



benefits of fish consumption outweigh the risks

conclusion of the world seafood congress

fsai news

The World Seafood Congress, the premier seafood science event in the world, was co-hosted by the FSAI, BIM and Enterprise Ireland in Croke Park, Dublin, from 25-27 September and attended by over 400 delegates from across the globe. Opened by Minister Mary Coughlan, T.D., the event saw 72 speakers address a wide variety of topics associated with seafood safety and nutrition, the sustainable exploitation of the oceans, and innovation in product development.

Seafood is the predominant source of omega-3 essential fatty acids in the diet and data discussed at the Congress show the beneficial effects on child development when mothers consumed more than three portions (about 350g) of seafood a week. Many speakers addressed the cardio-protective effects of fatty fish that are rich in omega-3 fatty acids. These beneficial health effects are associated with a modest consumption of fish: one or two servings

In light of the strengthening evidence presented at the Congress that the benefits of seafood consumption outweigh risks to consumer health, the Congress concluded that the health risk attributed to mercury is overstated in most government advisory notices. Risk communication is a complex task, especially when advising on issues relating to changing consumer behaviour. The unintended consequence of advising pregnant women to limit consumption or to avoid a few of the larger species of predatory fish such as shark, swordfish and marlin, is actually putting people off eating seafood altogether. These large predatory species may contain higher levels of mercury than other fish, which may affect foetal development. The challenge in communicating food safety risks is to put the risk in context and to frame that message so that the desired outcomes are achieved in terms of consumer behaviour.



september/october 2007

food safety authority of Ireland ISSN 1393-6972 volume 9 issue 4

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uk study on the effects of certain food additives on children's behaviour

In light of recently published research in the UK on the effects of certain artificial colours and the preservative sodium benzoate on children's behaviour, the FSAI has advised that parents of children who display symptoms of hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD) should consider limiting their children's consumption of foods containing these additives.

In the study, undertaken by researchers at the University of Southampton in the UK and published in the *Lancet* on 8 September, the behaviour of two sets of children (three year olds, and eight to nine year olds), including those who have been diagnosed with ADHD, was monitored before and after consuming one of two drinks containing different mixtures of commonly used artificial colours and the preservative sodium benzoate. As a control, some children were given a placebo (i.e. a mixture that didn't contain any additives). The levels of additives given to the children equated to the levels typically consumed in a day by children in the UK. Their behaviour was then monitored and recorded by parents, teachers and independent assessors. The eight to nine year olds were also assessed using a computerised attention test.

The results showed that the two mixes of additives used in the study (representative of the mix of additives commonly found in children's food) led to an increase in the mean level of hyperactivity in the children. The effects were seen in both age groups, although only one of the mixtures affected the three year old age group. The effects seen in a number of the children examined represented a cross-section of hyperactivity symptoms identified before the trial began. However, effects were not observed in all of the children in the study and the researchers noted that there were substantial differences in the response of individual children to the additive mixtures.

The UK's Committee on Toxicity has reviewed the findings and concluded that there is a plausible link between the consumption of

mixtures of certain additives, particularly artificial colours, and the effect on the behaviour of some children.

There has been a considerable amount of anecdotal evidence in the past on the effects of certain food additives on children's behaviour but this is the first carefully controlled scientific study that has demonstrated these effects.

Following a request from the European Commission, scientists at the European Food Safety Authority (EFSA) have completed an initial consideration of research and have decided a further detailed assessment of the study is required. Once the results of the EFSA assessment are available, Member States and the Commission will decide what action is necessary to protect consumers. In the meantime, the FSAI recommends that parents read food labels when buying products so that they can identify if they contain these food colours and thus, they can make an informed purchasing decision.

Additives examined in the study

The children in the study were given either a placebo drink containing no additives or one of two drinks containing mixtures of four artificial colours and the preservative sodium benzoate. A total of six colours were examined during the study.

Mix A

Sunset Yellow (E110)
Tartrazine (E102)
Carmoisine (E122)
Ponceau 4R (E124)
Sodium Benzoate (E211)

Mix B

Sunset Yellow (E110)
Quinoline Yellow (E104)
Carmoisine (E122)
Allura Red (E129)
Sodium Benzoate (E211)

The study is published in *The Lancet*: www.thelancet.com

hygiene package training for sea fishery protection officers

The FSAI recently provided a two-day 'hygiene package' training workshop for sea fishery protection officers (SFPOs). The workshops were run in Sligo and Clonakilty and aimed to provide an overview of:

- Regulation 178/2002
- Regulation 2073/2005
- Regulation 882/2004
- Regulation 852/2004 and
- Regulation 853/2004 as applicable to SFPOs.

The presentations were supported by interactive exercises which focused on hygiene package legislation requirements and microbiological criteria. Feedback overall was positive and attendees welcomed the interactive sessions which provided an opportunity to raise and discuss issues.



Pictured are attendees at the workshop



launch of revised fsai-hse national haccp strategy

The FSAI-HSE National HACCP Steering Committee has recently undertaken a review of the National HACCP Strategy. Back in 2002, the strategy was put in place to tackle the low level of compliance with the HACCP requirement of Council Directive 93/43/EEC on the hygiene of foodstuffs. Its implementation was achieved through a HACCP Steering Committee consisting of environmental health officers (EHOs) from each of the ten former health boards and chaired by the FSAI. Over a four year period the strategy achieved considerable success among the specific groups that were targeted: hotels with function catering, hospitals, nursing homes, and butchers selling ready-to-eat food.

During the review process, the Committee agreed that the strategy was still needed but required a considerable revision to reflect the changes in the legislation and experience gained from implementation of the original strategy.

On 1 January 2006, Directive 93/43/EEC was replaced by Regulation (EC) No. 853/2004 and brought into effect in Ireland by European Communities (Hygiene of Foodstuffs) Regulations, 2006 (S.I. No. 369 of 2006). The Regulation retains the HACCP requirement but introduces a degree of flexibility, allowing for different HACCP

compliance options and flexibility within some of the HACCP principles. Consequently, one of the greatest challenges for EHOs going forward is consistency of enforcement in the face of this more flexible HACCP requirement.

The revised strategy contains six objectives (see Table 1), the first two of which address promotion of the legal requirement, together with a better understanding of the implications of its flexible nature. Based on the success of the targeted approach in the past, this focused method has been retained. High-risk businesses not previously targeted will be the priority, followed by medium risk businesses. Baseline and final assessments will be conducted to measure the success of each target group. It is envisaged that the

HACCP

revised FSAI Guidance Note No. 11 on assessment of HACCP compliance, together with the target group assessments, will give a more consistent national approach to enforcement. Finally, the FSAI will continue to liaise with industry representatives of the chosen targeted groups to assist industry to better help itself.

The revised strategy will run for the period 2007 to 2010. For the full text see our website at: <http://tinyurl.com/2udvky>

Table 1: Strategy Objectives

1. To promote the requirement for a food safety management system.
2. To clarify and promote understanding of the food safety management system requirement.
3. To employ a targeted approach to ensuring full compliance with the law.
4. To facilitate the development of an enhanced role for industry in its own development of food safety management systems.
5. To develop a consistent approach to enforcement.
6. To measure the success of the strategy.

new draft code of practice discussed



At a recent workshop organised by Bord Iascaigh Mhara (BIM) and the Irish Farmers Association-Aquaculture, for the Irish oyster industry, the FSAI took to the podium to introduce a new draft *Code of Practice for the Microbiological Monitoring of Bivalve Shellfish Production Areas*.

The draft Code of Practice was developed by the FSAI with the assistance of the Sea Fisheries Protection Authority, the Marine

Institute, BIM, and IFA-Aquaculture. It is intended to implement the provisions of the 'hygiene package' that apply to the gathering or harvesting of live bivalve molluscs. Specifically, it is intended to give effect to an EU Community Good Practice Guide developed and published by the EU Central Reference Laboratory for monitoring bacteriological and viral contamination of bivalve molluscs based at the Centre for Environment, Fisheries and Aquaculture Science in Weymouth, UK.

The meeting with the industry was the first in a series of regional events intended to allow shellfish farmers and producers an opportunity to comment and offer opinions on the proposals contained in the draft document before it is finalised. These

proposals include measures intended to ensure that all production areas are properly surveyed to generate accurate risk profiles; factors to be applied when interpreting data to decide risk management measures; and changes to be applied to the sampling regime.

The event was very well attended by oyster farmers from across the country who heard a number of presentations from the different organisations who will be involved in implementing the new Code of Practice. The presentations by the Sea Fisheries Protection Authority, the Marine Institute and BIM were followed by an engaging discussion that covered the practicalities of implementation.

positive update on national programme to red

The FSAI's national salt reduction programme was initiated following the publication of its scientific report in April 2005 (*Salt and Health: Review of the Scientific Evidence and Recommendations for Public Policy in Ireland*), which highlighted that Irish people are consuming far in excess of the recommended daily allowance for salt. It is estimated that Irish adults consume an average of ten grams of salt per day, which should be reduced to six grams per day. It is known that excessive salt intake is a major factor in the number of deaths from cardiovascular disease and stroke caused by high blood pressure and hypertension each year. In 2006, about 35% of all deaths in Ireland were from cardiovascular disease and over 50% of the population over 50 years of age suffers from hypertension.

The report outlined a range of recommendations which included engaging with food industry stakeholders to secure gradual and sustained reductions in the salt content of foodstuffs available on the Irish market. The ultimate goal of the national salt reduction programme is to reduce the average population intake of salt to six grams per day by 2010 through partnership with the food industry and State bodies charged with communicating the salt and health message to consumers.

To date, strong progress has been made across the Irish food industry to reduce the level of salt in manufactured and prepared foods. However, further substantial efforts are required to reduce the average daily salt intake by Irish adults to six grams (or one teaspoon) by 2010. Recent labelling laws

governing claims on salt content in foods will be beneficial for consumers, as manufacturers will have to adhere to set minimum salt levels to be able to state 'low salt', 'very low salt' or 'salt free' on packaging. They will also have to make reductions of more than 25% in salt before they can claim that their product has reduced salt content.

Currently there are 76 food business and their representative groups participating in the salt reduction programme (compared with 52 in 2005). Highlights, together with the full report detailing each participant's salt reductions are published on our website at www.fsai.ie/industry/salt/salt2.asp. The programme aims to reduce salt levels by one third in food products as approximately 65-70% of an adult's daily salt intake emanates from manufactured foods.

food manufacturers' highlights:

meat products

Some 19% of adult daily salt intake is from cured or processed meats and meat products (bacon, sausages, cooked hams, gammon steaks, puddings and burger products) with meat-based ready meals, pies and pastries contributing a further 9% of daily salt intake. The FSAI has measured the salt in meat products on the Irish market and confirms that manufacturers reached salt targets in 2006. However, more needs to be done. New challenging targets have been set for salt reduction in meat products in 2007 and many producers and retailers have adopted these targets. However, the target of 0.55g sodium/100g for sausages will be particularly difficult for the industry.

Several well known companies in this food category joined the programme in 2007, representing the medium and small meat product sectors, and adopted the salt reduction targets. The FSAI will also be working with the Associated Craft Butchers of Ireland to address salt levels in sausages and bacon in independent butchers' shops. There are some food safety barriers with meat products that prevent low salt products being made, therefore, consumers need to moderate their intake of bacon, sausages and ham to control their personal salt intake.



bread

An estimated 27% of adult daily salt intake comes from bread products. Testing carried out by the FSAI confirms that the Irish Bread Bakers Association (IBBA) met its target of a 10% reduction between 2003 and 2006. Currently, bread contains on average 1.14g salt/100g, as compared to 1.25g salt/100g in 2003. In 2005/6, there were no further salt reductions made in bread. This year, IBBA has agreed to extend its 10% salt reduction to all breads, not just standard brown and white loaves, by the end of 2008.

However, more can be done and research led by Prof Alan Cassells in University College Cork, funded by DAFF under the FIRM programme, has demonstrated that lower salt levels in bread can be achieved. Industry has been urged to work with these researchers to target further salt reductions from 2008 to 2010.

soups and sauces

Soups and sauces represent on average 6% of adult daily salt intake. Manufacturers have reduced salt in dried sauces by 15% and in dried soup by 10% since 2005, with plans for further salt reductions in 2007/8. Salt levels in dried soups are still high and the FSAI has welcomed the gradual and sustained salt reduction that it called for in 2005.



breakfast cereals

Approximately 2% of adult daily salt intake comes from breakfast cereals. Substantial reductions of some 19% have been secured since 2005, on top of the 20% salt reductions made by the industry between 1998 and 2005. The acceleration of the salt reduction programme in breakfast cereal is marked and cuts have been made in some of the biggest brands. For example, FSAI studies on salt in breakfast cereal on the Irish market in 2007 showed cornflake brands to contain an average of 1.37g salt per 100g, compared to 1.78g salt per 100g in 2003.

duce salt

snack foods

Snack foods contribute around 2% of adult daily salt intake. The three major manufacturers of these products in Ireland have been making considerable cuts in salt since 2005 and have introduced new reduced salt options for consumer choice. Most brands now openly state the amount of salt per 100g and per pack/portion. Consumers are encouraged to use this information to make healthier choices.

other

In addition, retail multiples and symbol groups in Ireland continue to remove salt from their own label products and in doing so, maintain the pressure on food manufacturers to sustain salt reduction programmes. In 2007, many retailers reported that their 2005 targets in some categories had been met. This is encouraging with three years to go to the 2010 target date. However, the FSAI is keen for new stretching targets to be set and for further salt reductions to be implemented.

Caterers continue to make salt reductions in food eaten outside the home. Currently, salt reduction programmes are in place in the major restaurant chains, and some large

hotel chains have introduced reduced salt specifications for the food they buy. However, salt reduction in catering strongly depends on the availability of salt reduced pre-prepared foods sold by catering wholesale suppliers. Key wholesalers have salt reduction programmes in place and are starting to produce salt reduced foods, but significant progress is required in this element of the industry and a wide range of foods need to be included in salt reduction programmes.



Major catering wholesale suppliers should be implementing salt reduction programmes that are similar to those outlined by the retail multiples. Whilst support is strong in some wholesalers, a wider more sustained effort is needed if caterers are to provide lower salt foods for consumers eating out.

conclusion

Overall, substantial progress has been made in the salt reduction programme, but a lot more needs to be done to protect consumer health. The half way stage has been reached with three years to go before the 2010 target deadline to achieve an average adult daily salt intake of six grams. The food industry has made great progress, but it is important that momentum is maintained. The FSAI would like to see more food businesses getting involved in salt reduction and more stretching targets adopted, particularly in bread and meat products. The food industry must keep consumers' health at the forefront of their thinking and build on current research to overcome technical barriers that could derail the salt reduction process.

Reducing salt involves not only introducing new recipes and technologies, but also requires a gradual approach so that Irish palates become accustomed to less salt. However, whilst today's benchmark is a considerable development, there needs to be additional solid application by the food industry to continue to decrease the level of salt usage over the long term. The ultimate objective is to secure a reduction in salt added to food during processing/preparation by up to one third.

Examples of Salt Intake - As Percentage of Recommended Adult Daily Allowance (6g per day)

Breakfast	2005	2007
2 slices of dry toast (72g bread) Total	0.90g salt	0.82g salt
% contribution of 6g/per day intake	15.00%	13.68%
30g portion of cornflakes	0.53g salt	0.41g salt
125g milk	0.16g salt	0.16g salt
Total	0.70g salt	0.57g salt
% contribution of 6g/per day intake	11.63%*	9.58%*
1 rasher (approx 30g)	0.89g salt	0.83g salt
2 sausages (approx 90g)	1.96g salt	1.69g salt
Total	2.84g salt	2.51g salt
% contribution of 6g/per day intake	47.38%	41.88%

*3% from milk and the rest from cereal

Full details of individual food businesses' commitments to salt reductions are available in the industry section of our website.
See: <http://tinyurl.com/2of07p>

compilation of national list of article 13 health claims

The newly adopted European Regulation on Nutrition and Health Claims (EC) No. 1924/2006 applies from 1 July 2007. The primary aim of this Regulation is to allow consumers to make more informed food choices by ensuring they have accurate information and are not misled in relation to the health effects of food.

Under Article 13 of the Regulation, Member States are responsible for compiling a list of health claims based on scientific evidence of effectiveness, together with conditions of use applying to them. These national lists of health claims will be submitted to the European Commission by 31 January 2008. These claims will be considered for inclusion in the EU list of authorised, generally accepted, well established, health claims which will be adopted by 31 January 2010. The claims on the EU list will be the only health claims allowed on food products from then onwards.

In Ireland, Food Business Operators (FBOs) were urged to make submissions to the FSAI regarding Article 13 claims which appear on their food products, or on any related advertising, via an online submission process on our website. The electronic template used by the FSAI to collect claims in Ireland was directly based on the work of Member States Authorities who devised a coordinated approach to compiling the list. This approach ensures that Article 13 health claim submissions relate to relevant areas of the Regulation, particularly the specific conditions for use as referred to in Article 3, 5 and 10 of Regulation 1924/2006. The FSAI recognise that this process was time consuming for FBOs but believe that these

detailed Article 13 submissions will assist the authorisation process by enabling the European Food Safety Authority (EFSA) to make a very informed decision about the claims on the Irish list.

The FSAI submission period was opened on 11 June and closed on 28 September 2007. There was a great deal of activity leading up to and in the immediate aftermath of the September deadline. Approximately 300 submissions were received for generic claims on food products on the Irish market. The FSAI is now checking the accuracy and completeness of these submissions. However, the assessment of the scientific evidence will be undertaken by EFSA.

The FSAI would like to thank all FBOs who have submitted claims.



fsai at shop exhibition



SHOP exhibition is Ireland's largest retail, food and drink industry event. With over 250 exhibitors and many thousands of visitors, the show provided an excellent opportunity for the FSAI to meet with people working in the Irish food industry. The event was held in the RDS, Dublin from 2-4 September. The FSAI information stand was attended by trained advisors and scientists who work on a daily basis on issues concerning the food industry, and was visited by many interested parties over the three days. Queries were predominately based on the food safety implications of starting up a new food business and food hygiene training.

visitors from abu dhabi

The FSAI recently played host to a delegation from the Abu Dhabi Food Control Authority. Mr Ahmed Abdul Rahman Al Tenaiji, Head of Animal Production and Mr Elniema Abdel Khalig Mustafa, Senior Veterinarian, visited Ireland from 19-24 August to gain first hand information on the implementation of food safety controls at national level. They were particularly interested in the application of food safety management systems in the retail and catering sectors and biosecurity in animal production.

Mr Alan Reilly, Deputy CEO, FSAI is pictured here with Mr Ahmed Abdul Rahman Al Tenaiji, Head of Animal Production and Mr Elniema Abdel Khalig Mustafa, Senior Veterinarian, Abu Dhabi Food Control Authority.





world seafood congress, 2007

The World Seafood Congress, which took place in Croke Park Conference Centre, Dublin from 25-27 September, was hailed as a tremendous success by delegates

who attended from over 35 countries. The three-day Congress, co-sponsored and organised by the FSAI, Bord Iascaigh Mhara and Enterprise Ireland, is the premier seafood science event in the world and the honour of hosting it was awarded to Ireland by the International Association of Fish Inspectors (IAFI). Co-organisers of the Congress were the WHO (World Health Organization), the FAO (Food and Agricultural Organization of the United Nations), UNIDO (United Nations Industrial Development Organization) and IFQC:SMART GROUP.

Opened by Minister Mary Coughlan, T.D., the event saw 72 speakers address a wide variety of topics associated with

seafood safety and nutrition, the sustainable exploitation of the oceans, and innovation in product development. Ireland's status as a leader in the area was underlined by the presence of over 20 Irish-based speakers in the international line-up.

Workshops were run by international experts in their field and covered a range of issues from market access requirements, sustainability standards, seafood HACCP, mercury versus health and traceability and logistics.

The event also featured the 'Great Debate', chaired by Miriam O'Callaghan, which set out to explore the proposition "Is eating seafood the best way to get those all important omega-3s into your diet and your children's diet?"

The Congress is a key feature in the global seafood event calendar and is flagged as a critical biennial meeting of the seafood industry.



minister officially opens the congress

Reflecting on how changes in the Irish economy have been mirrored in the country's seafood industry, Minister for Agriculture, Fisheries and Food, Mary Coughlan, T.D., welcomed the delegates to the World Seafood Congress.

Like the wider economy, the Irish seafood sector is open, export orientated, and competes on a world-wide basis. Minister Coughlan highlighted the fact that many of the attendees at the congress were partners of the Irish industry. This included businesses who act as raw material suppliers or customers, service providers, and regulators who facilitate the flow of seafood around the globe.

The Minister acknowledged the wave of change currently moving through the fishing sector. In particular, she recognised that fishing effort needs to be balanced with the opportunities available. The report commissioned by the Government, 'Steering a New Course', from Dr Noel Cawley represents a cornerstone of that balancing effort.

The intention between now and 2015 is to grow the fishing and aquaculture sector from its current level of €700 million to just under €1 billion by careful research to ensure the maximum value is leveraged from the fish caught and grown in Ireland. This, the Minister anticipated, would require innovation, new product development and advanced marketing. The importance of developing this sector of the economy is underlined by virtue of the role it plays in local economies and communities around the coast.

In reviewing the market for food in general and seafood in particular, Minister Coughlan acknowledged the opportunities that arise from getting the consumer to recognise seafood as a 'health-giving superfood'. The challenge is not just to raise the absolute volume of seafood sold, but also to shift the attitude of consumers towards its consumption. The role of seafood consumption in promoting a healthy way of living and tackling lifestyle health issues such as obesity was also commented on by the Minister.

The Minister commended the strong attendance at the congress by the newly created Sea Fisheries Protection Authority and also the attendance by a significant number of environmental health officers. This, she contended, was evidence that Ireland takes the safety of its seafood very seriously.

Finally, the Minister congratulated the three sponsoring agencies of the event, the FSAI, Bord Iascaigh Mhara and Enterprise Ireland, and also thanked the WHO, FAO, UNIDO and IFQC:SMART GROUP for their contributions and support. She concluded by extending her thanks to the International Association of Fish Inspectors for awarding Ireland the opportunity to host the prestigious event.

Minister Mary Coughlan, T.D., opened the World Seafood Congress in Croke Park Conference Centre.



exhibitions

An exhibition took place on Hogan level 4 during the World Seafood Congress, opening and closing 40 minutes before and after the conference times. The FSAI had an information stand at the event which was visited by many delegates over the course of the three days.

Pictured at the FSAI information stand are staff members David Lyons, Carol Heavey and Judith Giles.

seafood haccp

Widely recognised by most progressive businesses as a sound investment, HACCP has been the major food safety innovation in the last half century. The system has proved both robust and flexible and has been successfully applied in just about every conceivable food production business type, including seafood. However, what has worked before may not always work in the future.

HACCP - Where to Next? was the title of one of the breakout sessions at the conference. Dr Spencer Garrett, National Oceanographic and Atmospheric Administration, USA; Mr Alf Bungay, Canadian Food Inspection Agency and Mr Carlos Lima Dos Santos, National Industry Federation Project, Rio de Janeiro, Brazil, reviewed the past successes of HACCP and discussed the system's future prospects. They also considered the changes that need to be applied if the success story is to continue.



Mr Samuel GL Balagadde, Uganda National Bureau of Standards, Africa, delivers his presentation entitled: 'An African View of Supplying Seafood to the Markets of the World.'



Dr Andrew Wadge, Chief Scientist, FSA, UK speaks on 'Reconciling Nutrition Requirements with Sustainability.'



Mr Colm Gaynor, Director of the Food and Veterinary Office, European Commission, chaired the opening plenary session at the World Seafood Congress.

congress keynote speech: fat on the brain

At four years old, a juvenile rhinoceros weighs close to one tonne, but its brain is barely the size of a human fist. A four year old child, however, weighs in at less than a twentieth of the rhino's weight but is considerably more advanced in terms of brain size and intellect - why? This was the intriguing question Professor Michael Crawford, director of the Institute of Brain Chemistry and Human Nutrition at London Metropolitan University, set out to address in his keynote presentation to the delegates at the World Seafood Congress.

As humans, we are, it appears, uniquely geared to grow our brains. Our defining characteristic as *Homo sapiens* is the prodigious biological effort that goes into our cerebral and neural development. In human foetal development the developing brain absorbs up to 70 percent of the energy - both in calories and oxygen. Even our nearest primate ancestors, the great apes, have tiny brain-to-body ratios when compared to ours. Other animals like the rhinoceros, though, tend to put on physical rather than cranial bulk. Their biological effort is expended on bone and muscle, not brains. The explanation, Professor Crawford suggests, lies in our respective diets.

Food, he suggests, is a critical evolutionary pressure. Our early ancestors did not evolve a large brain by accident. When early humans moved towards the coast, they found an ecological niche with nutrients that allowed the brain to grow at the same rate as the body. Those nutrients were gathered from the sea and the marine environment; they are the marine fats present in fish and other aquatic animals. The advanced evolutionary progress of the human species can be linked to the fact that for the most part it took place in close proximity to the oceans, from which our ancestors derived a significant portion of their diets.

Brains need lipids, much more than they need protein and minerals. The human brain is 60% fat. These fats are predominantly docosahexanoic acid (DHA) and arachidonic acid, which are the longest-chain essential omega-3 and omega-6 fatty acids respectively. DHA and arachidonic acid are the main lipids in the brain and in all neural systems. These neural fatty acids are essential for our brain, heart and vision. They play a crucial role in the development and maintenance of these body systems.

The consequences of this are profound. These fatty acids are predominantly found in oily fish such as mackerel, herring, salmon and sardines. So, a diet lacking in these fish is deficient in the components needed to keep the human brain healthy. Such a situation can have implications for the incidence of mental health in the community. It also goes some way to explaining the increasing incidence of poor mental health in some developed countries. There is a strong correlation between those countries enjoying good mental health and high levels of fish consumption.

In fact, Professor Crawford suggests that if the decline in fish consumption is not reversed then some other way needs to be found to ensure consumers get their required dose of brain-boosting lipids. A failure to address this issue could, in all probability, lead to a situation where declining mental health displaces rising obesity as the serious lifestyle issue facing policy makers in the future. The traditional idea of fish as a 'brain food' has more than a ring of truth about it.

Professor Michael Crawford, Director of the Institute of Brain Chemistry and Human Nutrition at London Metropolitan University



omega 3 fatty acids under-consumed in Ireland

The World Seafood Congress was the forum for discussing topics such as communicating risks and benefits of seafood, seafood health and nutrition and trends in functional foods from marine resources. Mr Alan Reilly, Deputy CEO, FSAI, addressed the conference and stressed that given the evidence that a diet containing high proportions of fish can assist in preventing a range of illnesses including heart disease and some cancers, it is particularly concerning that Irish people are not seeking to increase their fish intake. As an island nation with an abundance of fresh fish, it defies logic that Irish people eat less than half the quantity of fish of other countries.

Fish is a major source of high-quality protein, essential fatty acids, minerals such as iodine and selenium and vitamins D, A and B. In other parts of the world, such as Japan and the Mediterranean region, the average consumption of fish is 16.2kg per person per year. Compared to the Irish consumption of just 7.2 kg per person per year, we have a long way to go as a nation to fully benefit from fish as a significant source of essential proteins and fatty acids. Considering our consumption of meat and poultry is seven times higher than that of fish, there is huge imbalance in our choice of foods, as well as a lack of appreciation for the nutritional value of fish.

The principle causes of death in Ireland are heart disease and cancer. In 2005, over 5,000 people died from ischaemic heart disease and 7,500 from cancer. Evidence would suggest that a diet higher in fish content would reduce these fatalities. There is now a wealth of scientific data available to confirm that omega-3 fatty acids, predominantly found in seafood, benefit heart health, particularly in those at high risk of or who have cardiovascular disease.

*Mr Alan Reilly, Deputy
CEO, FSAI, addresses the
World Seafood Congress.*



A recent appraisal of the published literature on fish intake, level of contaminants and human health has confirmed that modest consumption of fish (e.g. 1-2 servings per week) reduces the risk of coronary death and overall mortality in the population.

Omega-3 fatty acids make the blood less likely to form clots that cause heart attacks, they protect against irregular heartbeats that cause sudden cardiac death and they reduce inflammation that causes blocking of arteries. Those at risk of heart disease should take preventative measures and lead a healthy lifestyle that includes a higher consumption of seafood.

High concentrations of omega-3 fatty acids in the diet have recently been shown to lead to a reduction in relative concentrations of tumour growth-enhancing chemicals and a reduced likelihood that tumour cells from the prostate migrate and invade other tissues. They are also linked to improved foetal and infant development, and a reduction in inflammatory diseases. Recent epidemiological data have shown beneficial effects on child development when mothers consumed more than 340g (3 portions) of seafood a week.

In light of this strengthening evidence that the benefits of seafood consumption outweigh any risks due to levels of contaminants, including mercury and dioxins in certain fish species, Irish consumers, including pregnant and breastfeeding women, should consume fish as part of a healthy balanced diet. The nutritionally important contribution that fish can make to the diet and the healthy development of children should not be underestimated.

However, pregnant and breastfeeding women and young children should limit their intake of a few species of predatory fish, such as shark, swordfish, marlin and fresh tuna, since these species are known to contain higher levels of certain environmental contaminants including mercury, a metal contaminant that can build up in the food chain. It has been demonstrated that its chemical form, methylmercury, can build up to significant levels in large predatory fish and can affect the human nervous system and the developing brain.

In Ireland, a mercury monitoring programme was put in place for fish landed at all major Irish fishing ports, following the introduction of maximum limits for mercury in fishery product in 1993. This programme is now carried out by the Marine Institute under service contract to the FSAI and results from this indicate that mercury levels in commercial fish catches landed at Irish ports, and in shellfish from shellfish growing areas are low. FSAI's general surveillance programme on fish indicates that other contaminants are equally low.

Overall, the health benefits of eating fish are well established and far outweigh any risks. Consumers should eat at least two portions of fish a week, one of which should be oily fish such as salmon. The proven association between omega-3 fatty acids found in oily fish and reduced heart disease and improved children's development is a strong motivator for people to consume fish.

mercury versus health

Mercury is a toxic metal which is found both naturally in the environment and also as a result of disposal of waste or releases from industrial activities. It is a contaminant that can potentially build up in both the food chain and the human body. It has been demonstrated that in its chemical form, methylmercury, it can affect the human nervous system and the developing brain and is also known to cause kidney damage. It has been shown to build up to significant levels in certain species of large predatory fish, such as swordfish, marlin and tuna.

Mercury contamination of seafood and the real risks associated with it were examined and discussed by a panel of expert speakers on the final morning of the congress.

Dr Iona Pratt, Consultant Toxicologist, FSAI, provided a food toxicologist's perspective of the issue of human exposure to mercury from seafood. Exposure during pregnancy is considered the most critical period for methylmercury toxicity, and the unborn child and young children are the most vulnerable to its effects. Epidemiological studies of mothers exposed to low levels during pregnancy have shown delayed developmental milestones, altered muscle tone and tendon development and depressed intelligence in their offspring.

Thus, precautionary advice has been issued to consumers concerning consumption of certain fish species known to have higher levels of mercury, particularly high risk consumers such as pregnant women. Dr Pratt stressed that such advice must be balanced against the important nutritional contribution that fish can make in the diet, prevention of heart disease and healthy development of children, necessitating careful consideration of risks and benefits for different segments of the population.

Prof Sean Strain, Professor of Human Nutrition and Co-Director of the Centre for Molecular Bio-sciences, University of Ulster, Coleraine, provided information on the outcome of the Seychelles Child Development Nutrition Study. The study involving 229 mother-child pairs in the Seychelles considered whether the levels of mercury found in a mother's hair during pregnancy and last trimester exposure to long chain polyunsaturated fatty acid (LCPUFA) from the diet (particularly from seafood) might be related to the subsequent neuro-development of the child.

When measured at nine months of age, there was a positive relationship between the amount of LCPUFA consumed by the mother during pregnancy (predominantly through eating fish) and the psychomotor development index (PDI) of the child. At 30 months of age, negative associations between maternal hair mercury and PDI were evident. However, there was no association between foetal



Pictured (l-r) are: Mr Phil Spiller, Centre for Food Safety and Applied Nutrition, United States Food and Drug Administration; Dr Iona Pratt, Consultant Toxicologist, FSAI; Dr Wayne Anderson, Chief Specialist Food Science, FSAI and Prof Sean Strain, Professor of Human Nutrition, University of Ulster, Coleraine.

exposure to methylmercury and PDI when LCPUFA measures were not included in the analyses. These data emphasise the potential importance of maternal seafood consumption for foetal development and including nutritional (LCPUFA) measures when attempting to uncover possible detrimental effects of foetal exposure to methylmercury in observational studies.

Mr Phil Spiller of the US Food and Drug Administration (FDA) presented information on an ongoing project being undertaken by the FDA to quantify the risk to consumers from methylmercury in seafood. The current 'safety assessment' approach to risk management for methylmercury develops a level of exposure that is deemed to be without appreciable risk, but does not measure the risk to those who may be exposed above that level. As a result, risk managers often must act on the basis of prudence without having a clear picture of whether their actions are significantly lowering the risk to consumers.

The FDA has evaluated the feasibility of quantifying the risk from methylmercury in commercial seafood through the range of US exposures as part of a new phase of risk management for this seafood hazard. A quantitative risk assessment is nearing completion on the basis of this evaluation.

A report issued in 2006 from the US National Academy of Sciences recommended that public health agencies such as FDA balance benefits from consuming certain types of food against the risk from contaminants they may contain when providing consumption advice to consumers. Consistent with this recommendation, the FDA project for methylmercury has been examining how data on beneficial health effects from fish could be incorporated into risk assessment and into its risk management activities generally.



Mr Dermott Jewell, CEO, Consumers' Association of Ireland, presented an award under the Irish Quality Eco-mussels Standard, operated under the Quality Seafood programme, to Mr Ger Lynch of Westpoint Shellfish Ltd.



Ms Jayne Gallagher, President, International Association of Fish Inspectors, addresses the World Seafood Congress.



Dr S D Subasinghe, Director, INFOFISH, Malaysia, spoke on 'An Asian Perspective on Exporting Seafood to other Countries'.

microbiological and virological risks - the reality

Terrestrial farmers and producers have faced a succession of food scares from a variety of sources that have undermined their efforts to grow and expand markets. Consumer confidence in a product is now intrinsically linked to the perception that the food in question is not only sustainably produced, but also safe to eat. Prof Lone Gram, Danish Institute for Fisheries Research, Denmark; Dr Iddya

Karunasager, Senior Fishery Industry Officer, FAO, Italy; Dr Peter Ben Embarek, WHO, Switzerland and Dr David Lees, European Reference Laboratory, CEFAS, UK addressed the issues of virological and microbiological threats, including norovirus, listeria and vibrios, to the perception that seafood is safe to eat.

the great debate

The final day of the World Seafood Congress began with one of the highlights of the three days, 'The Great Debate', which questioned whether seafood is the best way to get vital omega-3s into our diet.

The well known journalist and RTE presenter, Miriam O'Callaghan, chaired the debate and ensured a lively session between members of the panel of experts and welcomed audience participation. The panel included Professor Patrick Wall, School of Public Health and Population Science, University College, Dublin; Professor Michael Crawford, Institute of Brain Chemistry and Human Nutrition, London Metropolitan University, UK; Dr Alex Richardson, Director, Food and Behavioral Research, Oxford, UK and Ms Paula Mee, Consultant Nutritionist, Blueberry Consulting, Ireland.

Members of the panel discussed the benefits of omega-3 fish oils to health and although they accepted possible risks associated with contaminants such as mercury and polychlorinated biphenyls (PCBs) in some fish, they all agreed strongly that the health benefits such as improved brain development, cardiovascular health and cognitive skills far outweigh the risks. The panel highlighted that the Japanese population are among the healthiest in the world. According to the World Health Organization, they have one of the lowest rates of coronary heart disease in the world and the panel attributed this to a diet rich in omega-3 due to the very high consumption of fish, usually at least one portion of seafood per day.

They debated whether current health advisory guidelines concerning seafood consumption are causing more harm than good by limiting omega-3 consumption and concluded that the guidelines should recommend that people consume more seafood. The panel members discussed the benefits of eating fresh seafood versus omega-3 supplements and all agreed that seafood was the best nutritional option for consuming omega-3 as well as receiving the benefits of vitamins, minerals and a high quality protein.

As each topic was debated, delegates had the opportunity to vote and record their judgements through Digivote technology.



The panel of experts on 'The Great Debate'.

From left to right: Ms Paula Mee, Professor Patrick Wall, Ms Miriam O'Callaghan, Professor Michael Crawford and Dr Alex Richardson



closing address

In his closing speech to the delegates attending the World Seafood Congress, Minister of State at the Department of Agriculture, Fisheries and Food with special responsibility for fisheries, Mr John Browne, T.D., picked up on a number of themes covered during the three day event.

He acknowledged that the challenges faced by the Irish seafood sector were not unique; it was apparent that many countries faced similar challenges and the congress provided an opportunity to share experiences and develop common solutions to such shared problems.

As a fishing nation, Ireland, he suggested, is determined to achieve the correct balance between the size and capacity of its fleet and its share of the fish resource off our coast. There is also a determination to develop the Irish seafood industry in a sustainable manner through an expansion of output from our aquaculture sector and by innovation and new product development, backed up by advanced marketing. By getting all of these elements in harmony more value will be leveraged from landings, keeping jobs and wealth creation going in coastal communities.

The Minister also acknowledged the fact that for many developing countries seafood is a source of both nutrition and income. The presence of so many delegations from developing countries underlined this point. The UN Food and Agriculture Organization and the United Nations Industrial Development Organization were both congratulated for facilitating the attendance at the Congress of these delegations.

Ireland's new found wealth is a relatively recent phenomenon, the Minister observed, and in the recent past the country has found itself in a position similar to developing nations in its attempts to balance the economic books. Overly strict regulation of the trade in seafood could prove an insurmountable hindrance to developing countries and the Minister warned against adopting such an approach that would fetter world seafood trade.

In closing the Congress, the Minister picked up on the positive feedback that the event had attracted. He thanked the sponsoring agencies for their efforts and expressed the hope that the industry, both domestically and internationally, had benefited from the event.



Pictured from left to right are: Dr Grimur Valdimarsson, Director, Fish Products and Industry Division, FAO Rome, Italy; Mr Alan Reilly, Deputy CEO, FSAI and Dr Peter Ben Embarek, Dept Food Safety and Foodborne Diseases, WHO, Switzerland.

communicating the risks and benefits of eating seafood

Recent research has shown that seafood consumers are confused by advice issued by food safety authorities worldwide. They frequently react in a manner which is not in the interest of their health, because of anxieties created by the mode of messaging. Mr Jim Flynn, NLP Group, Ireland, Mr Filiep Vanhonacker, PhD Researcher, Ghent University, Belgium and Ms Elizabeth Carger, Olson Zaltman Associates, USA, explored the work carried out in how to communicate effectively with seafood consumers. Methods of communicating, both the benefits of having seafood in the diet as well as the potential risks from trace environmental contaminants in a balanced and proportionate way was discussed.



Mr Jim Flynn delivers his presentation entitled 'The Use of Metaphor in Risk Communication' at the World Seafood Congress.



Minister John Browne, T.D., visited the FSAI stand during the Congress. He is pictured here (right) with Mr Donal Maguire, BIM (left).

entertainment

The organisers of the World Seafood Congress 2007 hosted a welcoming 'guinness and oysters' reception for delegates on the evening of Monday 24, to set the mood for the Congress.

On Tuesday evening delegates were brought by coach to St. Helen's Radisson SAS Hotel, where they enjoyed a marquee barbeque which featured the best of Irish seafood, along with the finest of other traditional Irish fare. Entertainment was continuous, interactive, exciting and thoroughly enjoyed. Live eclectic music, interactive entertainers and traditional Irish performing artists provided the nights entertainment in the setting of the formal gardens of the hotel.

After the congress on Wednesday, the delegates were taken to the Leopardstown race course, where they enjoyed dinner and a 'virtual race night', which included mock-betting and prizes for the lucky delegates.

The entertainment for the conference reached its peak with the staging of the World Seafood Congress 2007 Gala Dinner and Dance, held in the Hogan Suite of Croke Park. The night kicked off with a drinks reception and entertainment that was uniquely Irish. The food was themed around the finest of Irish cuisine. The night was crowned by a stage show, featuring dance, song and the best of Ireland's culture and heritage, all performed by artists of the highest calibre. The show was thoroughly enjoyed by all and proved to be a non-stop tour de force.



Editor: Edel Conway; Contributors: Rhodri Evans, Susan Gallagher, David Lyons, Una McMenamin, Alan Reilly

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prohibition orders served for breaches of srm legislation

Prior to 1 January 2006, the vertebral column (backbone) of bovine animals over 12 months of age had been regarded as specified risk material (SRM) and was not permitted in products for human consumption. Since that date, the threshold has been raised to 24 months. As vertebral column of bovine animals over 24 months is considered SRM, legislation specifies that such material may only be handled by retail butchers specifically authorised by the Health Service Executive (HSE) for this purpose.

To facilitate retail butchers, who wished to continue to handle vertebral column from animals over 24 months of age, the HSE introduced a specific system of authorisation. To determine those butchers who wished to become authorised for the removal of vertebral column SRM, the environmental health officers wrote to every retail butcher shop in the country outlining the legislative requirements. The results of this communication indicated that, of the 1,700+ retail butcher shops or supermarket butcher counters in the country, 97 applied to have their establishment approved for the removal of vertebral column from animals over 24 months of age. A total of 905 butcher shops indicated that they would only remove vertebral column from bovine carcasses or parts of bovine carcasses which were under 24 months of age. This declaration to the HSE also removed the requirement for authorisation for the remainder of butcher shops not removing vertebral column from bovine carcasses or parts thereof.

Currently there are 81 retail butcher shops authorised for the removal of vertebral column from bovine animals over 24 months of age. Four applications were refused by the HSE while the remaining 12 are still undergoing assessment. A list of those butcher shops authorised to remove vertebral column is available on our website - see: <http://tinyurl.com/362wlh>.

In early 2007, the FSAI's TSE (Transmissible Spongiform Encephalopathy) Sub-committee requested the FSAI to carry out audits in retail butcher shops to confirm that such food business operators were complying with SRM legislative requirements. The audit would confirm that those butcher shops who signed a declaration that they would only handle vertebral column from bovine carcasses under 24 months of age, or were not handling vertebral column at all, were complying with this declaration. In addition, a programme of audits in the butcher shops authorised for the removal of vertebral column from bovine carcasses over 24 months of age would be carried out to verify that such food business operators continued to adhere to their authorisation procedures.

In August this year, audits commenced in retail butcher shops with the primary focus on those food business operators who had declared to the HSE that they would only handle vertebral column from bovine carcasses under 24 months of age. Up to the end of September, 29 audits had been carried out in retail butcher shops. During the course of these audits, 11 Prohibition Orders were served under Section 54 of the FSAI Act 1998, by environmental health officers accompanying the audit teams.

A Prohibition Order is issued if the activities (handling, processing, disposal, manufacturing, storing, distribution or selling of food) involve or are likely to involve a serious risk to public health from a particular product or item of food. The Prohibition Orders were issued because on the day of audit the butcher shops concerned were not complying with the declaration that they would only handle vertebral column from bovine carcasses under 24 months of age and were therefore in breach of legislation. These butcher shops were not authorised to handle SRM and therefore did not have procedures in place for its safe removal, storage and disposal. The FSAI audits in retail butcher shops will continue over the next number of months to ensure SRM legislation is being complied with and that butchers who have declared they will not handle vertebral column SRM continue to comply with the legislation.

There are some indications that the European Commission is considering reviewing the age of bovine animal from which vertebral column is considered SRM. Currently, no amendment to existing legislation had been introduced to effect any such change, therefore, the FSAI, in conjunction with the Environmental Health Service of the HSE, will continue to audit for compliance with the current legislation.

For further information on the authorisation of retail butcher shops handling SRM, please visit our website at: <http://tinyurl.com/2426nc>.

cypriot visit to Ireland

In July, the FSAI hosted a study visit for officials from Cyprus, who are working on reform of their current official food control arrangements, with a view to developing a service integrated across all national agencies. Ireland was chosen for the visit as both countries are relatively comparable in size and administrative histories, and because of our experience in establishing a food safety agency. The group visited the main organisations involved in food control in Ireland.



Pictured during their visit to the Cork County Council laboratory in Inniscarra are (l-r): Dr Petros Papasozomenos, Veterinary Services, Cyprus; Mr Jim Buckley, Chief Veterinary Officer, Cork County Council; Miss Liz O'Connor, Acting Laboratory Manager, Food Safety Laboratory, Cork County Council; Mr George Georgallas, Head of Health Services, Ministry of Health, Cyprus and Dr Popi Kanaris, Head of the State General Laboratory, Cyprus.

fsai collaboration in beneris project

The Beneris ('Benefit-Risk Assessment for Food: an Iterative Value-of-Information Approach') project is part of the Sixth Framework Programme on Food Quality and Safety, financed by the EU.

The objective of the Beneris project is to forge major advancements in food benefit-risk analysis on human health. As such, it requires highly interdisciplinary work with a range of professionals. Beneris brings together a team of epidemiologists, toxicologists, nutrition scientists, exposure assessors, risk analysts and authorities from five European countries with crucial access to contacts and data. The project's end-users (such as policymakers) are also involved to facilitate greater collaboration, and to ensure the work has both relevance to science and society.

employing new and existing methods

The Beneris team will utilise a benefit-risk approach with an iterative top-down means to explore risks of food and its contaminants. In the development of the project's framework methodology, the team will be responsible for reviewing existing scientific evidence as well as identifying, creating and using the systems needed. Health effects of food contaminants and nutrients will be estimated by using new methods integrating epidemiological and toxicological data. In achieving its aim, the Beneris project will also break new ground in the development of specialised methodological tools.

employing new and existing methods

In addition to developing comprehensive methods for analysis, the project is divided into two further areas. A major focus of Beneris is the diverse range of real-life case studies that will be conducted. One of the studies will look at the beneficial and harmful effects of nutrients and pollutants in fish. Another will focus on vegetables in the diet of a specific age group. The dissemination of results through a new internet interface (<http://heande.pyrkilo.fi>) and other means is also a crucial part of the project.

three-tier work plan

Beneris forms a cluster with another EU project entitled Qalibra (www.qalibra.eu). Although both projects have the same overall aim to improve the analysis of benefits and risks of foods, their areas of focus are very different. Beneris' objective is to develop new approaches and strategies for analysis as well as disseminating them through the web, while Qalibra is focused on developing a practical

web-based tool for risk assessment. The complementary projects will run separately but with key milestones in their respective strategies for joint meetings and collaborative activities.

working collaboratively

The FSAI has a lead role in the dissemination aspect of the project. FSAI will assess the models developed from the perspective of a food safety authority. The outcome of the benefit-risk assessments will be communicated to a test population of Irish consumers, and their reactions to the information will be assessed, as a tool to develop enhanced risk communication. FSAI is also contributing to the databases on food intake and occurrence for contaminants in fish.

Lendac Data Systems Ltd, Ireland, will use its expertise in information analysis and software development to develop an internet interface for publishing risk assessment results, including development of a method to publish entire benefit-risk models over the internet, development of methods to collect feedback from end-users about benefit-risk analyses, and enhancement of the availability of existing databases through this interface.

The project partners are as follows:

Project Partners	Main Contact
National Public Health Institute, Finland	Dr Jouni Tuomisto, Beneris coordinator
Food Safety Authority of Ireland	Dr Iona Pratt
Lendac Ltd, Ireland	Mr Don Lehane
Delft University of Technology, Netherlands	Prof Roger Cooke
Oy Foodfiles Ltd (FFiles), Finland	Ms Henna Karvonen
Technical University of Denmark	Dr Ole Ladefoged
Food Safety Authority of Denmark	Prof Kim Petersen
Fundación Privada para la Investigación Nutricional (FIN), Spain	Prof Lluís Serra-Majem

The project duration is 1 April 2006 - 31 September 2009. Further details are available on the project website, www.beneris.eu.

study group visit from croatia

Croatia has entered formal negotiations to join the European Union (EU). Part of the preparation for membership is to ensure that EU food laws are transposed and implemented; a major task for any country. In September, staff from Croatia's Ministry of Health and Social Welfare, specifically the Directorate for Sanitary Inspection, which has responsibility for the implementation of legislation, came to Ireland on a study tour. They visited the FSAI and also spent time with environmental health officers in Galway and Wexford to get some first hand experience of official controls and the application of EU food law.

Pictured here are the visitors from the Ministry of Health and Social Welfare, Croatia, with environmental health officers from Wexford, HSE Southern. Back Row (l-r): Cathy McNaughton, EHO; Liz Sharkey, EHO; Ruzica Vazdar, Croatia. Front Row (l-r): Gerry McDermott, Senior EHO; Marina Kovac, Koraljka Knezic and Sani Samardzic, Croatia.



need for traceability system in all food businesses

The implementation of a traceability system has been a legal requirement since January 2005 and ensures a food business is able to operate a 'one up, one down' system, which means being able to show where their food has gone to (one up) and also where their food has come from (one down). All food businesses, whether small or large, must have a traceability system in place. From the corner shop and deli counter, through to manufacturers and the catering sector - all have a legal obligation to keep records of all food ingredients and suppliers used, as well as to what businesses they in turn supply.

For a traceability system to work effectively, and to ensure food safety and the protection of public health, it must operate throughout the entire food chain. In the event of a food incident, a traceability system is an essential tool which enables a food business to track and trace any foodstuff which is unsafe, swiftly and

efficiently. This helps remove any affected products from the market quickly, which ensures safety and public health. Without a traceability system, a product recall/withdrawal would be more difficult to undertake and more time consuming. A good system also limits the potential economic loss for a business by keeping withdrawals and recalls focussed on only those products which are known to be a problem.

The FSAI recently undertook an advertising campaign to encourage the key stakeholders to have measures in place to ensure best practice which it hopes will drive up food safety standards throughout the food chain. At the core of the campaign is the concept that every player at every step of the food chain has a legal responsibility to know where the ingredients or food they are manufacturing, processing and selling comes from and where it is going. Apart from being

a legal requirement, there are a number of benefits, both to the industry and ultimately consumer health. In addition to ensuring optimum food safety across the food chain, traceability assists in the speedy removal of unsafe food/feed from the marketplace, when necessary, which is integral in the efficient handling of any food safety issue.

The FSAI has produced *Guidance Note No. 10 on Product Recall and Traceability* for food businesses that provides industry with a step by step strategy in dealing with traceability and the process of recalling products. Traceability posters are also available based on the print advertisements. A copy of the Guidance Note or posters, or further information for food businesses on the requirements and implementation of a traceability system can be obtained by calling our Advice Line on 1890 336677 or by visiting our website at www.fsai.ie



The print advertisements are based on three creative concepts:

An oversized needle in a haystack to highlight how an efficient traceability system should work.

An image of a chicken and egg to reinforce the 'one up, one down' nature of a traceability system.

A picture of a cow with the world map on it to highlight the Regulations around country of origin of beef.



The following Regulations have been introduced over the last few months in Ireland:

S.I. No. 546 of 2007 European Communities (Labelling and Marketing Standards for Poultry meat) (Amendment) Regulations, 2007

S.I. No. 554 of 2007 European Communities (Foodstuffs Intended for Particular Nutritional Uses) (Amendment) Regulations, 2007

S.I. No. 573 of 2007 Diseases of Animals Act, 1966 (Food and Mouth Disease) (Restriction on Imports from Great Britain) Order, 2007

S.I. No. 574 of 2007 Diseases of Animals Act, 1966 (Food and Mouth Disease) (Disinfection Facilities) Order, 2007

S.I. No. 575 of 2007 European Communities (Diseases of Animals Act 1966 and 1979 Orders) (General Authorisation for Imports) (Restriction) Regulations, 2007

S.I. No. 648 of 2007 European Communities (Foot and Mouth Disease) (Restriction on Imports from the United Kingdom) (No. 2) Regulations, 2007

dietary exposure estimates for acrylamide intake

Acrylamide has been found in a wide range of heat-treated foods, in both foods that are processed by manufacturers and foods that are cooked in the home. Because many of these foods represent dietary staples in the western world, there has been much interest in dietary exposure to acrylamide. The FSAI recently prepared probabilistic estimates for dietary intake of acrylamide in collaboration with the UK Food Standards Agency.

background

Acrylamide is a reactive, unsaturated amide that has found industrial uses in the manufacture of polyacrylamides that are used in water treatment, mining, grouting agents and cosmetics. In 2002 it was found to occur in carbohydrate rich foodstuffs that had been subjected to high-temperature cooking/processing. Acrylamide has been shown to be neurotoxic in humans and animals. It has also been shown to induce tumours in laboratory rats and has been classified as a probable human carcinogen. As such, several international bodies have concluded that dietary exposure should be as low as reasonably achievable.

data and methodology

Acrylamide occurrence data were obtained from the European Union acrylamide monitoring database. This database contains data on levels of acrylamide in over 7,000 samples of foods collected by European Union Member States and the European food industry. The occurrence data have been collected since 2002. Additional data (2003-2006) were also obtained from the Dublin Public Analyst Laboratory.

Consumption data were obtained from the North/South Ireland Food Consumption Survey (Adults 1997-1999). This survey investigated habitual food and beverage consumption, lifestyle, health indicators and attitudes to food and health in the 18-64 year old adult population in the Republic of Ireland and Northern Ireland. The survey was conducted over seven days and involved keeping a food diary detailing each consumption event. For the purpose of calculating acrylamide intakes, only data for the Republic of Ireland (n = 958) were used.

Acrylamide exposure was estimated for those food groups that were deemed most likely to contribute to overall exposure and for which sufficient occurrence data were available. Exposure to acrylamide from consumption of potatoes and potato products, biscuits, bread, breakfast cereals, cocoa products and coffee was calculated using the probabilistic CREMe 2.0 Food Model (CREMe Software Ltd., O'Reilly Institute, Trinity College, Dublin). This programme is a unique tool that uses high performance computing to allow accurate estimates of exposure to contaminants, food additives, food packaging migratory compounds, novel foods, nutrients, pesticide residues and microbial contaminants.

results and discussion

Table 1 shows mean dietary exposures to acrylamide for each food group and for the total combined intake at 0.59 µg/kg bw/day for the total Irish adult population and 0.59 µg/kg bw/day for adult consumers. A total dietary exposure for high-level consumers (P97.5) was estimated at 1.75 µg/kg bw/day. Almost half of the total acrylamide exposure is attributable to the potato group for the average total population intake with the contributing factor rising to almost 75% for the above average consumer.

The agreement of the population and consumer estimates serves to show that acrylamide contamination of food is prevalent in those foods commonly consumed by all Irish adults.

Table 1: Mean and P97.5 acrylamide exposure for total population and consumers only (medium-bound µg/kg bodyweight)

Food Group Name	Total Population		Consumers Only	
	Mean	P97.5	Mean	P97.5
All	0.59	1.75	0.59	1.75
Biscuits	0.06	0.30	0.08	0.34
Bread	0.20	0.72	0.20	0.72
Breakfast cereals	0.03	0.16	0.05	0.18
Cocoa products	0.004	0.04	0.01	0.08
Coffee	0.01	0.07	0.02	0.09
Potatoes and potato products	0.29	1.30	0.33	1.36

Figure 1 shows that consumption of potatoes and potato products provides the largest contribution to dietary intake of acrylamide followed by consumption of bread and biscuits.

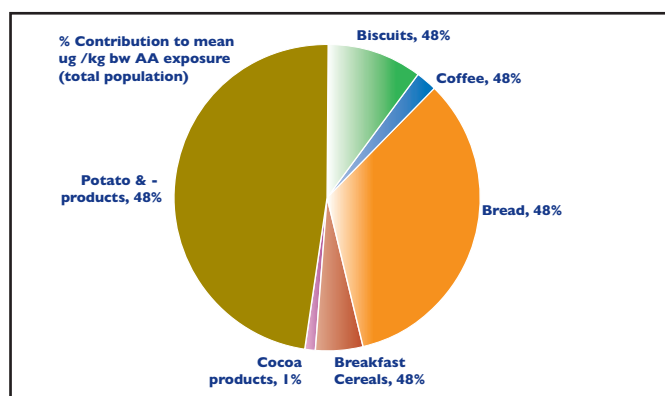


Figure 1: Contribution to acrylamide intake from selected food groups for the Irish adult population

These estimates of exposure of Irish consumers to acrylamide compare well to exposure estimates reported by the Joint FAO/WHO Expert Committee on Food Additives, which ranged from 0.3 to 2.0 µg/kg bw/day for mean consumers and 0.6 to 3.5 µg/kg bw/day for high-level consumers.

Direct comparison with assessment from other countries is not possible due to different methodologies and population groups, however, Irish estimates are within the range of these previously reported values (Table 2).

The same methodology of assessment was employed by the UK Food Standards Agency and results for overall level of exposure and contribution from potatoes and bread to total intake are very comparable to the figures calculated for Ireland. This study shows that Irish intake estimates are of comparable levels to worldwide reported exposure to acrylamide. Since it was first detected in food in 2002, extensive continuous efforts have been undertaken in order to reduce the levels of acrylamide in processed foods and industry has developed voluntary measures, such as the so-called 'toolbox' approach and sector specific brochures (see - <http://tinyurl.com/3xgt3e>), which provides guidance to help producers and processors identify ways to lower acrylamide in their respective products.

Recently the European Commission introduced a monitoring recommendation for acrylamide in foodstuffs in order to assess the effectiveness of measures taken to reduce acrylamide formation. This monitoring programme will be taken forward by the Dublin Public Analyst Laboratory, building on its previous work in this area, and the results will be reported to the European Food Safety Authority.

Table 2: Acrylamide exposure estimates

Organisation, country	Population Sex (age)	Estimated dietary intake (µg kg/bw/day)	
		mean	P95; *P90; †P97.5
BfR, Germany	All, 15-18	1.1	3.2
SNT, Norway	Males	0.49	1.04*
	Females	0.46	0.86*
	Males (13)	0.52	1.35*
	Females (13)	0.49	1.2*
AFSSA, France	All	0.5	1.1
	All	1.4	2.9
SNFA, Sweden	All (18-74)	0.45	1.03
NFCs, Netherlands	All (1-97)	0.48	0.60
	All (1-6)	1.04	1.1
	All (7-18)	0.71	0.9
FDA, USA	All (2+)	0.44	0.95*
	All (2-5)	1.06	2.33*
FSA, UK‡	All (19-64)	0.61	1.29†
FSAI, Ireland‡	All (18-64)	0.59	1.75†

‡Consumer estimates

For further information, see:

Joint FAO/WHO Expert Committee on Food Additives (JECFA):
Evaluation of Certain Food Contaminants. WHO Technical Report
Series, No. 930 (2006) <http://tinyurl.com/3ab7mc>

European Commission Overview on Acrylamide:
<http://tinyurl.com/34anh8>

European Commission Acrylamide Monitoring Database:
(2006) <http://tinyurl.com/38kvzh>

European Commission Recommendation on the Monitoring of
Acrylamide Levels in Food: <http://tinyurl.com/2lkqdf>

fsai at national ploughing championships

The National Ploughing Championships is Ireland's largest agricultural exhibition and one of Europe's primary agricultural events. The 2007 event, opened by President Mary McAleese, was hosted at Annaharvey Farm, Tullamore, Co Offaly from Sept 25-27. This year saw many new attractions, bigger demonstration areas and a vast array of trade and information stands, including the FSAI. The FSAI stand focused mainly on the Clean Cattle Policy and starting up a food business. Veterinary officers and trained advisors were on hand each day to meet with those working in the farming sector, to answer their queries and discuss any issues they may have had.

Queries were based on a large range of topics, including imports of Brazilian beef, particularly in relation to traceability and food safety issues, starting up a farm based business, and country of origin of beef labelling regulations.

Overall, 166,000 visitors attended the exhibition over the three days, with a large number of these visiting the FSAI stand.

Visitors discussed farming related issues with FSAI staff, Micheál O'Mahony and Miriam McDonald, at the National Ploughing Championships.





mailing list

fsainews is a resource for all public health professionals, researchers, food scientists, food hygienists and quality control personnel working in food safety.

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study visit to fsai



Pictured during their meeting with the environmental health staff in the Health Service Executive, South are (l-r):

Back row: Aoife Cooney, Marie Clancy, Lorraine Potter, Joseph Reilly (all of HSE, South), Leonildo Munguambe and Mouzinho Nicols (Mozambique), Eimear O'Sullivan and Tony Christie, (HSE, South)

Front row: Kawira Ann Bucyana (UNIDO, Vienna), Maria Luiz Fernandes and Helena Matusse (Mozambique).

In late 2006, the FSAI assisted the United Nations Industrial Development Organization (UNIDO) with a project in Mozambique. The project aims at strengthening the national system for food safety analyses, certification and inspection with a view to enhancing compliance with international standards as well as with World Trade Organization agreements. The project will focus on a number of areas such as upgrading the food microbiology and chemical analytical laboratories in order to support food inspection and to facilitate exports in selected food sectors, such as cashew nuts, honey, fish, fruit and vegetables. The main goal is a significant increase in the amount of food exported and in food products certified as compliant with international standards. As a follow up to the project, food control officials from Mozambique came to Ireland on a study visit in July. During their stay they met with staff of the FSAI, the Food Safety Promotion Board, Bord Bia, the Sea Fisheries Protection Authority, Cork County Council as well staff in Government Departments.

open consultation

There are currently no open consultations on our website.

To view details of closed consultations, please see: www.fsai.ie/consultations.

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