of how the Sheep Programme dovetails with the market-facing dimensions of quality and environmental sustainability and its linkages with the Sustainable Beef and Lamb Assurance Scheme (Origin Green).

Given the dispersion of Sheep Programme staff across a variety of Departments within AGRIP, facilitating internal communications opportunities for the staff as a Sheep Programme is important.

Overall, the PRP rated the sustainability, viability and feasibility of the Sheep Programme to be **very good**

## **8. Overall Sheep Programme Recommendations**

- The PRP acknowledges the success and overall contribution of the Teagasc Sheep Programme to Ireland's sheep industry, including its contribution to the livelihoods of 34,000 sheep farmers. The PRP also acknowledges the work and dedication of those involved in the Sheep Programme
- The current structure of the Sheep Programme within Teagasc is appropriate to the needs of the sector and makes the best use of the available resources.
- The role of the sheep sector in the broad environmental/land use/land abandonment /maintenance of hills/ climate change debate should feature in both research and KT programmes.
- Future research programmes should ensure closer alignment with government policy and industry needs. By and large this is the case but in future it should include focusing on genetics, alternative forages (linkages needed with arable research programmes), animal health, neonatal/perinatal mortality, hill sheep, environmental issues including GHG and land abandonment.
- The focus on genetic selection, new fertility and breeding resilience in relation to commercial farms should be continued and increased.
- The centrality of grassland management in relation to sheep is acknowledged and should continue to be a central part of both KT and research.

- To ensure a strong human resource base to the programme, consideration needs to be given to staff succession planning; alignment with the research prioritization and the research/technical/administrative staff requirements.
- The programme, in particular at KT level, should increase its focus on market-related issues vis product/offer differentiation, presentation of lambs for slaughter, issues related to international market access, food safety, traceability (EID) and quality.
- The excellent engagement with stakeholders across the sector is acknowledged as a key means of ensuring relevance and ongoing alignment of the programme with evolving sectoral needs. This should continue and be encouraged.

### **8.1. Research Programme Recommendations**

- Given the programme structure in Teagasc, the geographic spread of staff and the diffusion of Sheep Programme staff across AGRIP departments, attention needs to be given to strengthening internal communications and teamwork particularly within the Sheep Research Programme, but also across wider teams.
- The Sheep Programme should explore opportunities to develop links with Teagasc's Rural Economy and Development Programme's (REDP's) social science research and data analysis capability. The potential for joint publications should help this objective.
- Research experiments should be designed with the view to adding to international knowledge rather than repeating experiments done elsewhere, abroad or sometimes even done in other Irish institutions and already published. Such research will strengthen the potential for developing international linkages and be better placed to obtain research funding.
- The Sheep Programme should maintain existing and grow new relevant international and national research collaborations. The PRP compliments the small number of researchers who have developed links with Moorepark Research Centre and the Animal Science Section of University College Dublin in the areas of Grassland and nutritional research, since its last major review in 2002.
- Research staff give high priority to publishing their findings in high merit international journals, having the Teagasc researcher as the lead author
- Staff should be strongly encouraged to avail of sabbatical opportunities both for personal professional development but also for network building, encouraging collaboration and increasing potential external funding possibilities.

### **8.2. KT Programme Recommendations**

- The PRP acknowledges the major input in time and effort that has been put into the expansion of the KT programme in recent years and that from a farming viewpoint, it is seen as being very successful and the intensive efforts made in this area should have priority in future programme planning within Teagasc advisory and research.

- The identification of a lead sheep advisor, both hill and lowland, for each Teagasc Advisory region should be advanced.
- Acknowledging the pressure on KT staff during the BPS period, the PRP suggest that consideration be given as to how best to manage the conflicting demands without adversely affecting the KT programme.
- While acknowledging the existing use of social media for both research and KT, the PRP suggest that greater use of social media for KT should continue to be explored in order to exploit every opportunity.

**Appendix 1 Response of Management and Staff to the Report**

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**Peer Review of the Teagasc Sheep Programme 2016**

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**Action Plan for Implementation of Recommendations**

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Date: April 7<sup>th</sup> 2017

Submit to: Dr. Frank O'Mara, Director of Research

This action plan outlines the recommendations from the peer review report on the *Teagasc Sheep Programme 2016*. To complete this action plan please specify the actions to be taken, if any, to implement the recommendations outlined, allocate responsibility for these actions and set a target date by which the recommendation is to be implemented.

## 1. Recommendations for Sheep Programme

No.	Recommendations	Actions to be taken	Person responsible	Date for completion
1	The current structure of the Sheep Programme within Teagasc is appropriate to the needs of the sector and makes the best use of the available resources.	Agreed. Continue with existing structures		
2	The role of the sheep sector in the broad environmental/land use / land abandonment /maintenance of hills/ climate change debate should feature in both research and KT programmes.	Agreed. This to be addressed with the Sheep BETTER Hill farm programme. Greater involvement of environmental specialists in this programme. Also greater involvement with DAFM and Parks and Wildlife Service	Michael Gottstein & Michael Diskin	Starting July 2017
3	Future research programmes should ensure closer alignment with government policy and industry needs. By and large this is the case but in future it should include focusing on genetics, alternative forages (linkages needed with arable research programmes), animal health, neonatal/perinatal mortality, hill sheep, environmental issues including GHG and land abandonment.	Agreed. Genetics programme currently being strengthened. New programmes started in perinatal lamb mortality (Spring 2017) and new programmes scheduled in alternative forages (autumn 2017) and GHC (Spring 2018). Hill sheep and, environmental will be addressed un BETTER Farm Programme (see below)	Michael Diskin and Michael O'Donovan	Planning has already started and will be reviewed on an on-going basis
4	The focus on genetic selection, new fertility and breeding resilience in relation to commercial farms should be continued and increased.	Agreed. Consolidate closer working relationships with Sheep Ireland and with relevant sheep research laboratories in New Zealand and elsewhere	Michael Diskin and Noirin McHugh	Starting June 2017
5	The centrality of grassland management in relation	Agreed. Grass 10 programme	Michael	On going

	to sheep is acknowledged and should continue to be a central part of both KT and research.		O'Donovan and Michael Gottstein	
6	To ensure a strong human resource base to the programme, consideration needs to be given to staff succession planning; alignment with the research prioritization and the research/technical/administrative staff requirements.	Agreed. Meeting, involving, Research and KT Directorates along with HR to review staff requirements / prioritisation for next 5 year	Michael Diskin to initiate process	June 2017
7	The programme, in particular at KT level, should increase its focus on market – related issues vis product/offer differentiation, presentation of lambs for slaughter, issues related to international market access, food safety, traceability (EID) and quality.	Agreed. Meeting, involving Research and KT Directorates, Meat Science staff (Ashtown) and Bord Bia to address issues of marketing international market access, food safety, traceability (EID) and , product differentiation.	Michael Gottstein	June 2017
8	The excellent engagement with stakeholders across the sector is acknowledged as a key means of ensuring relevance and ongoing alignment of the programme with evolving sectoral needs. This should continue and be encouraged.	Agreed. Composition of Stakeholder group to be reviewed/renewed each year	Michael Diskin & Michael Gottstein	Starting June 2017

## 2. Recommendations for Sheep Research Programme

No.	Recommendations	Actions to be taken	Person responsible	Date for completion
1	Given the programme structure in Teagasc, the geographic spread of staff and the diffusion of Sheep Programme staff across AGRIP departments, attention needs to be given to strengthening internal communications and teamwork particularly within the Sheep Research Programme, but also across wider teams.	Agreed. 6 Monthly meeting of Research Programme with Specialists and Lead County Advisors invited	Michael Diskin, Michael O'Donovan and Michael Gottstein	Meeting to be held in June and December each year starting June 2017
2	The Sheep Programme should explore opportunities to develop links with Teagasc's Rural Economy and Development Programme's (REDP's) social science research and data analysis capability. The potential for joint publications should help this objective.	Agreed. 6 Monthly meeting of Research Programme with Specialists in the Sheep Programme and social science staff in REDP	Michael Diskin, Michael O'Donovan and Michael Gottstein	Meeting to be held in June and December each year starting June 2017
3	Research experiments should be designed with the view to adding to international knowledge rather than repeating experiments done elsewhere, abroad or sometimes even done in other Irish institutions and already published. Such research will strengthen the potential for developing international linkages and be better placed to obtain research funding.	Agreed. More active involved of Heads of Departments in all new studies with emphasis on meaningful national and international collaborations	Michael Diskin, Michael O'Donovan	Starting June 2017 and during RMIS preparation each year
4	The Sheep Programme should maintain existing and grow new relevant international and national research collaborations. The PRP compliments the small number of researchers who have developed links with Moorepark Research Centre and the Animal Science Section of University College Dublin in the areas of Grassland and nutritional research,	Agreed. More active involved of Heads of Departments in all new studies with emphasis on meaningful national and international collaborations	Michael Diskin, Michael O'Donovan	Starting June 2017 and during RMIS preparation each year

	since its last major review in 2002.			
5	Research Staff give high priority to publishing their findings in high merit international journals, having the Teagasc researcher as the lead author.	Agreed. Reviewed with individual staff members each year in Jan and July as part of PMDS meeting schedule	Michael Diskin & Michael O'Donovan	To be reviewed each June and December
6	Staff should be strongly encouraged to avail of sabbatical opportunities both for personal professional development but also for network building, encouraging collaboration and increasing potential external funding possibilities.	Agreed. Reviewed with individual staff members each year in Jan and July as part of PMDS meeting schedule	Michael Diskin & Michael O'Donovan	To be reviewed each June and December



### 3. Recommendations for Sheep KT Programme

No.	Recommendations	Actions to be taken	Person responsible	Date for completion
1	The PRP acknowledges the major input in time and effort that has been put into the expansion of the KT programme in recent years and that from a farming viewpoint, it is seen as being very successful and the intensive efforts made in this area should have priority in future planning within Teagasc advisory and research.	Agreed To be addressed as part of the annual Business Planning programmes in the Research, KT directorates and at Area manager level	Tom Kelly, Dermot McCarthy and Area Managers	Starting December 2017 and each December
2	The identification of a lead sheep advisor, both hill and lowland, for each Teagasc Advisory region should be advanced.	Excellent recommendation	Tom Kelly, Dermot McCarthy and Area Managers	Completed by 30 June 2017
3	Acknowledging the pressure on KT staff during the BPS period, the PRP suggest that consideration be given as to how best to manage the conflicting demands without adversely affecting the KT programme.	Agreed. To be addressed as part of the annual Business Planning programme	Tom Kelly, Dermot McCarthy and Area Managers	Starting December 2017 and each December
4	While acknowledging the existing use of social media for both research and KT, the PRP suggest that greater use of social media for KT should continue to be explored in order to exploit every opportunity.	Excellent recommendation.	Sheep Specialists in conjunction with PR Dept.	Completed end of June 2017

## Appendix 2 Sheep Programme Human Resources

The total number of employees in each staff category in the Sheep Programme is presented in Table 1. Most drystock advisers cover both cattle and sheep.

<b>Table 1: Research Staff at Programme Level (Full Time Equivalents /year on the Teagasc Sheep Programme )</b>				
	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Research Staff</b>				
- Permanent Researcher	4.25	4.35	4.45	4.45
- Contract / Post Doc Res.	0	0	0	0
- Walsh Fellows	2.25	3.25	6.5	7.63
<b>KT Specialist Staff</b>				
- Specialist	2	2.08	3	2.4
- KT Walsh Fellow	0	0.5	2	1.75
-				
<b>Support staff</b>				
- Technologist Permanent	0	0	0	0
- Technologist Contract	1	1	1	1
- Technician Permanent	3.4	2.9	3.6	4.1
- Technician Contract	0	0	0.1	0.2
- Maintenance	0	0	0	0
- Domestic	0	0	0	0
- Other -Farm	9.5	9.5	9.5	10
<b>Management/ Admin</b>	2.1	2.1	2.1	1.45
<b>Admin KT</b>	0.5	0.5	0.5	0.5
<b>Total Research &amp; Specialist Staff (including Walsh fellows</b>	25	26.18	32.75	33.48
<b>Total Research &amp; Specialist Staff (excluding Walsh fellows</b>	22.75	22.43	24.25	23.6
<b>Drystock Adviser (Cattle &amp; Sheep)</b>	18	70	70	70

Sheep Programme Staff (FTE) by Research Department, Atheny Enterprise and by KT (Knowledge Transfer) specialists is presented in Table 2.

<b>Table 2. Staff (FTE ) by Research Department, Atheny Enterprise and by KT (Knowledge Transfer) specialists.</b>				
	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Animal and Bioscience Research Department</b>				
<b>Research Staff</b>				
- Permanent Researcher	2.25	2.25	2.25	2.25
- Contract / Post Doc Res.	0	0	0	0
- Walsh Fellow	2.25	2.75	4.5	5.25
Contract Technologist	1	1	1	1
<b>Grassland Science Department</b>				
<b>Research Staff</b>				
- Permanent Researcher	2	2	2	2
- Contract / Post Doc Res.	0	0	0	0
- Walsh Fellow	0	0.25	1	1.38
Contract Technician	0	0	0.1	0.2
<b>Meat Technology Department</b>				
<b>Research Staff</b>				
- Permanent Researcher	0	0.1	0.2	0.2
- Contract / Post Doc Res.	0	0	0	0
- Walsh Fellow	0	0.25	1	1
Contract Technician	0	0	0	0
<b>Athyeny Enterprise</b>				
Technical	3.4	2.9	3.6	4.1
Farm	9.5	9.5	9.5	10
Adminstration / Management	2.1	2.1	2.1	1.45
<b>Knowledge Transfer and Advisers</b>				
<b>Specialists</b>	2	2.08	3	2.4
<b>KT Walsh Fellow</b>	0	0.5	2	1.75
<b>Administration / Management</b>	0.5	0.5	0.5	0.5
<b>Total Research and Specialists</b>	25	26.18	32.75	33.48
<b>Drystock Adviser (Cattle &amp; Sheep)</b>				
	18	70	70	70

## **Appendix 3 Food Wise 2025 SWOT Analysis**

### **Strengths**

- Grass based production systems
- Good export performance
- High net value added product
- Breed improvement programmes
- Credible and sustainable quality assurance scheme
- Positive socio-economic and environmental impact in hill/mountain areas

### **Weaknesses**

- Seasonality of supply
- Viability of sheep farming is heavily dependent on direct supports to the producer
- Higher age profile of sheep farmers
- High relative price point at consumer level
- Lack of significant third country markets outside the EU

### **Opportunities**

- Securing access to new markets in Asia, Africa and North America
- Growing ethnic population
- Growing demand in China is leading to reduced NZ imports into Europe
- Expand its product range and exploit the image of sheepmeat as a particularly natural healthy product

### **Threats**

- Food safety incident
- Disease outbreak
- Difficulty to maintain consumption levels
- Failure to protect and measure the impact on the natural environment

## Appendix 4 Peer Review Assessment Criteria

**Table 1 Peer Review Assessment Criteria**

<b>Criteria</b>	<b>Sub-Criteria</b>	<b>Aspects that may be considered – Research Departments</b>	<b>Aspects that may be considered - Knowledge Transfer Departments</b>
<b>Quality</b>	A1. Quality and scientific relevance of research and knowledge transfer	Originality of the ideas and the research, significance of the contribution to the field; coherence of the programme; quality of the scientific publications; scientific and technological relevance.	Quality of technical knowledge gathered and disseminated / transferred. Up to date knowledge transfer methods used
	A2. Leadership	Leadership by primary individuals; mission and goals; strategy and policy.	Leadership demonstrated by individuals and teams. Advisory Programme development and leadership Problem solving and mentoring for advisors
	A3. Reputation	International position and recognition; prominence of the programme Director and other research staff; impact and significance of the research in the field.	External Collaboration Stakeholder Interaction Prominence of programme manager and staff Recent programme knowledge transfer achievements
	A4. Resources	Human resources; funding policies and earning capacity; relevance of research facilities.	Capacity and knowledge base of existing staff. Quality of In-service training programme developed and delivered to Advisory staff.
<b>Integration</b>			
<b>Productivity</b>	B1. Productivity	Publication output; external income; stakeholder interaction	Knowledge transfer output; training & education;
<b>Relevance and impact</b>	C1. Development Industry Support	Alignment to national priorities. collaboration with industry stakeholders,	Tillage Advisory Programme Objectives Influence and collaboration with Stakeholders and Industry
	C2. Knowledge Transfer	Behaviour change, practice adoption	Behaviour change, practice adoption. Evidence of impact Assessment
<b>Sustainability, Vitality and Feasibility</b>	D1. Strategy	Strategic planning; investments and collaboration; research and knowledge transfer topics planned for the near future and their perspectives; flexibility and anticipation of expected changes.	

For the assessment of the programme, the report should follow the suggested terminology in table 2. In the text, the most important considerations and recommendations of the panel should be clearly presented.

**Table 2 Qualitative Peer Review Assessment**

<b>Qualitative Assessment</b>		
	<b>Research</b>	<b>Knowledge transfer</b>
<b>Excellent</b>	Research is world leading. Researchers are working at the forefront of their field internationally and their research has an important and substantial impact in the field.	KT Programme has very high national visibility; employs the most up-to-date methods; draws on significant stakeholder involvement; and delivers significant economic/social impacts. – Comprehensive evidence of regular impact assessment
<b>Very good</b>	Research is internationally competitive and makes a significant contribution to the field. Research is considered nationally leading.	KT Programme has high national visibility; employs the most up-to-date methods; draws on stakeholder involvement; and delivers significant impacts for the sector. Strong evidence of regular impact assessment
<b>Good</b>	Work is competitive at the national level and makes a valuable contribution in the international field. Research is considered internationally visible.	KT Programme has a national visibility; employs a range of methods; draws on stakeholder involvement; and delivers good outcomes for stakeholders. Selected evidence of impact assessment
<b>Satisfactory</b>	Work adds to our understanding and is solid, but not exciting. Research is nationally visible.	KT Programme has low national visibility; employs limited range of methods; has satisfactory stakeholder involvement; and delivers outputs with some stakeholder impact. Some evidence of impact assessment
<b>Unsatisfactory</b>	Work is neither solid nor exciting, flawed in the scientific and or technical approach, repetitions of other work, etc.	KT Programme has no national visibility; employs limited range of methods; has little stakeholder involvement; and has little impact. No evidence of impact assessment

## Appendix 5 Sheep Programme Peer Review Panel

### TEAGASC SHEEP PROGRAMME PEER REVIEW PANEL

	Name and Contact details
1.	Mr Tom Moran (Chair) 22 Deerpark Road Castleknock Dublin 15 E: <a href="mailto:thomasandrewmoran@gmail.com">thomasandrewmoran@gmail.com</a> T: 086 814 6546
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3.	Professor Paul Kenyon Head of the Institute of Veterinary, Animal and Biomedical Sciences Vet Tower Massey University Private Bag 11-222 Palmerston North 4442 New Zealand E: <a href="mailto:P.R.Kenyon@massey.ac.nz">P.R.Kenyon@massey.ac.nz</a> T: + 64 (06) 356 9099
4.	Ms. Yvonne Johnston Swiss Cottage, Tyrrellspass, Co. Westmeath E: <a href="mailto:yjohnston@gmail.com">yjohnston@gmail.com</a> T: 0872663020
5.	Mr. Paddy Browne Head of Crops, Environment and Land Use Programme Teagasc Oak Park Carlow E: <a href="mailto:paddy.browne@teagasc.ie">paddy.browne@teagasc.ie</a> T: 059 9183418. M: 087 2422715.
6.	Mr. Cormac Healy Meat Industry Ireland Confederation House 84/86 Lower Baggot Street Dublin 2 E: <a href="mailto:cormac.healy@ibec.ie">cormac.healy@ibec.ie</a> T: 01 605 1640

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