

# the ashtown food innovator

the newsletter of ashtown food research centre

## Did you know...

Ireland has the highest consumption of baked beans per capita in the world (5.6kg/person/year)!

## Inside...



- **Functional foods** - engaging the consumer in the NPD process
- **Healthy diets** - identifying changing expenditure patterns
- **Farmhouse cheese** - consumer perceptions match scientific analysis
- **Novel food technologies** - measuring determinants of industry uptake
- **Successful dialogue** - linking food and consumer scientists
- **Scientist profile** - Consumer scientist Dr Sinéad McCarthy outlines her career to date

**The Teagasc Food Research Directorate, encompassing Ashtown Food Research Centre (AFRC), Ashtown, Dublin 15 and Moorepark Food Research Centre (MFRC), Fermoy, Co. Cork, undertakes public and private research, training & food industry support services. Programme themes include food safety, food ingredients, meat technology, prepared foods, dairy products and functional foods. AFRC was formerly known as The National Food Centre.**

## The need for food market research - a 'no brainer'

DR MAEVE HENCHION



**Anyone who knows** anything about the food industry knows that it needs to be market-oriented. However, it is not always clear who the market is, what they want/value and, perhaps more importantly, what they might want in the future. This is where market research fits in. Teagasc Ashtown has had a food market research programme since 1987. By examining different research questions across different time frames, it ensures that such research is complementary to that conducted by Bord Bia and indeed food companies themselves. So while Bord Bia focuses on what is happening and how markets are changing, our research emphasises understanding why different things are happening e.g. identifies and examines the

drivers of consumer behaviour. Current projects in the area include study of the determinants of consumer behaviour regarding healthy eating and consumer acceptance of novel food technologies.

However, sometimes we forget that food research also needs to be market oriented. Researchers need to understand the needs, wants and behaviour of industry, as well as that of retailers and consumers. Furthermore, public funded research, both in Ireland and the EU, is increasingly focused on complex problems that require a multi-disciplinary research approach. Examples of market research conducted in collaboration with food scientists include research relating to food safety in farmhouse cheese,

high pressure processing and functional foods.

Our research programme also seeks to understand the technology transfer and innovation process within the Irish food innovation system. Specifically, research has been conducted on the interaction between researchers and industry and a new EU-funded project will examine how food SMEs are involved in networks and how this affects their innovation performance.

New projects are continually coming on stream, primarily funded by national and EU research programmes.

Further information from:  
[maeve.henchion@teagasc.ie](mailto:maeve.henchion@teagasc.ie),  
tel: 01 805 9515

## Driving food sales through research

MR PADRAIG BRENNAN, BORD BIA



**Given the rate** of change evident in the marketplace over recent years and the medium term challenges anticipated, it is increasingly

important that the Irish food industry takes a lead position in projecting a deep understanding of evolving market dynamics and, through their interpretation, drive product innovation and customer service.

Europe represents a relatively mature food market where it can be difficult to secure a point of differentiation that helps a product stand out from the competition. However, with the region accounting for more than three quarters of Irish food and drink exports in 2009, it is the marketplace that largely dictates the returns achieved by our leading product categories.

A mature market doesn't by any means suggest that there are no opportunities for growth. What it does mean is that only companies with a deep insight into how consumer needs are evolving and which adjust their products accordingly will be in a position to grow their business.

While the European food industry has greatly enhanced the level of product innovation taking place, the level of spend by the sector on research and development continues to lag behind other industries. Figures from Ernst & Young show that the food sector in Europe spends just 0.5% of the value of production on product development compared to as much as 3.7% by some other manufacturing industries. Within the European food industry, Ireland's proportionate spend on product development, while similar to the UK, significantly trails behind the levels

evident in a number of Northern European countries.

Bord Bia's innovation programme continues to develop and evolve to reflect the needs of food and horticulture manufacturers. Central to this programme is the foresight4food initiative, which offers services in three core consumer focused innovation areas, namely, idea generation, validation and concept testing, with the aim of assisting an increased rate of successful product launches. Feeding into this is Bord Bia's Consumer Lifestyle Trends Programme, which provides the insight and understanding to help manufacturers identify potential gaps in the market.

Further information from:  
[padraig.brennan@bordbia.ie](mailto:padraig.brennan@bordbia.ie),  
tel: 01 668 5155; [www.bordbia.ie](http://www.bordbia.ie)

# Keeping the consumer at the heart of functional food product development

DR SINÉAD MCCARTHY



**Functional foods** incorporate science into everyday eating with the suggestion of specific and targeted health benefits for consumers, making it the fastest growing segment in the food market. Therefore, it is not surprising that

Euromonitor predicts the global functional foods market will be worth approximately €175 billion by 2012.

Teagasc Ashtown is engaged in marine functional food research in the NutraMara project. One of the many aims of NutraMara is to identify and extract marine origin functional ingredients and develop new foods enhanced with these ingredients. Determining consumer acceptance of these ingredients, by exploring consumer perception, intentions and attitude formation for marine-derived functional ingredients, is an integral element of this large-scale research project. An in-depth review of the literature has produced an insightful process for the development of functional foods.

This process is very similar to any new product development process but requires an additional scientific stage. The process starts with identifying consumer needs and determining what is acceptable to the target consumer. Acceptance of functional foods is related to many factors, including enrichment type, food type and health claim. Once this is completed, the rigorous scientific process begins to identify functional food compounds that will address consumer requirements. Human intervention trials are essential to assess efficacy and demonstrate a measurable effect of the ingredient. The process then reverts to the consumer. At this stage it is imperative to develop a clear and credible communication strategy focused on the health claim. The golden rule throughout this process is to produce a food of comparable taste to the conventional equivalent because consumers rarely compromise taste for health benefits.

This process is often associated with wealthy multinational companies due to cost. However, it

is possible for Irish SMEs to become involved in publicly-funded research projects and potentially exploit the outputs without incurring the high costs of intervention trials and market research or alternatively to access research outputs or patents. National supports also exist, such as the Food Safety Authority of Ireland for health claims and EU legislation as well as Enterprise Ireland for innovation partnerships and funding.

To try to get a slice of this billion euro market, it is important to ensure that credible science is integrated with consumer understanding, effective communication, uncompromised taste and above all, meeting unsatisfied consumer needs.



Further information from:  
[sinead.mccarthy@teagasc.ie](mailto:sinead.mccarthy@teagasc.ie),  
tel: 01 805 9962.  
Funded by: DAFF and Marine Institute.

# Is time and money running out for healthy eating?

MS PAMELA MURPHY



**As our currency** changed from Pound to Euro and our pockets were lined with the fur of the Celtic tiger, did our food expenditure patterns also change? Research at Teagasc Ashtown, using the most recently

available Central Statistics Office household budget survey data, examines food expenditure trends during a decade of much economic change in Ireland. This research, funded by the Health Research Board (HRB) as a part of a large-scale national project, applies a novel approach to link economic data with potential health outcomes. Initial analysis found that the average weekly disposable income for the household nearly doubled from €583 in 1994 to €1,002 in 2004. With this dramatic increase in disposable income, what effect was observed in food choice and what can we learn

for the future as we enter a new economic era?

Using the food pyramid categories to group all the foods purchased and looking at changing expenditure across the various levels of the pyramid, notable changes are revealed. When expressed as a percentage of total food expenditure, expenditure on foods from the top of the pyramid has increased significantly.

This is of concern because the public health advice is to use sparingly and limit consumption of these high fat, high sugar foods. A decrease in expenditure has been seen for meat, eggs and fish while little or no change has been observed for the other levels of the food pyramid. Despite widespread campaigns to increase fruit and vegetable consumption, expenditure on this category did not change significantly over the decade.

In light of the different economic circumstances in which we now find ourselves, focus must be maintained on healthy eating which will have economic benefits for both the individual and the national economy.



According to a recent Datamonitor report on health trends, some consumers are looking for healthier foods to mitigate the personal medical costs of ill-health. This is a trend that the food industry can address, by creating more health orientated foods, to support healthy eating, healthy living and ultimately a healthier economy.

Further information from:  
[pamela.murphy@teagasc.ie](mailto:pamela.murphy@teagasc.ie) or  
[sinead.mccarthy@teagasc.ie](mailto:sinead.mccarthy@teagasc.ie), tel: 01 805 9500.  
Funded by: Health Research Board  
Partners: Trinity College Dublin.

## Good news for Irish farmhouse cheese

MS BRÍDÍN MCINTYRE



**The results of** a Teagasc research project that addressed sustainable development of the Irish farmhouse cheese industry should ensure that this multi-million euro industry continues to grow. In particular, the results of

consumer research conducted by Teagasc Ashtown reveal strong positive attitudes towards the product.

Focus groups held in Dublin and Cork found that consumers perceive Irish farmhouse cheese as a high quality product that is distinguished from other speciality cheeses by taste and provenance. Consumers were unequivocal in their opinion regarding their confidence in the safety of Irish farmhouse cheese. A number of attributes contributed to this perception. Consumers believe that Irish farmhouse cheese is made from high quality milk provided by either the cheese-makers' herds or herds in the locality and is processed in a small-scale unit employing less than 5-6 staff. Consumers place considerable importance on the scale of the cheese-making process and believe that scale has an impact on the quality and safety of the cheese. Furthermore, the farmhouse cheese-maker is perceived to be passionate about his/her product and conducts his/her business with the utmost integrity.

There is a general perception among consumers that the production of farmhouse cheese is well regulated and rigorously policed. Some consumers believe that the sector is possibly over-regulated. The food regulatory agencies are highly regarded and trusted to enforce food safety regulations. Retailers are considered to have a significant role in ensuring

the safety of farmhouse cheese by the careful sourcing of cheese from reputable sources and by managing correct storage and product handling. Many of the perceptions consumers hold on farmhouse cheese are informed by both the print and broadcast media. Endorsements from chefs and food writers, along with product features in television cookery programmes, are particularly important in shaping consumer attitudes towards Irish farmhouse cheese.

The positive attitudes reported by consumers were found to be based on reality when other Teagasc research within the project found no causes for concern following chemical and microbial analysis of Irish farmhouse cheeses. This indicates that the fundamental attributes of the product are sound. However there is no room for complacency as, despite consumers' strong positive attitudes towards Irish farmhouse cheese, the focus groups also indicated their willingness to purchase competitively priced European speciality cheeses. This strong European competition along with the current economic downturn provides considerable challenges to the sector.



Further information from:  
[bridin.mcintyre@teagasc.ie](mailto:bridin.mcintyre@teagasc.ie), tel: 01 805 9579.  
Funded by: FIRM  
Partners: Teagasc Moorepark  
(Dr. Kieran Jordan, project co-ordinator).

## Never the twain shall meet?

DR MAEVE HENCHION



**Lack of dialogue** between food- and consumer-scientists can lead to consumer and industry rejection of costly and useful new food technologies. A project at Teagasc Ashtown, applying high pressure processing (HPP) to ready-meals, seeks to improve this dialogue by integrating the voice of the market at several key stages in the project.

Initially, a market review helped to identify key potential adopters and critical issues affecting their operations. This, along with a technical review, led to a decision to direct the project towards adding value to low value meat cuts (brisket) within a ready-meal. Subsequent research helped to identify key market propositions of value to consumers and industry based on the benefits that could derive from using HPP. While industry were most receptive to HPP because of extended shelf-life, the value attached by consumers to HPP as a means of improving quality meant the process by which HPP was applied to the ready-meal was modified so that the emphasis was on improving quality. Finally, the results of consumer sensory acceptance testing revealed the HPP treatment most acceptable to consumers for the prototype ready-meal. This process of breaking down barriers between food- and consumer-scientists should help ensure greater industry uptake, and consumer acceptance, of the outputs of publicly-funded food research.

Further information from:  
[maeve.henchion@teagasc.ie](mailto:maeve.henchion@teagasc.ie) or  
[paul.allen@teagasc.ie](mailto:paul.allen@teagasc.ie), tel: 01 805 9500.  
Funded by: FIRM

## Maximising industry uptake of novel food technologies

MS GRÁINNE KAVANAGH



**The National Development** Plan awarded significant funds to FIRM projects between 2000 and 2006 to support innovation. New research in Teagasc Ashtown aims to better understand the determinants of industry

uptake of novel technologies, thereby helping maximise potential return from this investment.

A review of the literature relating to technology uptake revealed that studies relating to high-tech industries and large companies dominate the literature. These have limited relevance to the generally low-tech, small to medium-sized enterprises (SMEs) that exist in the food industry. To aid in pinpointing the issues, particularly those

affecting technological innovation in Irish SMEs, depth interviews were conducted with selected industry and support agency representatives.

In common with other industries, the interviews revealed that the food sector is being adversely affected by the economic downturn, making investment in new technologies a difficult proposition. Additionally, high energy and labour costs affect food companies severely due to high utility usage and the labour-intensive nature of the sector.

Distinct to the food industry is the extensive power of food retailers over shelf-space and prices. This creates an uncertain long-term outlook for food companies, shifting the focus from innovation to short-term survival. Furthermore, the swift time-to-market and short product life cycles prevalent in the food industry

conflict with the required resources and time needed to develop something 'really new'.

Interviewees also pointed to a poor innovation culture, with historically low investment in R&D and a perceived irrelevance of intellectual property protection in the industry. As a result of these issues, significant challenges face the uptake of technologies emerging from publicly-funded research. The next step of the research will involve a survey of Irish food SMEs based on the framework developed from the literature and interviews.

Further information from:  
[grainne.kavanagh@teagasc.ie](mailto:grainne.kavanagh@teagasc.ie), tel: 01 805 9590; [maeve.henchion@teagasc.ie](mailto:maeve.henchion@teagasc.ie), tel: 01 805 9515.  
Funded by: FIRM; Partners: DIT and UCC.

# Scientist profile

DR SINÉAD MCCARTHY



In 2007 I joined the food marketing research team, with responsibility for the consumer behaviour research programme in relation to food and health.

For nearly 15 years, I have been involved in many areas of nutrition and food research. Following an MSc in Nutrition in University College Cork (UCC), I worked in nutritional physiology for 2 years. I then moved to Trinity College Dublin (TCD) as a research officer in the area of public health nutrition and as co-ordinator of the Irish National Food Consumption programmes for nearly ten years. Using this research, I completed a PhD on the prevalence and predictors of obesity in Irish adults.

I continued to work in TCD as Scientific Officer on the EU Framework 6 Lippene project which was concerned with the interaction of nutrients and genotype in relation to risk factors for obesity.

Since joining Teagasc, I have been actively involved in developing a research programme in the area of consumer food behaviour and its potential impact on health. The programme includes projects that range from the determinants of food choice in Irish consumers to the impact of Ireland's changing economy on food choice and food expenditure. I also collaborate with other departments at Teagasc in the areas of consumer acceptance of functional foods and consumer perceptions of meat quality. This research programme has been supported by funding from FIRM and the Health Research Board.

## AFRC diary of events

Date	Events/Training Courses/Demonstrations	Venue
July 7th & 8th	<b>Legal Labels - Ireland</b> Get the latest in food labelling legislation. For further information contact: <a href="mailto:carmel.farrell@teagasc.ie">carmel.farrell@teagasc.ie</a> , 01 805 9572	Dublin
September	<b>Butchery &amp; Small-Scale Meat Production Workshop</b> This workshop is aimed at individuals who are already selling or considering selling/processing meat from their own herd. For further information contact: <a href="mailto:gerard.downey@teagasc.ie">gerard.downey@teagasc.ie</a> , tel: 01 805 9592	Dublin
September 8th & 9th	<b>HACCP in Food Safety (FETAC) (2 days)</b> Participants will develop their own HACCP system over the 2 days. For further information contact: <a href="mailto:gerard.barry@teagasc.ie">gerard.barry@teagasc.ie</a> , tel: 061 498 042	Limerick
September 14/15th & October 14th	<b>Trainer Skills – Food Safety &amp; Hygiene (FETAC)</b> Develop the skills required to deliver training in your company. For further information contact <a href="mailto:margaret.hennessy@teagasc.ie">margaret.hennessy@teagasc.ie</a> , tel: 01 805 9520	Limerick
September 21st & 22nd	<b>Food Standards Auditing (FETAC) (2 days)</b> Participants will gain the knowledge, skill and competence to interpret food safety and quality standards and to develop an auditing procedure. For further information contact <a href="mailto:margaret.hennessy@teagasc.ie">margaret.hennessy@teagasc.ie</a> , tel: 01 805 9520	Limerick
October 5th & 6th	<b>Complaints &amp; Crisis Management</b> Learn from case studies how to handle complaints, understand risk assessments and the methods for product recall planning. For further information contact: <a href="mailto:carmel.farrell@teagasc.ie">carmel.farrell@teagasc.ie</a> , tel: 01 805 9572	Dublin
October 6th & 7th	<b>HACCP in Food Safety (FETAC) (2 days)</b> Participants will develop their own HACCP system over the 2 days. For further information contact: <a href="mailto:margaret.hennessy@teagasc.ie">margaret.hennessy@teagasc.ie</a> , tel: 01 805 9520	Dublin
October 13th	<b>Microbiological Criteria and Shelf-Life of Foods</b> Review of the issues concerning microbiological criteria and shelf-life of foods. For further information contact <a href="mailto:margaret.hennessy@teagasc.ie">margaret.hennessy@teagasc.ie</a> , tel: 01 805 9520	Dublin
October 14th & 15th	<b>Agricultural Economics Society of Ireland (AESI) 1st Annual Conference and Young Researcher Seminar</b> Topics covered include agriculture, the environment, rural development, food marketing, land use and development economics. For further information contact: <a href="mailto:secretary@aesii.ie">secretary@aesii.ie</a> , tel: 01 805 9502; <a href="http://www.aesii.ie">www.aesii.ie</a>	Dublin
November 18th & 19th	<b>International conference on Hyperspectral Imaging (IASIM-10)</b> Hyperspectral imaging is a powerful new tool to collect spatial and spectroscopic data from food. This conference aims to bring together experts from many imaging fields from across the globe to share experiences and accelerate applications. For further information contact: <a href="mailto:gerard.downey@teagasc.ie">gerard.downey@teagasc.ie</a> , tel: 01 805 9572	Dublin

If you have any comments or suggestions regarding **The Ashtown Food Innovator**, please email **Carmel Farrell** at [carmel.farrell@teagasc.ie](mailto:carmel.farrell@teagasc.ie); **Tel:** +353 (0) 1 805 9572; **Fax:** +353 (0) 1 805 9550; **Ashtown Food Research Centre**, Teagasc, Ashtown, Dublin 15. **Website:** [www.teagasc.ie/ashtown](http://www.teagasc.ie/ashtown)

## Recent highlights



**Dr Maeve Henchion (front row, 3rd from left) at the International Centre for Advanced Agronomic Studies, Spain with international experts from Belgium, Italy and Spain to develop an advanced programme for marketing strategies for local food producers.**



**Pictured during the visit to AFRC of EU Research Director, Ms Maive Rute (centre) and Mr Ciaran Mangan, EU Commission (3rd left) with representatives from DAFF and Teagasc Ashtown.**



**Members of the steering group of the recently launched Teagasc-UCC strategic alliance which deepens and formalises the existing relationship between the Teagasc Ashtown and Moorepark Food Research Centres with UCC.**

