

# Food safety knowledge and skills among SMEs on the island of Ireland



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# Foreword

Small and Medium Enterprises constitute the vast majority of food businesses across the island of Ireland. A failure on their part to manufacture, distribute and sell safe food products will lead to a loss in consumer confidence and a subsequent loss of market share. To guard against this, SMEs must regard food safety as an opportunity to create competitive advantage, rather than an onerous and costly burden.

This report provides details on the current situation across the island of Ireland with regard to the level of food safety knowledge and skills within Small and Medium Enterprises in food and drink manufacturing, retail and catering. It is envisaged that the findings of the report will assist **safefood** in the development of resources and tools suited to their food safety needs.

**safefood** would like to thank the Principal Researcher on this project, Dr Catherine Jordan, National University of Ireland, Galway, and the team at Excellence Ireland Quality Association (EIQA) particularly Irene Collins (Managing Director and Principal Contractor on this project), Beth McEntee (Survey Administration) and Martin Roper. Thanks are also due to the project Advisory Board and those who contributed to the research including Prof Ronnie Russell, Moyne Institute, Trinity College Dublin and Annette Sweeney, Institute Technology Tallaght. We would also very much like to thank all of the food and drink SME business operators across the island of Ireland who took the time to participate in the survey and/or the interviews.

# Executive summary

Safer food saves lives. Every time we eat, we are potentially exposed to illness from either microbiological or chemical contamination. Throughout the world, millions of people are at risk and fall ill every year and many die as a result of consuming unsafe food” (WHO, 2015). The significance of food safety and safe food is reflected at EU-level in the creation of the European Food Safety Authority (EFSA) and on the island of Ireland (IOI) with various national agencies, including the Food Standards Agency Northern Ireland (FSANI), the Food Safety Authority of Ireland (FSAI) and the all-island Food Safety Promotion Board (**safefood**).

The Irish food and drink sector is regarded internationally as having a world class food safety status. However, considering the pace of change in the sector, it is important to identify the level of food safety knowledge and skills and to establish future food safety needs. This research was carried out because it is now widely recognised that a failure to respond to consumer demands for robust food safety standards will result in commodity products of low quality, a loss in consumer confidence and a loss of market share. To guard against this, Food Business Operators involved in food and drink manufacturing, retail and catering in small & medium-sized enterprises (henceforth abbreviate to ‘Food Sector SMEs’) must regard food safety as an opportunity to create competitive advantage, rather than an onerous and costly burden.

The scope of the research was limited to Food Sector SMEs on the IOI. Their current level of food safety knowledge and skills was investigated with a view to identifying the gaps and related issues, as well as the solutions that address these deficits and facilitate greater compliance with their food safety obligations. A number of obstacles to redressing these deficits were identified, mostly as a result of resource availability or communication issues. Consequently, these areas are the focus of the report. It is anticipated that the findings will influence the development of resources that will provide/augment the knowledge and skills needed by Food Sector SMEs to meet their obligations in this regard.

The specific objectives for the research were to:

- Identify the most critical gaps in food safety knowledge and skills within Food Sector SMEs on the IOI.
- Identify the most practical and effective methods by which these gaps can be addressed.
- To establish how **safefood**'s food safety resources and training tools can be improved to meet the future needs of Food Sector SMEs. Also, to consider how the tools can be accessed (and in

what formats) with the intention of enhancing food safety knowledge and skills across the broadest possible audience within these SMEs.

In order to achieve these objectives, the research team deployed a mixed method approach which included both primary and secondary research. Key components of the methodology included:

- A comprehensive literature review
- A national online survey of Food Sector SMEs operating across the IOI.
- Face to face and phone interviews with Food Sector SMEs
- A review of archived Q Mark for Hygiene and Food safety audits in participating Food Sector SMEs over a 5 year period from 2011 to 2016.

The research found that Food Sector SMEs are fully aware of the importance of food safety compliance and want to understand and comply with the regulations and requirements. However, this can be hindered by poor food safety knowledge and practice, and difficulties in understanding and implementing the regulatory requirements. The research also highlighted that many food safety training programmes provided for Food Sector SMEs are not suited to their specific needs. These issues were consistently reported across the IOI and highlight the need for better communications within this sector. Elements that need to be better communicated include:

- Food safety compliance and high standards of food safety is about creating a food safety culture within a business.
- Knowing the exact food safety requirements for a Food Sector SME's specific business environment (including size and type).
- Food Sector SMEs knowing exactly where to get relevant information.
- Food Sector SME's access to training materials in plain English and pictorial format, i.e. easy to understand.
- The provision of training in a suitable format and at times and locations suited to Food Sector SME needs.
- Food Sector SMEs fully understanding the regulatory requirements for their businesses.
- Embedding of food safety into the business culture.

**safefood** continues to develop food safety resources to help Food Sector SME staff increase their knowledge of, and skills in, food safety issues. This report will assist **safefood** in developing more focused food safety resources and tools that are better suited to the needs of Food Sector SMEs and designed to enhance food safety knowledge, skills and practice in the areas where it is most critical.

## Glossary of abbreviations

CCP	Critical Control Points
DAFM	Department of Agriculture, Food and the Marine
EFSA	European Food Safety Authority
EHO	Environmental Health Officer
EI	Enterprise Ireland
EIOA	Excellence Ireland Quality Association
ESRI	Economic and Social Research Institute
FAO	Food and Agriculture Organization of the United Nations
FBO	Food Business Operator
FDI	Food Drink Ireland
FSA	Food Standards Agency (UK)
FSAI	Food Safety Authority of Ireland
FSANI	Food Standards Agency Northern Ireland
HACCP	Hazard Analysis and Critical Control Points
IOI	Island of Ireland
ISME	Irish Small and Medium Enterprises Association
NI	Northern Ireland
NIFDA	Northern Ireland Food & Drink Association
NSAI	National Standards Association of Ireland
ROI	Republic of Ireland
SFA	Small Firms Association
SME	Small & Medium-sized Enterprise
WHO	World Health Organization

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# 1 Introduction

Inadequate food hygiene and safety practices at any stage of the supply chain increases the risk of food safety incidents that can result in illness, injury or even death. In the Republic of Ireland (ROI), the FSAI received 3,202 complaints from consumers in relation to food, food premises and labelling in 2016, with 2,731 of these complaints due to unfit food, poor hygiene standards and suspected food poisoning. Other complaints were in regard to food labelling (221), lack of allergen information (60) and 190 were not specifically classified (FSAI, 2017). Between April 2016 and March 2017, Local Authorities in Northern Ireland recorded 1,880 consumer complaints with 1,314 of these relating to hygiene and 566 relating to standards (FSA, 2017). Poor food safety knowledge and practice results in a human cost (illness, injury or death) and a financial cost (claims, prosecution, legal cost, insurance costs, etc.). Food safety incidents at any stage of the supply chain have the potential to cause reputational damage to the entire sector, with ramifications for the wider economy.

This is significant as SMEs account for the vast majority of enterprises in the food and drink manufacturing, retail and catering sectors on the IOI. By enhancing food safety knowledge, skills and practice in these enterprises, consumer safety and the reputation of the food and drink sector can be strengthened. Food Sector SMEs must regard food safety as an opportunity to create competitive advantage, rather than an onerous and costly burden. By ensuring that they are in full compliance with statutory requirements a food business will be sustainable and will provide safe products to consumers. Each compliant business will also help to enhance the reputation of the food sector as a whole.

That said, it must be acknowledged that there are many requirements competing with food safety training in small businesses including production, cash flow, food safety regulation, quality, occupational health & safety, etc. These requirements in addition to the small business characteristics, a lack of resources and time constraints can result in training being relegated to being a low priority.

## **Food and drink sector profile**

The food and drink sector is the most important indigenous industry on the IOI with a key role to play in export-led economic growth. It is a critical element of both economies in which SMEs dominate and are acknowledged as being “the strength and the uniqueness of an economy and society” that are

“crucial for economic growth” (European Commission, 2011a, Central Statistics Office, 2012, NORMAPME, 2012; Gagliardi et al. 2013; Muller et al. 2014). This is reflected on the IOI where the strength of the food control system has been described as fundamental to the continued growth of international markets for food exports (DAFM, 2015.)

The food and drink sector in both the ROI and NI is key to the growth of the economy. Every €100 in exports from the bio-sector (agriculture, forestry, fisheries, and food and drink industries) contributes around €52 to Gross National Product (GNP) in the ROI, while the equivalent contribution from the ‘non bio-sector’ is of the order of €19 (DAFM, 2017). Total agri-food and drink exports in 2016 amounted to approximately €11.15 bn with the UK accounting for 37% of all exports, continental EU markets accounting for 32% of exports, and 31% going to international markets (Bord Bia, 2017). A 10-year plan from the Department of Agriculture Food and the Marine (DAFM) in the ROI entitled *Food Wise 2025* identifies significant growth opportunities across all subsectors of the Irish agri-food industry with projected exports of €19 bn per annum by 2025. Underpinning this vision is a world class food safety status that is fundamental to the continued growth of international markets for agri-food products. Food safety incidents are identified as the main obstacle to achieving this goal; hence the central importance of good food safety knowledge and skills throughout the agri-food production chain.

A similar focus has been agreed for agri-food development in NI. In 2013 the Northern Ireland Agri-food Strategy Board published *Going for Growth* which contained the following strategic vision: “Growing a sustainable, profitable and integrated Agri-Food supply chain, focused on delivering the needs of the market”. Industry, government and the wider stakeholder base, working together, will focus on the following strategic priorities (targets to 2020):

- Grow sales by 60% to £7 bn.
- Grow employment by 15% to 115,000.
- Grow sales outside Northern Ireland by 75% to £4.5 bn.
- Grow the total added value of products and services from local companies by 60% to £1 bn.

With SMEs accounting for 75% of turnover and employment and 81% of Gross Value Added, and employing more people than all of the largest companies and the public sector combined, their collective impact on food safety and public health in Northern Ireland is enormous (FSB NI/UU 2015; NI Small Business Survey, 2014).

There are a number of associations on the IOI who support Food Sector SME food safety and general business needs, some of which are listed below. These associations provide guidance, information and updates on all matters relevant to small businesses including information and guidance on governing legislation such as that dealing with food safety.

- Irish Small and Medium Enterprises Association (ISME) [www.isme.ie](http://www.isme.ie).
- Small Firms Association (SFA) [www.sfa.ie](http://www.sfa.ie).
- Food Drink Ireland (FDI) [www.fooddrinkireland.ie](http://www.fooddrinkireland.ie).
- Enterprise Ireland (EI) [www.enterprise-ireland.com](http://www.enterprise-ireland.com).
- Northern Ireland Food & Drink Association (NIFDA) [www.nifda.co.uk](http://www.nifda.co.uk).
- Federation of Small Business [www.fsb.org.uk](http://www.fsb.org.uk).
- Invest NI [www.investni.com](http://www.investni.com).
- Inter Trade Ireland [www.intertradeireland.com](http://www.intertradeireland.com)

Vetter and Köhler (2014), in their report entitled *Business Demographics and Dynamics in Europe*, concluded that the impact of the economic crisis in the ROI resulted in a sharp decline in the number of firms from all categories starting in 2007, the hardest hit being SMEs. Currently the number of SMEs comes to about 80% of the 2006 level confirming that these are still of central importance to economic life on the IOI and indeed to the very fabric of society (Department for Jobs Enterprise and Innovation, 2014).

## Legal requirements

On the IOI, the competent authorities responsible for regulating food safety are the FSAI in ROI and the FSA in NI. The food and drink sector is governed by a number of regulations stemming from different bodies of legislation such as company law, occupational health & safety, environmental safety, and food safety, etc. As the focus of this study is food safety knowledge and skills, only the food safety legislation and regulations are considered. Both jurisdictions on the IOI are subject to EU legislation governing various aspects of food production, marketing and distribution. The relevant EU regulations are listed below. These regulations are subject to national implementing legislation that is not detailed here.

- Regulation (EC) No 178/2002 laying down the general principles and requirements of food law, establishing EFSA and laying down procedures in matters of food safety, as amended.
- Regulation (EC) No 852/2004 on the hygiene of foodstuffs, as amended.
- Regulation (EC) No 853/2004 laying down specific hygiene rules for food of animal origin, as amended.
- Regulation (EC) No 854/2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption, as amended.
- Regulation (EC) No 882/2004 on official controls performed to ensure verification of compliance with feed and food law, animal health and animal welfare rules, as amended.
- Regulation (EC) No 2073/2005 on microbiological criteria for foodstuffs.

- Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, as amended.

Food safety training is a legal requirement as detailed in Regulation (EC) 853/2004 (Chapter XII of Annex II). Food Business Operators (FBOs) must ensure that:

- food handlers are supervised and instructed and/or trained in food hygiene matters commensurate with their work activity;
- those responsible for the development and maintenance of the procedure referred to in Article 5 (1) of the Regulation, or for the operation of relevant guides, have received adequate training in the application of the HACCP principles;
- food businesses are compliant with any requirements of national law concerning training programmes for persons working in certain food sectors.

### **Food safety training practices by Food Sector SMEs**

A number of agencies and bodies, including **safefood**, continue to develop resources to help Food Sector SME staff augment their knowledge of food safety issues and skills in food safety control. However, despite the availability of a considerable number of education and training resources, the level of uptake of these courses by Food Sector SMEs remains unclear. There may be any number of reasons for this including time and financial constraints. There may be a high level of staff flux at various junctures along the food chain with many personnel deficient in food safety knowledge and skills as they may not have a technical background and/or may not have received adequate food safety training.

Inadequate handling of food is considered the main causal mechanism of foodborne disease with food handlers estimated to be responsible for 97% of foodborne outbreaks (Egan et al., 2007; Greig et al., (2007). Good practice food handling is connected to or includes food hygiene or food handling practice, good educational or training practice and safe consumer food handling. Hence good communication regarding these issues is required to ensure that food handlers can recognise good practices that are implementable in their work environment.

One of the most widely used strategies for improving knowledge and augmenting skills is training. With many factors influencing food safety, good practices must focus on knowledge, constant education and information exchange (Raspor, 2008). The challenge is to instil this thinking in Food Sector SMEs and to demonstrate the benefits of food safety knowledge and skills. Building on existing good practice and raising awareness through training will help small businesses to enhance safe practices and become more competitive.

However, there may be obstacles to the inculcation of training within the overall food production culture in Food Sector SMEs. Owner/managers may not be convinced of the value of training, they may be *ad hoc* in their training decisions, and it may well be the case that they are simply unaware of what training is actually available (Johnston and Loader, 2003). When reviewing its *Guide to Food Safety Training - Level 1*, the FSAI identified a number of barriers to the implementation of the guide's recommendations with regard to training including:

- Lack of time to implement or to prepare course materials
- High staff turnover
- Cost of training
- Staff literacy difficulties, language barriers, unwillingness
- Lack of management commitment
- Too much information for small business
- Food Sector SMEs unable to release staff for training.

The experience in NI is similar: the Northern Ireland Agri-Food Strategy Board (2013) reported that on a number of occasions inspectors found that food safety compliance had been de-prioritised due to external factors such as a drop in business sales or staff changeovers leading to a slippage in standards.

## 2 Research objective and scope

The scope of this study is SMEs in the food and drink manufacturing, retail and catering sectors (abbreviated here to ‘Food Sector’). There are a number of definitions for SMEs and a variety of terms used in the literature to define and reference them such as, small business, small enterprises, SMEs, etc. Globally the definitions are varied but there is considerable overlap. The European definition of SMEs (EU Recommendation 2003/361) is used as illustrated in Table 1. This is used by the authorities and governing bodies in the majority of EU countries including the ROI. This definition is also used by the European Central Bank and most of the national central banks and statistical offices (Vetter and Köhler, 2014).

**Table 1: European definition of Small and Medium Enterprises (SMEs)**

Size	Number of employees	Annual turnover or annual balance sheet
Medium	<250	≤ €50 million or ≤ €43 million Annual Balance
Small	<50	≤ €10 million or ≤ €10 million Annual Balance
Micro	<10	≤ 2 million or ≤ €2 million Annual Balance

This research set out to identify gaps in food safety knowledge and skills within the Food Sector SMEs on the IOI. The study identified the particular training needs of these SMEs, exploring any barriers to their participation in food safety training, and proffered suggestions for tailoring training programmes for this group. This was achieved through meeting the following objectives:

1. To identify the current level of food safety knowledge and skills in Food Sector SMEs on the IOI.
2. To identify the most critical gaps in food safety knowledge and skills within these SMEs.
3. To determine what influences the provision of food safety training in these SMEs.
4. To ascertain best practice through investigation of Food Sector SMEs with a good level of food safety knowledge and skills.
5. To determine the most practical and effective methods by which gaps in food safety knowledge and skills can be redressed.

## 3 Methodology

This study investigated the impact and effectiveness of food safety training in the enhancement of food safety skills as well as determining if ‘compliance’ results in improved food safety. These objectives were met by conducting a broad based survey and follow-up face-to-face interviews with Food Sector SMEs across the IOI. The activities were underpinned by a thorough review of the available and relevant literature. This mixed method approach used both quantitative and qualitative methodologies. Data was collected from the sources listed below, content analysed and the findings presented.

- Literature Review – a review of the broad literature (including published reports, peer-reviewed papers, grey literature, etc.)
- A national survey of 6000 Food Sector SMEs in retail, catering and manufacturing across the IOI
- In-depth semi-structured face-to-face interviews with 60 Food Sector SMEs across both jurisdictions on the IOI and across manufacturing, retail and catering businesses.
- A review of an existing EIQA database of audit results to extrapolate relevant information gathered during unannounced audits. This will help to provide a true picture of what is happening in Food Sector SMEs and where they are with regard to food safety knowledge and training.

It is generally accepted that food safety knowledge, attitude and behaviours are difficult to assess using traditional research methods because of the sensitive issues of legal compliance with many true thoughts and actions deliberately concealed (Taylor, 2008). Therefore, a mixed research method was adopted.

### Literature review

The first phase of the research was a literature review involving a critical reading of both academic and practitioner material (including best practice case studies, government policy and strategic plans). The main purpose of the literature review was to provide an understanding of the characteristics of small business, their general approach to food safety training and compliance, the barriers and drivers reported by small business and to ascertain what work, if any, has been done to assess the food safety knowledge and skills in Food Sector SMEs on the IOI. This element of the

research included literature and research conducted on the IOI, the UK and globally. The comprehensive global literature review also aimed to identify gaps in previous research and to establish what work had already been conducted regarding food safety knowledge and compliance within food and drink organisations, particularly within Food Sector SMEs.

## Survey

The second phase of the research was an online survey. The most efficient method of accessing information from a large industry sample in a short period of time at modest cost is through the application of survey methodology. For the purposes of this research a quantitative survey was employed. Broadly, the question areas were designed to establish the following:

- Background information (type of food business, number employed, number of sites etc.)
- Areas of regulation applicable to the Food Sector SMEs
- The level and form of contact with the regulators
- The perceived impact of governing regulation on business
- The perceived level of consultation and communication of regulation and new developments by the regulators
- The perceived barriers to compliance
- Other issues affecting the enterprises with a view to regulation
- The cost of compliance with relevant regulation etc.

A Steering Committee was established to oversee and advise on the content of the survey tool. The Committee consisted of members of senior management within EIQA, a representative from **safefood** and a number of senior lecturers with extensive experience of the food sector. Members of the Steering Committee are listed in Appendix 1.

The survey questionnaire was tested firstly with a group of 10 participants to test the operation of the survey tool which was distributed using the Survey Monkey online technology. Secondly, a pilot survey was conducted with a sample of 20 Food Sector SMEs distributed across manufacturing, catering and retail on the IOI. This produced 14 completed surveys and highlighted some ambiguities in question wording and interpretation. The pilot served as a method of validating the questions, providing confirmation on the clarity of the survey instructions and enabled testing of the electronic distribution method chosen. The questionnaire also gave participants an opportunity to provide feedback independent of the questions. The survey questions are listed in Appendix 2.

The survey was emailed to a database of 6000 Food Sector SMEs across the IOI that had been constructed from various sources. Anonymity was guaranteed in order to reduce possible respondent

bias. Organisations that had participated in the initial pilot surveys were excluded from the live survey. In total, 176 valid survey responses were received giving a response rate of 2.9%.

## Interviews

The third phase of the research was a number of semi-structured qualitative face-to-face interviews with Food Sector SMEs. The purpose of the interviews was to carry out a more focused analysis of the current situation with regard to food safety knowledge and practice in the sector. This was essentially a follow-up stage to explore more deeply some of the issues from the survey and also to establish:

1. The current level of food safety knowledge and practice.
2. The perceived drivers and barriers to food safety compliance.
3. The perceived issues with regard to food safety compliance and training.
4. How Food Sector SMEs can best be assisted by the authorities, agencies and **safe food** in the enhancement of food safety knowledge and practice in their businesses.

The interviews were semi-structured with an initial set of questions developed following the literature review of similar research. The questions were reviewed by the Steering Committee prior to commencement of the interviews. The interview questions are listed in Appendix 3. The initial plan was to conduct 60 face-to-face interviews with 15 each in Ulster (including NI), Munster, Leinster and Connacht. In order to compensate for a lower-than expected response to the survey, a total of 85 interviews were conducted with 67 being face-to-face interviews and 18 conducted by telephone. The interviews covered a range of Food Sector SMEs. The initial sample included only those organisations that had indicated a willingness to participate further in the research when responding to the online survey. Additional organisations were selected via business directories and contacts of colleagues of the research team.

## Q Mark report reviews

A sample of Q Mark reports was reviewed for the period 2011 to 2016. These reports were completed following unannounced audits conducted by Excellence Ireland Quality Association (EIQA) and should, therefore, provide accurate information of the food safety practices evident in the businesses being audited. The number of audit reports reviewed for this period was 150. All of the audits reviewed were conducted in compliance with the Q Mark for Hygiene and Food Safety Technical Standard (version 11 of 2008). The reports included SMEs across the IOI in the following sectors:

- Retail
- Catering
- Fast food

- Restaurants and Hotels
- Food manufacturers/processors
- Food distribution.

The particular information extracted was evidence of legal compliance with food safety requirements and food safety training practices. The aim was to identify where, and why, food safety is failing and to identify any good practices which may assist with the development of future food safety guidance and/or training tools. The information extracted from these reports is raw data without bias as the audits conducted were unannounced. Hence, the data was recorded in real time and provides a picture of exactly how well food safety and training are managed on the ground. When reviewing the reports particular attention was paid to compliance with the requirements for training in the EIQA Technical Standard which are as follows:

- Evidence of training records signed by the trainer and the employee.
- Evidence of the training material used and training Manuals.
- All food handlers trained in basic hygiene.
- Documented programme of training and refresher training.
- Training matrix and training needs analysis for all staff.
- Key personnel trained in the principles of HACCP with specific training for personnel in food preparation and service areas on allergens.

## 4 Research Findings

A summary of the findings from each phase of the research is presented and discussed here. Full and detailed results are presented in the appendices. The findings of this study differ from many other studies conducted on food safety knowledge, compliance and practice for a number of reasons:

- This study does not set out to establish the level of knowledge based on third level courses completed by managers or staff.
- This study does not discuss the consequences of poor practice and knowledge to any extent.
- This study deals directly with the Food Sector SMEs on the ground, dealing with food safety compliance on a day to day basis. It presents an overview of the level of food safety knowledge and compliance as opposed to detailed measurements.
- This study also presents recommendations and suggested solutions from the Food Sector SMEs to the actual problems encountered by them with regard to food safety knowledge and compliance.

Overall, it was found that the majority of Food Sector SMEs realise and accept that they have a responsibility to manage food safety. However, not all Food Sector SMEs are clear on what food safety means or why it is a requirement, and while a majority see the value of food safety compliance and have systems in place by which to achieve this, many have difficulties in meeting the regulatory requirements. The reasons for this are threefold:

1. The number and complexity of the regulations covering both food safety and other aspects of a food business.
2. A lack of resources (money and time).
3. The availability and quality of training courses.

Although many barriers to food safety compliance, gaps in food safety knowledge and practices were identified; good practices were also discovered which demonstrate that food safety in Food Sector SMEs can be managed.

## Literature review

### Compliance issues

It has been demonstrated in many peer reviewed papers (Carey and Flynn, 2005, Bourlakis et al. 2014, InterTradeIreland, 2015), and stated by the Food Sector SMEs, that in general they do not have the required resources to achieve the level of compliance required. Cost is a leading factor with regard to both food safety and food safety training. Micheli and Cagno (2010) demonstrate that 'medium-sized' enterprises when compared with 'small' and 'micro-sized' enterprises are more financially secure with more resources and are more advanced with regard to compliance and the management of safety. The design of food safety tools and training courses should consider and make allowances for the large variance in enterprise size from medium (<250 employees) through to micro (<10 employees). Micro-sized enterprises account for the majority of enterprises in the ROI and NI and differ fundamentally from larger SMEs (Forfás Expert Group on Future Skills Needs, 2014; FSB NI/UU.2015).

The size and the limited resources of small businesses characteristically results in informal management systems as well as inadequate training and information arrangements. Other issues of note include high work demands with operatives responsible for completing more than one job or task, longer working hours, fatigue, higher staff turnover, etc. (Bourlakis et al. 2014). In these circumstances, Food Sector SMEs often self-manage compliance which, without the required knowledge, can lead to poor food safety management and food borne incidents. In this regard, self-managing compliance based on ongoing professional development tied to accredited training modules is a possible initiative that could be developed and introduced for Food Sector SMEs.

While there are costs associated with both compliance and non-compliance, Food Sector SMEs do not always measure the costs of incidents, recalls, and returns etc. Hence they can be resistant to regulatory compliance as they do not realise the associated benefits. The majority of Food Sector SMEs do not see the value or the business case for food safety with regulation regarded as a burden (The Economic and Social Research Institute, 2007; European Commission, 2011b; European Commission Project Consortium, 2013).

Although regulation has clear benefits for industry, the burden of regulation is the most cited issue for small businesses, particularly as the regulatory requirements, standards etc. increase in number and complexity. It is reported by Food Sector SMEs as being the main constraint to satisfactory compliance and to their growth plans. The regulatory burden refers to the total cost incurred by a business that is created by a regulation. This includes all costs that result from mandatory obligations placed on businesses by enforcement agencies and regulatory authorities on the basis of legislation. Costs are created by the complexity of regulation, the amount of regulation, the inflexibility of regulation and the administrative burden, etc.

Characteristically small businesses differ from their larger counterparts having fewer resources, informal management systems, a higher risk of workplace injury and illness, a higher turnover of staff, etc. Nevertheless, the same regulatory requirements apply. This results in a disproportionate burden of regulation for SMEs, which is amplified in Food Sector SMEs due to the additional requirements of food safety regulations. Additionally, they are required to implement and comply with the same legislation as their larger counterparts despite the differences in size and resources.

In the ROI a lot of regulatory requirements and guidance are disseminated via the internet. However, in recent years a number of issues have been highlighted with regard to communication difficulties and a lack of awareness of the requirements in Irish SMEs. The results of a survey carried out by the Economic and Social Research Institute (ESRI) on behalf of the Irish Government in 2007 demonstrated insufficient communication and consultation between the Government and SMEs on the ground. The survey, which involved 823 participants and a 36% response rate, was conducted to determine the effectiveness of the 'Better Regulation initiative' and to establish where regulatory problems existed (The Economic and Social Research Institute, 2007).

In a study of UK Food Sector SMEs, Fairman and Yapp (2005) found that the business operators who participated in their study conceptualise compliance as the negotiated outcome of the regulatory encounter. The food businesses are implementing exactly what the enforcement officer requests and nothing more. They concluded that this practice leads to heavily reactive decision making in which the enforcer becomes the predominant driver.

### **Food safety training**

A culturally diverse work force is evident in the industry. An expert group on skills needs in Irish manufacturing reported that there are skills shortages currently within manufacturing (all manufacturing types), though not of significant scale. Nonetheless, many of these shortages are critical at an operational level to manufacturing firms (Forfás Expert Group on Future Skills Needs, 2013a). These shortages have led to the employment of non-nationals in the food and drink sector. The cultural diversity and the contract workers employed introduce further costs and risks. These are costs associated with training and new risks such as the possible misinterpretation or miscommunication of instructions due to a language barrier (Lamm and Pio, 2008, Forfás Expert Group on Future Skills Needs, 2013).

The statistics in the ROI reveal that 30 % of those employed in food and beverages are non-national (the national average across all sectors is 13 %.) Furthermore, the food and drink manufacturing workforce typically have a lower level of education and have a reduced ability to participate in, and learn from, training courses compared to other industry sectors. According to the Forfás Expert Group on Future Skills Needs (2013), a significant proportion (20 % plus) of this workforce have a lower

secondary education or below. This group of workers are highly skilled in their job tasks but find training courses, such as those on food safety, difficult.

Green and Kane (2014) advise on the importance of initial food safety training for new employees. Food businesses should require their employees to undergo some sort of initial training before beginning to work. Refresher training on a regular basis thereafter is also proposed. As the world of work is changing rapidly with new technology and new regulations, training is also required to ensure that operatives obtain the skills to deal with technological advances, new processes and to keep up to date and comply with new guidelines.

The mishandling of food occurs mainly during the preparation phase, a phase in which the food handler plays an important role (Medeiros et al. 2011). Hence a lack of knowledge or training of food handlers will have a negative impact on the safety of the food. Additionally, poor awareness or education of the owner/manager/operator will result in little emphasis being placed on food safety prevention measures and/or training of employees. Characteristically in Food Sector SMEs, and largely due to the size of the enterprise, the owner-manager often wears 'many hats' and more often than not is also a food handler.

Training can be regarded as an additional expense and although training has associated costs, such as time and money, these should be regarded as a form of investment and not as a drain on resources (Grund and Martin, 2012). SMEs face more barriers in terms of training and skills development. In a 2007 evaluation of employer perceptions of skills gaps in UK retailers, one store manager interviewed clarified the essential logistical challenge of providing training for their staff – “you can't afford to pay people to go on courses because you can't afford people to cover their position” (Hart et al. 2007). Independents and SME retailers see training as an additional cost when the primary business focus becomes meeting targets and maximising staff productivity. In the same 2007 study, another FBO/manager claimed that falling profitability has a negative impact on the allocation of resources for training.

Similar challenges and issues have been identified by authors for decades with peer reviewed studies from at least the 1980s to the present day reporting the difficulties for small businesses with regard to regulatory compliance and training. National Governments, the European Commission and Member states, as well as numerous authors have attempted to address the problem of poor regulatory compliance and practice in SMEs. With the complexity of regulation reported as a drain on resources and time, the European Commission, in line with Member states, has introduced a total of 660 initiatives since 2005 aimed at reducing the complexity of and the number of European Directives for SMEs (European Commission Project Consortium, 2013). However, the regulatory burden is still reported as an issue by businesses (European Commission, 2013).

Jones (2005) found when examining the factors which influence training that the reasons SMEs provide training depend closely on the particular business needs of relevance to the enterprise. Hart et al. (2007) found in a study of UK retailers that there were differences between the perceptions of SME retailers and managers of multiple chains towards the extent of existing and potential skills gaps. Some SME employers, in particular, showed a lack of awareness of the need for their workforce to have specific skills and of the need for future skills development to maintain competitiveness with larger retailers. The authors identified that managers in multiples were generally more aware of skills requirements and, therefore, the existence of skills gaps.

SMEs provide training depending on the particular business needs of relevance to their enterprise (Jones, 2005). Giangreco et al. (2010) advise assessing how training is used and how it contributes to company performances and, therefore, employee performance rather than assessing the training itself. Training is one of the main tools for knowledge transfer and regarded as the most effective method. Egan et al. (2007) suggest that to be effective food hygiene training needs to target changing those behaviours most likely to result in foodborne illness. In this regard there are many different approaches to training and there are many training methods.

Managers, as well as food handlers and operatives, must receive food safety training in a consistent manner in order for the training to be effective (Egan et al, 2007). Recent findings concurred with this determining that training programmes may achieve good results, but training should be more selective (Liu et al., 2015). They also stated from their findings that training should be particularly focused among managers and newcomers. A study conducted in rural Australia among women in small business concluded that these business operators will only increase their participation in training if they are convinced that the training will improve their employment and earning potential (Simpson et al. 2002). There are a number of different training methods and resources, some more effective than others at enhancing good practices following training. Medeiros et al. (2011) identified that the resources most widely used during the training courses they reviewed were interactive media, audio-visual materials, videos, lectures and recreational activities. The training methods most widely preferred by the employees during the training courses are interactive media and hands-on activities. They discovered that these methods contributed toward the enhancement of employees' skills and knowledge and encourage changes in attitude and behaviour.

When designing, developing and implementing training, the elements which can impact on the desired outcome must be recognised. Elements such as the size of the company, the type of audience, the nature of the contents and other situational factors must be considered. In a similar manner, training evaluation approaches, methodologies and techniques must also be devised and customised (Giangreco et al. 2010). Also, according to Grund and Martin (2012), knowledge previously learnt may obsolesce especially in dynamic markets with a lot of product and procedural innovations. Hence, the

use of further or continuous training in firms may be reasonable to refresh and improve employees' knowledge and increase their value to the business.

The responsibility for the supervision and training of staff lies with the proprietor of the food business, however, training requirements and training providers are not standardised or regulated. This can result in the provision of inappropriate or ineffective training. Characteristically, SMEs have few financial and technical resources and time is money. Therefore, SME owner-managers (at least those who are aware of the requirement to provide training) do not always have the time to search for reputable training providers and, furthermore, they may not have the knowledge to assess if the course content meets with their legal obligations. With no governance of training providers and course content, and a lack of awareness regarding the requirements among the Food Sector SMEs, the provision of training may be a 'tick box' exercise and may not enhance food safety practice. In a study on the food safety knowledge of chefs on the IOI, the authors found that (1) formal training did not necessarily result in improved food safety practices, (2) 78% of head chefs were unaware of current food safety legislation including their specific responsibilities, (3) the concept and application of hazard analysis and critical control point (HACCP) was poorly understood, and (4) 22.5% of head chefs did not report safe practices (Bolton et al. 2008).

## The survey

The number of completed surveys received from the 6000 participants was 176. This represented a response rate of 2.9%. The main business types responding to the survey were as follows;

- Manufacturer / Packer 17.61%
- Distributor (including importation, wholesaling, wholesale storage) 2.27%
- Retailer (all types of retail activities, e.g. supermarket, convenience store) 31.82%
- Service Sector (restaurants, staff catering, public house, café etc.) 48.30%.

Enterprises varied in size with 25% micro-sized, 50% small-sized and 25% medium-sized.

## Training

Almost 98% of businesses claim to provide training with the top three types of training provided reported as follows:

1. Hygiene and Food Safety = 91%
2. On the Job Training = 87%
3. Induction Training = 86%.

The manager (53%) followed by the owner (47%) were identified by the majority of business as the people responsible for the provision of training.

Numerous methods of determining the expertise of an external trainer are adopted, however, the top three methods used are:

1. Word of mouth or recommendation
2. References
3. Qualification.

Language was identified as a barrier to training by 34% of participants, with reading, writing and competency in speaking English being the main reasons proffered for this. Staff turnover was an issue for only 22% of businesses. In house training (77%) and 'on-the-job' training (60%) were the most common methods of training used. It is obvious from the results that many businesses use more than one training method. Training is certified for the majority of enterprises by private training providers (50%) and the Environmental Health Association of Ireland (33%). Training needs are assessed by participants in many ways with the majority using:

- Competency testing/observation of practices
- External inspections/audits
- Planned annual reviews
- Internal audits.

Refresher training is provided by 82% of businesses. Of these, 61% provide refresher training every 12 months, 32% provide refresher training every 24 months and 7% provide refresher training every 36 months.

Only 41% of participants claimed to have a training budget in place, however, 68% claim to have a training plan in place. The main factors influencing the provision of training are:

- Cost
- Time
- Legal obligation
- Customer safety
- Poor food safety/hygienic practices displayed by staff.

71% of respondents report using the FSAI and 55% of respondents report using **safefood** for the provision of training information and resources.

## Food safety and compliance

When asked to rate their understanding of the current obligations with regard to food safety requirements, 79% of participants rated themselves as aware of their obligation. The remainder of participants (21%) were unsure of their obligations. The main difficulties experienced by Food Sector SMEs when trying to achieve legal food safety compliance were:

- Difficulties in understanding the regulatory requirements
- Staff turnover, commitment and complacency
- Time
- Paperwork
- Cost
- A lack of affordable training and approved trainers.

The two main reasons reported to describe company food business culture were “essential for continued business” (78%) and “very much a part of what we do” (75%). Participants selected ‘legal obligation’ (85%) and ‘consumer safety’ (85%) as the main drivers of food safety. A number of participants have had food safety incidents (57%), a food allergen incident (12%) and have been a victim of food fraud (15%). In the majority of cases the manager (80%) and the owner (45%) dealt with these incidents. When asked to identify gaps in the food safety knowledge and skills of others working in the sector, 61% of participants reported there were gaps, with 51% identified in transport and delivery. The majority of participants reported that they know where to source food safety information with just over 50% sourcing information from either the FSAI or the FSA. Only 40% of participants have used **safe food** resources for food safety news and food safety booklets.

## Interviews

Data was collected from a representative sample of medium, small and micro-sized enterprises across the IOI. In total, 67 face-to-face interviews were conducted across the IOI with a further 18 conducted by telephone; these were based on a sample of convenience. The Food Sector SME business types participating in the interviews were as follows:

- Manufacturing 41.86%
- Manufacturing and retail 2.32%
- Manufacturing and catering 1.16%
- Catering 24.45%
- Catering and retail 1.16%
- Retailing 29.05%.

## Training

The majority of Food Sector SMEs (95%) had received formal training in food safety and HACCP. The remainder had only received informal training and described themselves as being “self-taught” or having skills “picked up from the Environmental Health Officer (EHO)”. One Food Sector SME did not have any food safety training and did not intend to attain training. For the majority of Food Sector SMEs training was informal at first as they learned their trade and worked their way up to a position where they became the manager or owner. Operator or owners with formal training had looked for and completed formal courses only after they had become the operator or owner. A number of Food Sector SMEs (14%) had third level qualifications including chef qualifications, hotel management and science-based courses.

Language was described as a barrier to the delivery and effectiveness of food safety training by just 15% of Food Sector SMEs interviewed (this compares to 34% of the survey respondents who identified language as a barrier to training). Those reporting problems have an issue with the cost of translators and the worry that operatives had not understood the training and may become a food safety risk.

Typical comments were as follows:

- “Non-nationals say they understand but often don’t. They don’t want to lose their jobs. We can’t tell if the training has sunk in or not”.
- “Absolutely. Especially food labelling. No support to get around it (EU Legislation regarding food labelling)”.
- “A lot of people in the company are French - definitely a barrier. No access to materials in other languages; plough ahead in English”.
- “Yes, limited number of languages are employed because of this, mostly Polish. Not always sure language is an issue until they are working on the floor. No signage – visual aids for manufacturing. There are documents translated but only for delis. We translate documents and training professionally but we still don’t know if the employees understand it”.

To overcome the possibility of a language barrier the following suggestions were made:

- “We find a common language and train, or one good English speaker will train the others and act as a translator”.
- “We pay for training in the mother tongue of all non-national employees as this is the only way to be certain”.

One Food Sector SME revealed that the only language barrier to understanding food safety training was the “legislative jargon” that can be “quite complex”. However, the majority of the Food Sector SMEs continued to train in English and monitored the effectiveness by “observing the staff in practice on the floor”.

Just over 24% of those interviewed were unaware of the training programmes available with at least 7% never having heard of **safefood**. Those who have heard of, and have accessed, current programmes and resources have mixed views on their suitability. The main issues highlighted by the interviewees included:

- Training courses and resources can be too academic with little or no practical element.
- Training courses should be pitched at the correct level for those attending.
- Training courses were generally in short supply, not advertised very well, and held at locations and times which were difficult for Food Sector SMEs to attend.
- Training courses and resources should be tailored to a specific type of industry and their specific needs. One course generally does not fit all.

The majority of respondents, including those who had participated in the available courses/programmes, reported that there were too many available and it was difficult to know what providers and what courses were suitable for their needs (size of the enterprise and regulatory requirements).

### **Food safety and compliance**

Most respondents demonstrated a good knowledge of food safety and the purpose behind food safety regulation. In response to the question “What does food safety mean to you?” the responses obtained could be categorised as (a) the production of food that is safe to eat, and (b) customer safety and satisfaction. Despite this positive finding, it is apparent that some Food Sector SMEs do not fully understand food safety and can confuse it with quality. When asked what food safety meant to their business, respondents cited issues of quality, their reputation, good business standards and the avoidance of food waste. The value and importance of food safety for business was also well understood with the majority of Food Sector SMEs realising that without food safety management there would not be a business to manage.

- “If the food safety doesn't work, everything else falls apart.”
- “The difference between success and failure of businesses/ being in business or closing down.”
- “Continued business and reputation.”

- “Return custom – food cannot be anything other than safe or a business such as this would not survive.”

Despite demonstrating an understanding of food safety, a clear majority of Food Sector SMEs described the challenges in meeting current food safety requirements, particularly the amount of paper work involved and the time involved. All of the Food Sector SMEs realise and respect that food safety must be regulated. However, it is the number and complexity of the regulations that is problematic for them. The frequency of changes to the regulatory requirements was also cited as being particularly challenging. As a result, many Food Sector SMEs depend on the guidance of inspection officers to assist them in achieving compliance with the regulations. Many Food Sector SMEs were aware of support resources that were available (including those from the FSAI and *safefood*) but also stressed the need for such resources to be written in layman terms to ensure they can be understood and adopted by all.

### **Gaps in food safety knowledge**

In a minority of cases, food safety was regarded as something that is required for inspection purposes only as opposed to an actual legal requirement. A number of Food Sector SMEs have learned about food safety from their inspection officer and use these as a benchmark for measuring compliance. This approach to food safety compliance highlights the kind of knowledge gap that still exists in some food businesses. Indeed, some Food Sector SMEs testified to gaps in the knowledge of staff members and also in their own knowledge of food safety. Only one Food Sector SME described any action taken. The reasons cited by Food Sector SMEs include:

- A reliance on external professionals to perform company audits.
- Employees from different backgrounds with no prior knowledge of food safety.
- Third level and other training courses not meeting the required level of education regarding food safety.

### **Q Mark Report Reviews**

The findings from the review of archived unannounced audits conducted by EIQA provided evidence of a large gap in the level of food safety understanding and compliance in Food Sector SMEs. The data demonstrates that there are some Food Sector SMEs with a high level of food safety knowledge and practice as well as those with a poor level of compliance and understanding and this is clearly linked with their ability to comply with their legislative obligations. In 22% of the sample reviewed, the auditors identified a critical issue which is reported where there is a serious risk to food safety, a failure to meet legal requirements or a repeat of a serious breach reported in a previous audit.

It is important to note that 117 of 150 businesses audited (78%) demonstrated good practices and far outweigh those who recorded critical issues. Nonetheless, 22% is far too many as any critical issue is unacceptable. Of even greater concern is the fact that some of the critical issues were repeating from previous audits. This demonstrates a complete lack of awareness of the significance of these serious food safety risks.

A good practice will be recorded where the Food Sector SME has demonstrated standards of operation that are above the requirements of legislation and/or the Q Mark Technical Standard. Whilst there are a significant number of good practices recorded from the audit reviews the list below contains a sample from various sections of the report.

- There was excellent communication of essential food safety information on designated staff notice boards. The Food Safety, Quality and Environmental Polices, Organisational Chart, HACCP Plan, previous EIQA report, internal audit report, EHO sampling results were posted on the food safety notice board.
- A training matrix and the training requirement plan for 2016 were documented and posted on the food safety notice board.
- In-house action plans were generated following regular food safety and HACCP team meetings.
- Job descriptions were signed by staff members on commencing employment. Photographs of staff members showing the critical control points that they were responsible for were posted in the deli and butchery.
- Full product traceability challenges were completed on a monthly basis to test the effectiveness of the traceability system.
- Bio trace swabs were used to test the effectiveness of cleaning for the scales and meat slicer.
- All maintenance issue are logged and sent directly through to the manager's phone and logged on the computerised system. Details of maintenance issues including pictures and completion dates were recorded.
- An audit of hand washing was completed at the tills area to ensure the correct hygienic procedures are being adhered to when serving ice cream.

## 5 Conclusions

The main, and indisputable, conclusion from the research is that the majority of Food Sector SMEs want to be compliant but can experience difficulties in doing so. Many Food Sector SMEs perceive food safety regulations as a burden. Despite this, Food Sector SMEs respect that good food safety knowledge and practice is very much central to the successful running of a food and drink business. Training is recognised as essential and key to obtaining and updating this knowledge which in turn leads to good practice within food and drink businesses.

The most frequently cited barriers to food safety compliance are the cost and the time required. There are other factors such as maintenance of premises and equipment that also require time and money. As a result of this, food safety may not always receive the priority that it should with Food Sector SMEs having to manage and pay for all aspects of running their business. Peer reviewed journals and reports have identified difficulties and barriers to food safety compliance and a lack of knowledge in Food Sector SMEs globally. These same studies have also demonstrated that the provision of training and information is key to redressing these deficits. Ambrožič et al. (2010) state that for food safety to be understood there must be a common, easily understood, language used by FBOs and other stakeholders when communicating with consumers and each other. They revealed inconsistent use of 'food safety' terminology in the food safety field, identifying that even professionals do not speak the same language, and concluded that this can be deceptive and a risk factor in terms of food safety practice.

The results from the field work and review of EIQA Q Mark audit reports agree with the findings in the literature. The Food Sector SMEs surveyed and interviewed report a lack of knowledge and difficulties complying with the regulatory requirements. Many Food Sector SMEs stated that they are compliant in practice but not with the associated paperwork. The EIQA audit review, however, revealed that 22% of the 150 food business audit reports reviewed contained critical food safety issues. Critical issues pose a direct risk to the health and safety of consumers. Hence this study has identified critical gaps in food safety knowledge and skills in Food Sector SMEs on the IOI. The research has also identified the most practical and effective methods by which these skills needs can be addressed.

The value of regulatory compliance is difficult to quantify. The business benefits to be gained from reduced incidents are very difficult to demonstrate and, consequently, many Food Sector SME owner-managers do not see a business case for regulatory compliance. At a business level, the workload in

the form of time and cost to achieve compliance is a major issue for 95% of Food Sector SMEs. Food safety management documentation in the form of checks and records is the principal reason for the perceived workload according to the Food Sector SMEs. Many indicated there was an over-emphasis on paperwork, particularly during inspections. Furthermore, more than 90% proffered that the legislation and regulations are complex, difficult to understand and open to interpretation. For many Food Sector SMEs, this has resulted in the perception that somehow food safety compliance is out of reach.

Training is regarded as the key to food safety compliance by the majority of Food Sector SMEs interviewed and this is also reflected in the literature (Seaman and Eves, 2008; da Cunha et al., 2015; Stedefeldt et al., 2015; Smigic et al., 2016). However, 60% of participants surveyed were found not to have a budget for food safety training while 30% did not have a training plan in place. That said, factors influencing the decision to provide food safety training were positive and reassuring in the majority of cases:

- To achieve food safety compliance.
- To enhance food quality and business reputation.
- To meet legal requirements and protect the safety of customers.

However, other participants do not provide training. The reasons for this are similar to those reported with regard to food safety management generally. Participants do not provide training when required because of:

- The expense and lack of resources.
- General workload (i.e. too busy).
- Lack of employee availability/time.
- Lack of employee interest in training.
- A belief that they are doing okay and are happy with food safety audits and all records and observation shows compliance.

According to 70% of participants, time is the factor which has the greatest influence on the provision or lack of food safety training within Food Sector SMEs. This is followed closely by cost and employee availability at 65% and 60%, respectively. It could be argued that staff availability is linked with, or another way of actually expressing, a lack of time.

Overall, the current approach to training is regarded as too academic, too long, not at suitable times and usually too far away. Food Sector SMEs are calling for short courses and regional if not local. These courses need to be run by experts with knowledge of the legislation but more importantly knowledge

of business and the industry – how it works on the ground. These courses should be subsidized at the very least and available in various languages.

Information sources in a format and language that can be easily understood are considered essential by most Food Sector SMEs. Currently, much of the information provided is seen as difficult to understand and hard to locate. At the present time, there are numerous websites and sources of information with some being described as designed for food safety scientists or lawyers.

Although Food Sector SMEs for the most part claim that they are compliant with food safety, a number of food business operatives admitted that compliance can “slip”. They report that during busy times in the working day, the paperwork is not completed. Basically, some Food Sector SMEs complete food safety records to include critical control points (CCPs) historically. In addition, while the majority of Food Sector SMEs relate that food safety is paramount and critical to the success of their business, 22% of businesses audited by EIQA over the last 6 years have failed the audit due to critical non-conformances. There are number of possible explanations for this including:

- Food Sector SMEs are overwhelmed by the number of complex requirements and the constant updates and ‘add-ons’ to these requirements.
- Food Sector SMEs do not understand their requirements.
- Food Sector SMEs find it too difficult to access information and support.
- Food Sector SMEs are under-resourced and during busy times there is no one available to conduct food safety checks.
- The legislation and the guidance documents are too complex.
- The current training courses are too academic and difficult to attend due to the location and times at which they are available.
- There are varying interpretations of the legislation.
- Enforcement decisions are not always explained.

It is clear from the literature and from the survey results and interview responses, that food safety knowledge, skills and practice is negatively affected by a combination of these factors. A summary of the findings from this study can be represented as follows:

- Food Sector SME business owners want to comply with and understand food safety.
- To enhance food safety compliance, consistency and clarity of the requirements is paramount.
- Training is regarded as key to food safety compliance and the more tailor-made the training is, the greater will be the ability to comply.

- The approach to enforcement should be positive with an emphasis on advice and knowledge sharing.

Food safety knowledge and compliance is required for the protection of consumers and also for the continued success of the food and drink sector on the IOI. There is scope for improved communications including the involvement of end-user Food Sector SMEs when designing guidance documents and training courses.

## 6 Recommendations

Following the analysis of recommendations from all sources of the research, this section of the report contains details of the key activities that will assist with the enhancement of food safety knowledge and practice in Food Sector SMEs. By asking them directly, this study has identified a gap between food safety theory and practice. Hence the recommendations following this research are many and stem from a number of sources such as those listed below:

- The issues with food safety knowledge and compliance identified and solutions put forward by Food Sector SMEs when conducting the field work.
- Best practice identified from the literature review.
- The non-conformances and good practices identified following a review of EIOA Q Mark audit reports.

Complex regulations and associated guidance documents should be presented in layman terms for food businesses in order to enhance food safety knowledge and practice. Participants stated that it is very difficult to establish or indeed interpret what one's requirements are when reading scientific and legal documents and not having any qualifications in science or law. Food Sector SMEs can achieve compliance if they are provided with sufficient guidance and support with terminology and requirements (Taylor and Kane, 2005).

Food Sector SMEs favour simplified standards such as Irish Standard 340 of 2007 'Hygiene in Catering' available from the National Standards Authority of Ireland (NSAI). Other tools using a similar design or approach include the Safe Catering Pack available from the FSAI and FSA, and Safer Food Better Business packs produced by the FSA for a range of business types. These documents are useful tools to help caterers and other business operators develop a system to manage food safety and comply with the food hygiene regulations. They present options for businesses to choose how they are going to do this.

### **Training support**

Training courses in food safety must be designed and presented to suit Food Sector SME requirements. According to participants the current approach to training does not achieve this as, due to the diversity of the food and drink sector, "one size does not fit all." The key requirements, according to the participants, are:

- Production of short courses, providing detail on one or two aspects of food safety only.
- Courses need to be offered more frequently and at regional and local venues.
- Course content needs to be specific to each industry type.
- Courses should also be available in the evenings and at weekends. Courses between 9 AM and 5 PM do not suit these businesses.
- Translation of course content where required.
- You Tube training videos, Mobile phone App, DVDs or similar
- Training to be provided by individuals qualified to provide training but also with an industry background and experience working with Food Sector SMEs.

It is recommended that these requirements be considered and the current approach to course development and delivery be reviewed. Training using new technology such as virtual reality may be the answer for some businesses but certainly not for all.

### **Guidance documents**

Information leaflets such as those available from the FSAI, FSA and **safefood** websites should be designed for each aspect of food safety in relation to food and drink manufacture, catering and retail sectors. To enhance the readability of information leaflets the use of text should be minimised in favour of visuals. The leaflets should focus on one aspect of food safety and be concise at a maximum of 4 pages in length.

Following the development and introduction of a guidance document for industry and EHOs, the FSA conducted a detailed evaluation aimed at establishing and understanding how the guidance has been received and used both by Food Sector SMEs and EHOs. This practice or type of research would be beneficial in the ROI where guidance documents for industry and EHOs are also produced, particularly on any interventions developed based on the findings and recommendations from this research such as simplified guidance notes, etc.

It is important to consider the difference in size between micro-sized, small-sized and medium-sized businesses. Within these different sized businesses, the impact of the barriers to training and to food safety that were identified was found to be more extensive in the smaller or micro-sized enterprises. Food safety requirements and guidance need to be customised not only to meet the needs of Food Sector SMEs but also be customised to the different sized enterprises within the classification of SME. These enterprises have fewer employees but also have fewer resources and less time.

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## 8 Appendices

### Appendix 1: Steering Committee

The members of the Excellence Ireland Quality Association Steering Committee were:

- Ms Annette Sweeney, Institute of Technology Tallaght
- Prof Ronnie Russell, The Moyne Institute, Trinity College Dublin
- Ms Irene Collins, Excellence Ireland Quality Association
- Mr Martin Roper, Excellence Ireland Quality Association
- Dr James McIntosh, **safefood**.

## Appendix 2: Survey Questions

### Introduction

This short survey should take about 15 minutes to complete. EIQA are conducting this survey on behalf of **safe food**, who want to know the needs of food business operators, concerning food safety knowledge and skills, on the IOI. **safe food** will use the results of this survey to prepare and provide food safety information, training tools and resources to meet your future needs.

The questions should be answered specifically regarding your own business, unless otherwise stated. We encourage you to answer the questions honestly and accurately, as this will lead to the most valuable insight and analysis regarding accessibility of Food Safety information & training tools. Your individual responses are confidential and will be reported only in aggregate. For your answers to be counted, please complete the entire survey.

**Question 1: Which of the following categories best describes your food operation? (Please tick the most appropriate description)**

- Manufacturer / Packer (all manufacturing / packing companies)
- Distributor (pre-retail distribution activities including importation, wholesaling, wholesale storage)
- Retailer (all types of retail activities, sales to final consumer, e.g. supermarket, convenience store)
- Service Sector (Restaurants, take-away, catering in the workplace, public house, café etc.)

**Question 2: How many employees do you have? (Include owners, managers, full & part-time employees)**

- Less than 10
- 10-50
- 50-249
- More than 250

**Question 3: How many employees do you have that are?**

- Full Time
- Part Time

**Question 4: What is the main activity of your business? (Comment)**

**Question 5: Do you provide general training? (Yes/No)**

**Question 6:** If yes, what general training do you provide? (Please tick all that apply)

- Induction Training
- On-the-job Training
- Quality Systems Training
- Health & Safety Training
- Computer Skills Training
- Hygiene & Food Safety Training
- Other Training

**Question 7:** How do you determine the expertise of an external trainer, if used? (Comment)

**Question 8:** When you employ a food operative with previous experience, how do you assess their food safety skills, expertise and knowledge? (Comments)

**Question 9:** Who is responsible for food safety in your business? (Please tick all that apply)

- Front-line staff
- Supervisor
- Manager
- Chef
- Owner
- QA Department
- All of the above

**Question 10:** Please rate your understanding of your current food safety obligations?

- Low
- Moderate
- High

**Question 11:** In your opinion, what difficulties do Food Business Owners experience when trying to achieve legal food safety compliance? (Comments)

**Question 12:** Is food safety training provided in your company? (Yes/No)

**Question 13:** Is language a barrier to the delivery and effectiveness of food safety training? (Yes/No)

**Question 14:** If yes, is the barrier:

- Reading English
- Writing English
- Speaking English

- Other (please specify)

**Question 15:** Is staff turnover a problem in your business? (Yes/No)

**Question 16:** In your opinion, what impact does staff turnover have on food safety training?  
(Comment)

**Question 17:** What method of food safety training is used in your company? (Please tick all that apply)

- Classroom approach
- Practical (Learning by doing)
- Blended (classroom and practical)
- Computer based (eLearning)
- In-house Training
- Off-site Training
- Other (please specify)

**Question 18:** How are food safety training needs assessed in your business? (Comment)

**Question 19:** Is refresher training provided? (Yes/No)

**Question 20:** If yes, how often do you provide refresher training?

- Every 12 months
- Every 24 months
- Every 36 months
- Other (please specify)

**Question 21:** Do you have a budget for the provision of food safety training? (Yes/No)

**Question 22:** Do you have a training plan in place? (Yes/No)

**Question 23:** What factors would influence your decision:

To provide food safety training? (Comment)

Not to provide food safety training? (Comment)

**Question 24:** What factors influence your decision on the type of food safety training or training courses you provide? (Please tick all that apply)

- Cost
- Employee availability
- Time
- Location of training (e.g. on-site or off-site)

- Other (please specify)

**Question 25:** What is the current level of food safety knowledge and/or training of individuals applying for jobs in your business?

- Low
- Moderate
- High

**Question 26:** What knowledge and skills do you look for when recruiting a new food operative?  
(Please tick all that apply)

- Hygiene and Food Safety Skills
- HACCP Trained
- Knife Skills
- Allergen Trained
- Understanding of Time and Temperature
- Traceability and Labelling Awareness
- Personal Hygiene
- Other (please specify)

**Question 27:** Which of the following bodies, if any, certify your food safety training? (Please tick all that apply)

- Quality & Qualifications Ireland (QQI)
- Skillnets
- Enterprise Ireland
- Teagasc
- Environmental Health Association of Ireland
- National Hygiene Partnership
- Chartered Institute of Environmental Health
- Regulated Qualifications Framework
- Framework of Higher Education Qualifications
- Third Level Institutions
- Private Training Providers
- Other (please specify)

**Question 28:** To which of the following levels of food safety training do you train your staff?  
(Please tick all that apply)

- FSAI Guide to Food Safety Training Level 1 & 2

- FSAI Guide to Food Safety Training Level 3
- QQI Level 5 Implementing Food Safety Management Systems
- QQI Level 6 Designing Food Safety Management Systems
- UK Level 1 Food Hygiene Awareness
- UK Level 2 Food Safety for Manufacturing
- UK Level 2 Food Safety for Retail
- UK Level 2 Food Safety for Catering
- UK Level 2 Identifying & Controlling Food Allergy Risks
- UK Level 2 Foundation Award in Food Hygiene
- UK Level 3 Food Safety Supervision for Manufacturing
- UK Level 3 Food Safety for Supervision Retail
- UK Level 3 Food Safety for Supervision Catering
- UK Level 4 Food Safety Management Manufacturing
- UK Level 4 Food Safety Management Catering
- Unsure
- Other (please specify)

**Question 29:** If you have identified gaps in the food safety knowledge and skills of people working in your sector, at which point(s) within the supply chain have you identified these gaps? (Please tick all that apply)

- Primary producer
- Primary processing
- Storage
- Distribution
- Final processing
- Transport and delivery
- Other (please specify)

**Question 30:** What drives food safety compliance in your company? (Please tick all that apply)

- Legal Obligation
- Customer Requirement
- Consumer Safety
- Governing Body Representative (e.g. EHO)
- Third Party Audits
- International Trade Opportunities
- Other (please specify)

**Question 31:** Do you know where to source food safety information from? (Yes/No)

**Question 32:** Where do you currently source your food safety information updates from?  
(Comment)

**Question 33:** Which of the following organisations have you accessed food safety training information from? (Please tick all that apply)

- **safeFood**
- FSAI
- FSA/NI
- Teagasc
- Department of Health
- Department of Environment, Food and Rural Affairs (DEFRA)
- None of the above
- Other (please specify)

**Question 34:** Should there be a single source of contact for food safety training information on the island of Ireland? (Yes/No/Comment)

**Question 35:** Which of the following describes the food safety culture in your company? (Please tick all that apply)

- Essential for continued business
- Very much a part of what we do
- Management led
- Extra workload
- Needs to improve
- Difficult to manage
- Time consuming and expensive
- Getting in the way of productivity
- Other (please specify)

**Question 36:** As a food business operator (FBO), what legislation / guidance governs your sector?  
(Please tick all that apply)

- EC Regulation 852
- EC Regulation 853
- IS 340
- IS 341
- IS 342

- Food Industry Guides to Good Hygiene Practices
- Other (please specify)

**Question 37:** Do you have a copy of the relevant legislation / regulations / industry standards available for your business? (Yes/No)

**Question 38:** Do you know where to source a copy? (Yes/No)

**Question 39:** Have you ever had a food safety incident or complaint? (Yes/No)

**Question 40:** If yes, who dealt with it internally? (Please tick all that apply)

- Front-line staff
- Supervisor
- Manager
- Chef
- Owner
- Other (please specify)

**Question 41:** Have you ever had a food allergen incident or complaint? (Yes/No)

**Question 42:** If yes, who dealt with it internally? (Please tick all that apply)

- Front-line staff
- Supervisor
- Manager
- Chef
- Owner
- Other (please specify)

**Question 43:** Have you ever been the victim of a food fraud incident? (Yes/No)

**Question 44:** If yes, who dealt with it internally? (Please tick all that apply)

- Front-line staff
- Supervisor
- Manager
- Chef
- Owner
- Other (please specify)

**Question 45:** What do you understand the role of the enforcement officer to be, specific to your business? (Environmental Health Officer, Vet Inspector etc.)? (Comment)

**Question 46:** If you employ, or have employed, the services of a food safety consultant, how do you ensure they are qualified and experienced? (Please tick all that apply)

- Employed through the Food Safety Professionals Association (FSPA)
- Consultant previously employed as an Environmental Health Officer (EHO), a Veterinary Inspector (VI) etc.
- Register of Food Safety Professionals
- International Register of Certificated Auditors (IRCA)
- Referral from a friend or business associate
- Ask for certification and references
- Other (please specify)

**Question 47:** Have you ever used *safefood* resources? (Yes/No)

**Question 48:** If yes, which resources and why? (Comment)

**Question 49:** Please tick as applicable

- I would like to assist with further research.
- I would like to receive a copy of the published survey report.

**Question 50:** Your Details (Optional)

- Your Name
- Your Company
- Your Email Address

**Question 51:** General Feedback - This is your opportunity to make any other comment regarding availability of food safety information on the island of Ireland (Comment)

Thank you very much for taking the time to complete this survey.

### Appendix 3: Interview Questions

1. What type of business (i.e. cafe, restaurant, fast food outlet, bakery etc.) do you operate? Specifically find out what they have registered as with FSAI (Catering, retail, manufacturer, distributor)
2. Where did you learn about food safety (formal or informal learning/training, media, etc.)? What type of information was included in the training?
3. Is language a barrier to the delivery and effectiveness of food safety training? If yes how do you get around this?
4. What does 'food safety' mean to you?
5. Where does food safety fit with your other priorities in owning or managing a business?
6. Have you identified gaps in the food safety knowledge and skills of people working in your sector? If yes, at which point(s) within the supply chain have you identified gaps?
7. In your opinion, what difficulties do Food Business Owners experience when trying to achieve legal food safety compliance?
8. What types of things get in the way of compliance (e.g. cost, time, staff, etc.)?
9. Would you say you are compliant? How is this measured?

### Strategies to support good food safety practices

1. In the past, who or what has helped you to understand and implement the correct food safety procedures in your business (e.g. training, information given during inspections, information from a professional association, information on the Internet, etc.)?
2. When you think about all the food safety information available to you including newsletters, pamphlets, posters, stickers, information sessions, training sessions, advice during inspections, etc., what do remember most (i.e. what has stayed with you)? Why?
3. Are the current programmes available fitting with the demands of the industry sector with regard to product safety/ How, why, what?
4. What would make it easier for you to understand and implement all food safety requirements in your business?
5. Is there anything that the authorities/agencies/inspectors could do differently to support you and your business in relation to food safety?
6. What are the key changes you would like to see?
7. How best can **safefood's** food safety resources and training tools be prepared to meet your future needs and be made available to assist with you with enhancing food safety knowledge, skills and practice within your business?

### Other business operators' suggestions

1. Do you have anything else you would like to share?
2. Do you have any questions?

## **safefood**

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