

# **REPORT OF THE CAMPYLOBACTER STAKEHOLDERS GROUP**

**APRIL 2017**

# Minister's Foreword

In Ireland we pride ourselves in being a centre of excellence for food production and we must always be conscious that the protection of public health is paramount. Responsibility for producing safe food rests with all the stakeholders along the food chain and I commend all the members of this Group for working collaboratively to ensure everything, that can be done, is being done to deliver the safest possible chicken to Irish consumers.

It is great to see this collaboration between farmers, processors and retailers with the shared goal to minimise the risk of foodborne illness in humans due to campylobacter. Food Safety and protecting the public health are non-competitive issues and it is only when everyone works together in this fashion will real progress be made. The Group has engaged with the researchers which is important if the researchers are to address the priority problems industry is facing and come up with solutions that can be applied in the commercial environment to deliver safer product for consumers.

In the short to medium term it appears that it will not be possible to eradicate campylobacter completely from the national poultry flock so in addition to risk reduction measures along the food chain awareness campaigns for consumers are essential to ensure poultry is handled correctly during preparation of meals to prevent people falling ill. It is great to see the Food Safety Authority, Safe Food and the major retailers working together to have consistent messages for the media and the public.

My Department is supportive of this proactive approach to raising standards above the legal requirements and ensuring that both public health and the reputation and brands of Irish companies are protected. Many of the measures introduced to tackle campylobacter will deal with other agents that may affect human health and the heightened biosecurity measures on farms will also help protect the birds from other diseases. Surveillance and monitoring are key to identifying the full extent of the problem and checking on the efficacy of interventions. Standardising sampling and laboratory protocols are important if results are to be comparable on different sites and at different stages of the supply chain.

This is a journey of continuous improvement and I encourage the stakeholders to continue to seek new solutions and new risk management strategies as the science evolves.

I thank all involved for their work to date.

## Minister Creed

# Chairman's Foreword

Campylobacter is the commonest cause of bacterial enteritis in Ireland, and throughout the EU, and presents a challenge to the public health authorities attempting to reduce the incidence of human disease.

Poultry are one source of campylobacter and as healthy chickens can harbor the bacteria it is difficult to deliver campylobacter free chicken to the public. Poultry farms and processing facilities are not operating theatres and raw chicken meat on retail sale will never be a sterile product. Therefore the strategy to reduce the exposure of the public to this germ is one of incremental risk reduction along the entire supply chain coupled with communication of the residual risk and how to manage it to the public. Every stakeholder along the supply chain from farmers to retailers has a part to play to ensure consumers get the safest chicken meat possible.

This Group brought all the stakeholders together to share their knowledge and implement a process of continuous improvement taking on board the latest scientific developments to ensure the safest product possible is delivered to Irish consumers. This has been an industry led initiative as it is industry rather than the regulators who have the responsibility to produce safe food.

I acknowledge the time and effort of all the players from along the food chain some of whom are competitors in the market place but who have freely shared their information and their time in the interest of achieving the lowest level of campylobacter achievable on finished product.

The staff of the DAFM, FSAI and Saferood have been very supportive of the industry's initiative. It is only by adopting risk-based controls, and continuously evaluating the efficacy of interventions, the level of contamination in flocks and on finished product and the incidence of disease in humans, that real progress will be made.

Consumers expect the industry to do everything to protect their health and the health of their families and this proactive collaboration to address the challenge of campylobacter is a model of good practice for the entire agri-food industry.



Patrick G Wall

# CONTENTS

<b>1.</b>	<b>Introduction.....</b>	<b>5</b>
<b>2.</b>	<b>Food Safety.....</b>	<b>6</b>
<b>3.</b>	<b>Campylobacter.....</b>	<b>7</b>
<b>4.</b>	<b>Campylobacter Stakeholders Group.....</b>	<b>9</b>
<b>5.</b>	<b>Initial Observations.....</b>	<b>10</b>
<b>6.</b>	<b>Recommendations and Actions Taken and Ongoing.....</b>	<b>12</b>
<b>7.</b>	<b>Conclusions.....</b>	<b>18</b>
<b>8.</b>	<b>Appendix Members of the Stakeholders Group.....</b>	<b>19</b>

# 1. Introduction

The Poultry sector in Ireland produces a high quality affordable nutritious protein that is convenient to prepare and popular with consumers. There are four major processors on the island of Ireland, three in the Republic and one in Northern Ireland. Ireland is not self sufficient in poultry with a large proportion of chicken used in the food service sector being imported. Opportunities exist to grow the sector both in terms of market share for Irish produced product and greater consumption by an increasingly health conscious public. Chicken is a very versatile product, which makes a positive contribution to the diet of consumers of all demographics, at different stages of life and with different lifestyles. Improved health and well being is increasingly a focus of consumers with a better recognition of the relationship between diet and health. Chicken is well positioned to respond to changing consumer demands and preferences.

New practices to improve efficiency, to manage costs and to maintain competitiveness are continuously being explored by the various stakeholders along the entire supply chain. Food safety is fundamental to the success of the sector as illness linked with chicken consumption, or food scares associated with chicken, can damage consumer confidence and continuously addressing food safety issues is a major priority for all stakeholders.

Food Harvest 2020 and Foodwise 2025 outline ambitious plans to grow the entire agri-food sector, Ireland's oldest, and largest, indigenous industry. However if the overall targets are to be realised Ireland cannot afford to have its reputation of producing safe wholesome food tarnished by adverse publicity associated with any sector. Food Safety, Animal Welfare, Nutrition and Health and environmental impact of production systems are four areas that require constant attention to maintain consumer confidence. The poultry sector is engaged in activities in all four areas as all stakeholders have ambitious plans to grow the sector.

## **2. Food Safety**

Food safety is a non-competitive issue as the protection of consumers' health is of paramount importance to all of the stakeholders in the poultry industry in Ireland from feed mills to the retailers. In addition, adverse publicity can damage the brands and reputation of all stakeholders in the sector.

The approach by Irish poultry producers is to tackle all diseases of poultry, both zoonotic and bird specific, through enhanced biosecurity and optimum husbandry practices. This approach is helping the Irish industry produce healthier birds and safer product.

One major challenge for the Irish poultry industry and the poultry industry globally, is to control *Campylobacter*. *Campylobacter* is a bacterium that can be carried by chicken without impacting to any significant degree on the chicken's health but which can cause illness in humans.

All those involved in producing and selling poultry, and poultry products, are eager to ensure that all that can be done is being done to ensure Irish chicken is as safe as possible and that best practices for the control of *campylobacter* are adopted and implemented.

### 3. Campylobacter

Campylobacter is the commonest cause of bacterial food poisoning in Ireland with over 2,250 laboratory confirmed cases each year since 2013. In this, Ireland is no different from the rest of the EU as the European Food Safety Authority (EFSA) has highlighted campylobacter as a major problem across the entire EU with over 200,000 reported cases each year. As many people fall ill and do not have a laboratory confirmed diagnosis and are not reported, EFSA estimates the actual number of cases annually in the EU is closer to 9 million. This under-reporting phenomenon is found in every Member State to varying degrees and is influenced by the cost of attending GPs, the availability of laboratory testing capabilities and the efficiency of national surveillance systems. The true number of cases in Ireland could be in the region of 10-15,000 annually.

Most infected people develop fever, diarrhea and abdominal cramps with symptoms persisting for 5-7 days with varying degrees of severity, however up to 10% of cases have a prolonged illness longer than one week and 2-10% of cases have chronic sequelae including reactive arthritis. One in every 2,000 cases get the very serious condition Guillain Barre syndrome which results in paralysis, with those affected requiring treatment in intensive care for weeks or months, many do not make a complete recovery and even with optimum care, up to 5 % of cases die.

The bacteria is found in pigs, cattle and poultry, but there is compelling evidence from a number of studies in Ireland and internationally that poultry is the most important source of campylobacter causing infections in humans. Campylobacter colonise the avian intestinal tract and proliferate at temperatures around 37°C to 42°C. Campylobacter grows under microaerophilic conditions with low oxygen; therefore, the intestinal tract of commercial broilers is a favourable environment for its growth.

Campylobacter are frequently found in high numbers in the intestinal tract of broilers. Initially they were thought to cause no adverse effect on the birds but some evidence is emerging that campylobacter may impact on the performance of the flock. Campylobacter spreads rapidly through a broiler flock and after introduction into a house it can disseminate throughout the flock within 72 hours. Positive broilers entering the slaughterhouse are likely to be the main source of carcass contamination during slaughter and an important reservoir for human infection.

A baseline survey carried out in the EU in 2008 and published by EFSA in March 2010, showed that in Ireland the estimated prevalence for campylobacter in broiler batches (caecal contents) was 83.1% and 98.3% in broiler carcasses (skin samples). The results for our near neighbours, the UK, were 75.3% and 86.3% respectively. The results from this baseline survey indicated that Irish consumers have a significant exposure to Campylobacter from chicken and triggered the Food Safety Authority of Ireland to review the situation and produce a report on a control programme for campylobacter in the Irish broiler production and slaughter chain. They produced a comprehensive list of recommendations however, many of them have not yet been actioned.

Since 2013 the UK Food Standards Agency has prioritised tackling campylobacter and have brought all the stakeholders along the food chain together in an attempt to reduce the level of campylobacter in chickens and reduce the burden of foodborne disease resulting from campylobacter. To monitor the effectiveness of their interventions they have an ongoing survey of chicken on retail sale to investigate the prevalence, and levels, of campylobacter contamination on fresh whole chilled chickens and their packaging. They publish a 'league table' quarterly ranking the performance of each of the major retail chains. These tables are generating quite a degree of adverse publicity with campylobacter present in between 70 and 80 % of chickens in most stores and the level of contamination greater than 1000 cfu/gm ranged from 12 -30%. The level of contamination on the outside of packaging ranges from 4 to 13% between stores.

## 4. Campylobacter Stakeholders Group

In the UK the Food Standards Agency is leading the campaign to bring together the whole food chain to tackle campylobacter from farm to fork. However in Ireland the industry wished to take the lead and tackle the problem. To this end, at the invitation of the Minister of Agriculture, Food and the Marine, a Campylobacter Stakeholder Group was convened in July 2015 to proactively address the issue of reducing the incidence of campylobacter in humans through the reduction in the level of contamination in broiler flocks and the level of contamination, and cross contamination, throughout the food chain.

The Stakeholders Group included representatives of farmer-growers, the four processors on the island of Ireland and all the major retailers. In addition the Food Safety Authority of Ireland, Safefood, Bord Bia and DAFM participated on the Group to provide advice to the Group on relevant issues. (Appendix A). Sub groups were also set up to examine and advise on specific sectoral issues.

A series of meetings of the main Group, and specific subgroups, were held between July 2015 and November 2016 and activities initiated by the Group are ongoing. Meetings were attended by researchers from Teagasc, UCD and DAFM's Backweston laboratory facility as required. A UK Expert also attended one meeting to brief the Group on developments in the UK.

From the outset there was a clear awareness amongst the businesses involved in the food supply chain (producers, processors and retailers) that work needs to be done to control Campylobacter colonisation and contamination to ensure chicken for consumers is as safe as it possibly can be.

It was also agreed, to protect the health of consumers, that all sectors of the industry, research scientists and policy makers need to work together to enable the development and implementation of more effective, validated control measures.

Chicken is a safe, affordable source of nutritious protein and proactive measures are needed to maintain consumer confidence and grow the sector.

## 5. Initial Observations

Strategies to prevent transmission of campylobacter to humans have to focus on the whole production chain of broiler meat and on the subsequent storage and handling of meat effectively from 'Farm to Fork'. Campylobacter control strategies in broilers fall into three main groups: i) pre-harvest phase (farms), ii) harvest phase (catching and transport) and iii) post harvest phase (during processing, at retail and in commercial and consumer kitchens).

### 5.1 *Monitoring*

There is no standard monitoring programme across the industry, which makes trend analysis and determination of any success or improvement hard to establish. Not all processors provide routine timely feedback to farmers. Identification of positive flocks for scheduling slaughter so that they can receive additional attention does not occur routinely.

### 5.2 *Sampling Protocols*

There is no standard sampling protocol on farms, in processors or in retailers governing what is to be sampled, how it is to be sampled, how the samples are handled etc. e.g. boot swabs on farms, caecal or neck skin, whole chicken washes etc.

### 5.3 *Laboratory Protocols*

There is no standard laboratory protocol being used by the range of commercial laboratories undertaking analysis of samples for the processors and retailers. Furthermore some of the laboratories being used are accredited and others are not. Similar to some other bacterial pathogens, Campylobacter can enter into a viable but non-culturable (VBNC) state in which the bacteria will not exhibit growth on traditional laboratory media although the pathogen can return to a culturable state and retain pathogenicity. This makes detection challenging and with different laboratories using different testing protocols comparability of results is impossible.

### 5.4 *Biosecurity*

Biosecurity varies on Irish farms from mediocre to good. To make an impact on Campylobacter it probably needs to be exceptional. Improving standards will need a huge commitment in terms of training and continual evaluation on farms. Many farms in Ireland are not poultry-only farms which presents additional challenges to biosecurity. Education of farmers and initiatives to change behavior such as monetary incentives or sanctions, will have to be undertaken. Bord Bia's Quality Assurance Scheme should incorporate some additional requirements. Fly screens are reported to deliver benefit in some jurisdictions but concern was expressed that in some houses they could compromise air flow and cause welfare problems. Biofilms on drinkers may present a challenge. On some sites the infrastructure is old and may need to be phased out. A wider issue for the production sector is access to funding in the form of credit, grants etc for new buildings and major refurbishments and campylobacter control will benefit

if progress can be made in this area. Vertical transmission (via the egg) is not considered to be a factor in transmission, so it is on the commercial broiler farms where interventions are needed.

### **5.5 *Thinning***

This is well established as a significant risk factor, although arguably an economic and practical necessity. Several of the UK retailers intend to stop taking birds from flocks which previously have been thinned and Irish branches of the same stores may follow suit.

### **5.6 *Transport Crates and Modules***

These are a continual source of infection on farms. Ensuring these are always disinfected effectively in the plant presents an ongoing challenge.

### **5.7 *Process Controls***

There was some discussion on the effectiveness of existing processes and whether they were always functioning optimally, scald tanks, evisceration equipment, inside outside washes etc.

### **5.8 *Process Interventions***

Treatment processes on the carcasses holds some promise. Chemical treatment is not permissible under EU law, although several products have been demonstrated to be safe and effective. However physical treatments are allowed – steam, ultrasound, crust freezing etc.

### **5.9 *Initiatives to Prevent Cross Contamination***

Modified atmosphere packaging, leak proof packs and cook in the bag are being used to reduce the risk of cross contamination in the consumer's kitchen.

### **5.10 *Risk Communication to Consumers***

The importance of consistent messages in campaigns, in store, on websites, on labels etc was discussed and the need for Safefood, the FSAI and retailers to work together to ensure they are all giving the same messages.

### **5.11 *Commission Regulation No 2073/2005***

This Regulation lays down microbial criteria and stipulates process hygiene criteria, sampling protocols and laboratory tests to be used, for certain micro-organisms. *Campylobacter* is not yet included but the Regulation is likely to be amended in the near future to include *Campylobacter*. Sampling frequency, intensity and methods and acceptable laboratory tests will be prescribed. Bacterial loads in terms of colony forming units per square centimeter (cfu/cm<sup>2</sup>) will be defined for chicken at processing level.

## 6. Recommendations and Actions Taken and Ongoing

### 6.1 *Biosecurity Protocol*

An optimum biosecurity protocol for growers has been developed by representatives of the processors and growers.

Biosecurity is not about targeting on one or two possible contamination risk factors, it is about controlling and addressing a whole series of little control points. It's the combination of all measures taken to reduce the risk of introducing and spreading disease. Some may ask for more effort by the farmer than others but only by this approach infection pressure can be maintained at very low levels on the farm.

The Knowledge Transfer Scheme co-funded by the National Exchequer and the EU Agricultural Fund for Rural Development now includes the poultry sector so it affords the opportunity to have discussion groups for growers where information can be exchanged and best practice promulgated.

#### **Actions Required**

- a) In order for the protocol to be implemented, education initiatives for growers will have to be introduced and training materials, including videos, developed.
- b) Incentives or sanctions should be introduced to drive the appropriate behavioral change.
- c) The Bord Bia Quality Assurance Schemes should be modified to include requirements for enhanced biosecurity.

#### **Lead ownership**

- Processors and Growers' representatives
- Others involved
- Bord Bia and DAFM

### 6.2 *Targeted Agricultural Modernisation Scheme (TAMS)*

Agreement has been reached to make poultry enterprises eligible for TAMS funding to cover perimeter fencing, concrete aprons, anterooms etc.

#### **Action Required**

- a) Ensure farmers are aware of what is eligible for grant aid and encourage uptake.

#### **Lead ownership**

- Growers' representatives and Processors
- Others involved
- DAFM

### 6.3 *Thinning*

Thinning is a major risk factor and the questions are i) can it be done better or ii) can it cease. Removing thinning would require many more farms, or more housing, to deliver the same number of birds.

#### **Action Required**

- a) Review the practicality, and resource implications, of ceasing thinning.

#### **Lead ownership**

- Processors and Retailers

### 6.4 *Standardise sampling methods and laboratory protocols*

For meaningful results, to permit monitoring of trends and the effectiveness of interventions, and to enable comparisons of results, sampling and laboratory testing should be standardised to approved approaches.

#### **Actions Required**

- a) Processors to develop standardised sampling on farms and in factories, agree the frequency, the stage of production, and how to sample flocks on farm.
- b) Processors adopting standardised sampling and laboratory testing protocols.
- c) Retailers in process of adopting standardised sampling and laboratory testing protocols.
- d) To raise the standard in the laboratories, quality control ring trial to commence following implementation of standard testing methods – coordinated by DAFM Laboratory Services.
- e) All laboratories who are not currently accredited to identify and enumerate *Campylobacter* should apply for such accreditation as a priority.. (Participation in ring trials is a requirement for accreditation).

#### **Lead ownership**

- Processors, Retailers and Laboratory representatives
- Others involved
- DAFM Laboratory Services

## 6.5 *Analysis of the results of company testing, official control testing and surveillance of infections in humans*

When unacceptable results are found at any stage of production corrective actions are required. The more testing that is undertaken the more campylobacter will be found so it is important that the authorities do not punish the companies who are being proactive and also that imported product is also monitored. The incidence of infections in humans should be closely monitored and investigated to identify the sources of infections where possible.

### **Actions Required**

- a) Review of practices on positive farms.
- b) Consider stopping thinning.
- c) Scheduling slaughter of heavily positive flocks and include additional interventions.
- d) Monitor levels of contamination in imported chicken.
- e) Enhanced surveillance and investigation of human cases.

### **Lead ownership**

- Growers, Processors and Retailers

### **Others involved**

DAFM, FSAI and HSE Health Protection Surveillance Centre: surveillance, monitoring of imports and investigation of human cases.

## 6.6 *Sharing of laboratory results*

If sampling, and testing, is standardised, then results will be meaningful, and comparable, and could be used to monitor trends and to benchmark growers against their peers and processors against each other.

### **Action Required**

- a) Some way must be found to share data for effective surveillance and to motivate the desired behavioral change.

### **Lead ownership**

- Processors and Retailers

## 6.7 *Optimising routine processes*

Existing practices should be working as effectively as possible.

### **Action Required**

- a) Review existing processes such as transport crate cleaning, scald tank, evisceration and inside outside washes.

### **Lead ownership**

- Processors

## 6.8 *New post harvest interventions*

There is no one thing that is going to resolve campylobacter but a series of interventions will deliver incremental risk reduction and deliver safer chicken. Current research shows that completely eliminating Campylobacter is a challenging task and maintaining a multi-hurdle approach in commercial poultry processing facilities will prove to be the most effective method to achieve performance standards for this pathogen

### **Action Required**

- a) Review international findings and consider trials in Ireland of interventions that are working.

### **Lead ownership**

- Processors and Retailers

## 6.9 *Education of Consumers*

Zero risk will never be achieved so consumers will have to be educated to cope with the residual risk.

### **Action Required**

- a) Agree consistent consumer messages and approaches, to achieve desired behavioral change.

### **Lead ownership**

- Processors, Retailers, and representatives of Commercial Caterers
- Others involved
- Safefood, FSAI

### **6.10 Public likely acceptance of new interventions**

There may be consumer resistance to the introduction of chemical decontaminants at the processing stage to achieve a reduction in overall bacterial load on carcasses, so it would be important to identify and address their concerns to avoid damaging consumer confidence.

#### **Action Required**

- a) Project underway to assess “Consumer Acceptability of Poultry Decontamination Methods on the Island of Ireland”.

#### **Lead ownership**

- Safefood/UCD/Devenish

### **6.11 Appropriate Research**

It is important that research addressing the current challenges is initiated and funded and there is adequate collaboration with industry to ensure research is relevant and practical.

The Group was briefed on research on: Clean Broilers through enhanced biosecurity, processing prerequisites and HACCP based interventions – 4 year project Teagasc/UCD in conjunction with DAFM/FSAI.

#### **Actions Required**

- a) Involvement of Stakeholders to ensure findings are utilized where relevant.
- b) Ongoing dialogue between the stakeholders and the research community is required to ensure that the needs of the sector and the interests and activities of the researchers are aligned.
- c) The development of a rapid, on-farm test for Campylobacter.
- d) Understanding the effect on Campylobacter of water treatment, feed regimes and supplements for poultry.
- e) The development of a strain bank to assist in understanding the genetic diversity of the Campylobacter.

#### **Lead ownership**

- All Stakeholders and Researchers

### 6.12 *Crisis Communications*

There is a need to be able to effectively communicate with the public about the risks associated with campylobacter and what is being done by industry and the regulators to reduce these to the absolute minimum. If the media receive conflicting messages it damages consumer confidence.

#### **Action Required**

- a) Put in place some mechanism to address media queries without damaging consumer confidence in chicken.

#### **Lead ownership**

- Stakeholders Group

### 6.13 *Monitoring progress*

The Industry stakeholders bear the responsibility for putting safe food on the market and these recommendations have to be actioned if progress is to be made

#### **Action Required**

- a) A small implementation group is required to monitor campylobacter control, to set targets and timeframes and to ensure the recommendations suggested are progressing and those with lead ownership are held accountable and all stakeholders are kept apprised of developments.

#### **Lead ownership**

- Nominated representatives of stakeholders.

## 7. Conclusions

There is awareness amongst the businesses involved in the food supply chain (producers, processors and retailers) that work needs to be done to control *Campylobacter* colonisation and contamination.

They all agree that every stakeholder along the supply chain from farms to consumers has a role to play to reduce the incidence of campylobacter infection in humans and the level of campylobacter contamination of retail chicken.

*Campylobacter* is a global problem and initiatives are being trialed and introduced in many jurisdictions as well as in Ireland. The Irish poultry industry needs to be able to benchmark with the best in the world if we are to live up to our ambition to be a center of excellence for the production of safe wholesome food.

Ongoing education initiatives are necessary to keep all stakeholders apprised of the practices necessary to control campylobacter.

Engagement with consumers is important to explain to them that raw chicken is not sterile and has to be handled hygienically during meal preparation. This has to be explained to consumers in a positive way that doesn't cause alarm, will change practices and maintain their confidence in chicken which is a very nutritious and affordable source of protein for consumers of all ages in all socio-economic groups.

The importance of applied research and innovation cannot be overstressed and resource allocation to ensure the optimum practices are introduced has to be prioritised.

Ensuring that Irish poultry is safe, wholesome and nutritious is an ongoing task and will require continuous surveillance to monitor progress.

Investment in the sector is crucial if it is to grow and prosper and introduce the new capabilities and practices that are emerging in the fight against campylobacter.

The approach of collaboration and co-operation between the industry stakeholders, the research community and the authorities is the way forward.

## 8. Appendix

### Stakeholders Group

Vincent Carton	Manor Farm/Carton Bros
Justin Carton	Manor Farm/Carton Bros
Tom Horan	Manor Farm/Carton Bros
Joyce Johnston	Manor Farm/Carton Bros
Eugene Lannon	Western Brand
Diarmaid Kirby	Western Brand
Kieran O Regan	Shannonvale Foods
Conor Nyhan	Shannonvale Foods
Ursula Lavery	Moypark
Anne Richmond	Moypark
Aaron McKenna	Moypark
Gary Keraney	Safe food
Michael Maloney	Bord Bia
Frank Judge	Bord Bia
Nigel Renaghan	IFA
Michael Duffy	IFA
Robert Malone	IFA
Thomas Burke	IBEC
Ciaran Cunningham	Agrihealth Vets
Rebecca Mc Alister	St Davids Vets
Liam Walsh	St Davids Vets
David Evans	Aldi
Samantha Broderick	Aldi
Ruth Dalton	Musgraves
Ray Bowe	Musgraves
Karen Munnelly	Craft Butchers
Dermot McGrath	Tesco
Tracey Mc Dermot	Tesco
Selena Burke	BWG
Elaine Clohosey	WG
Trish Twohig	Iceland

## Stakeholders Group contd...

Paul Burke	Dunnes Stores
Denise Lord	Gala
Aoife Harrison	Lidl
Patrick Wall	UCD
Michelle Burke	Devenish Nutrition

## Other participants:

Martin Blake	DAFM
David W Nolan	DAFM
John Egan	DAFM
Martina Kearney	DAFM
Clare Faulkner	DAFM
Mark Mc Carthy	DAFM
Donal Sammin	DAFM
Lisa O Connor	FSAI