The Food Safety Authority of Ireland and the Department of Health and Children are working together through the National Committee on Food Fortification with Folic Acid to find solutions to reduce the prevalence of neural tube defects (NTDs) in Ireland. NTDs are a group of severe birth defects, such as spina bifida, that can develop in babies during the first weeks of pregnancy. It has been established that taking folic acid, a B vitamin, before conception and during early pregnancy, can help reduce the risk of NTDs.

While Irish women of childbearing age have been advised to take a folic acid supplement since 1993, very few women take the supplements in time to protect their pregnancy. The possibility of fortifying a staple food, such as flour, with folic acid is now being considered.

A public consultation document has been produced by the National Committee on Food Fortification with Folic Acid which outlines the options available for the fortification of flour with folic acid. Submissions and views are invited from the general public as well as all interested parties. The outcome of the consultation will be dictated by the views of Irish people and will lead to a policy decision that should reduce the number of births affected by NTDs in Ireland in the long-term.

Pictured at the launch of the consultation process on the possible fortification of food with folic acid are: Dr John O’Brien, CEO, FSAI and Maureen Lynott, Chair, National Committee on Food Fortification with Folic Acid, with Eva Dunne.
On 21st March, the National Committee on Food Fortification with Folic Acid announced a public consultation for moving forward on the prevention of neural tube defects (NTDs) - the most common birth defects among Irish babies. NTDs include spina bifida and affect as many as 67 pregnancies every year. They are responsible for the highest number of deaths among newborn babies in Ireland and result in serious disability in the majority of survivors. In 1991 it was established that up to 70% of these defects can be prevented if women take a supplement containing folic acid (the synthetic form of the B vitamin folate). The supplement should be taken at least two months prior to conception and for the first 12 weeks of pregnancy. However, many international studies have shown that only about one in five women take a folic acid supplement in time to protect their pregnancies. There are two reasons why this happens - firstly, the neural tube develops very shortly after conception, and secondly, up to half of all pregnancies occur in women who are not planning to become pregnant. Therefore, by the time most women realise they are pregnant, it is too late to take folic acid.

"By the time most women realise they are pregnant, it is too late to take folic acid."

Due to the lack of success in persuading all women of childbearing age to take a folic acid supplement, the US and Canada passed legislation in 1996 which effectively meant that from 1998 all flour-containing products had folic acid added. This ensured that all women of childbearing age in the US and Canada received approximately 100µg of folic acid every day. Recent reports indicate that this has been extremely effective at reducing the prevalence of NTDs, where reductions of between 19 and 78% have been recorded. In general the reductions in NTD prevalence have been greatest where prevalence was initially highest. Following a worldwide trend, prevalence rates of NTDs have fallen in Ireland since 1980, however Ireland still continues to have one of the highest rates of pregnancies affected by NTDs in Europe.

The emergence of such strong evidence of effectiveness in preventing a major cause of birth defects highlights the public health significance of folic acid food fortification in Ireland. At present, the type of voluntary folic acid food fortification we have misses 40% of women of childbearing age. Data from the US and Canada shows that mandatory or structured fortification of a staple food, such as flour or bread, ensures a higher folate status in the whole population, including women who are unaware they have conceived and women with low folate status. For example, people with low incomes are known to have poorer folate status and a higher risk of having a pregnancy affected by an NTD. This is most likely due to fruits, vegetables, fortified foods and dietary supplements being economically out of reach. A fortification programme of the type proposed would ensure all women, regardless of income, would benefit.

In conclusion, the public consultation on folic acid food fortification provides an opportunity for comment on the three policy options to ensure women in Ireland have enough folic acid at time of conception. Public opinion on the various alternatives available is essential for making a final decision on the best option for moving forward. I would encourage everyone from the general public to groups with a special interest, to visit www.folicacid.ie and make a submission - all viewpoints are needed to ensure we take the best way forward. This consultation will be open until 24th June 2005.

Dr John O’Brien
Chief Executive, FSAI
Since 1993, national health policies have urged women of childbearing age to take a folic acid supplement and to eat foods that contain high levels of natural folate, to provide the extra 400μg of folic acid required. However, as mentioned previously, research shows that only one in five pregnant women take a folic acid supplement and over a third of women consume no folic acid at all - either through food or supplements.

Almost 50% of all pregnancies in Ireland are unplanned and these women are very unlikely to have been taking enough folic acid to prevent possible NTDs in their babies. In addition, where pregnancies are planned, research from the Coombe Women’s Hospital has shown that only 21% of women take folic acid during the correct timeframe. Hence, fortification is being looked at as an option.

A public consultation process which seeks the views of the general public and interested parties on the possible fortification of food with folic acid is currently underway. Three options are outlined in the consultation document. They are:

1. **Structured Voluntary Fortification** - Flour millers and bakers would be permitted to add specified levels of folic acid voluntarily to bread, which would then carry a special logo and a health claim. The practice of allowing voluntary fortification of other foods with folic acid would continue. This would require legislative change.

2. **Mandatory Fortification** - (a) of breadmaking flour to ensure a targeted level of folic acid is present in all breads, or (b) of all flour to ensure a targeted level of folic acid in all flour-containing foods. This would require legislative change.

3. **Continue with the Current Practice** - Intermittent health promotion campaigns to raise public awareness of the need for women to take a folic acid supplement and have a diet rich in folates, while the background diet in Ireland would permit the unstructured voluntary fortification of foods with folic acid.

The objective of this consultation is to review the best policy for going forward that will provide actions to help reduce the incidence of NTDs in Ireland. All interested parties are urged to review the consultation document and to make their views known before the 24th June 2005.

It is intended that the public consultation will engage with audiences - particularly female - to inform them of the benefits of folic acid and seek their input into this important area. The consultation period will be for three months, following which the Committee will report its findings.

**Advertising**

A national television advertising campaign is currently underway and is being aired for the three months of the consultation. The aim of this advertising campaign is to highlight the importance of taking folic acid and to influence people to make submissions. The campaign targets all women of childbearing age and interested parties in food fortification and is expected to reach 90% of all females in Ireland.

The advertisement is a colourful computer animation piece with one female central character. It puts across the idea that if you see yourself with a baby of your own one day, then now is the time to start thinking about folic acid.

**Additional information**

A dedicated website, www.folicacid.ie has been developed where people can access information, view the public consultation document and submit their opinions. The website also provides links to agency websites on folic acid in other countries. In addition, an information leaflet is available on the site. The leaflet can also be obtained by emailing: info@folicacid.ie or calling 1890 336677.

How to make a submission

A questionnaire has been prepared to assist with the submission process. The questionnaire is available online at www.folicacid.ie or by contacting the FSAI on 1890 336677. All comments are welcome on the questions posed in the questionnaire. However, you are also welcome to comment on any additional issues relating to the reduction of NTDs in Ireland. Equally, if you wish to make a submission on just one aspect of the options, there is no obligation to complete all of the questions posed. All submission formats will be accepted.

The questionnaire can be completed online (on www.folicacid.ie) or downloaded and posted to the following address:

Folic Acid Consultation Submissions
Food Safety Authority of Ireland
Abbey Court,
Lower Abbey St,
Dublin 1

The questionnaire, or other submission formats may also be emailed or faxed:
E-mail: submissions@folicacid.ie
Fax: 01 8171301

Closing date for receipt of submissions is 5pm, 24th June 2005

When all submissions have been analysed the National Committee on Food Fortification with Folic Acid will make a policy recommendation to the Minister for Health and Children. In addition, a summary of all submissions will be available to the public on www.folicacid.ie. Information can also be obtained by contacting the FSAI on 1890 336677.

**Neural Tube Defects (NTDs)** are a major group of birth defects that occur when the brain, spinal cord or the covering of these organs has not developed properly. Anencephaly and spina bifida are the most common types of NTDs in Ireland.

Anencephaly is a fatal condition in which the upper end of the neural tube fails to close. In these cases, the brain either never completely develops or is totally absent. Pregnancies affected by anencephaly often result in miscarriages. Infants who are born alive die very soon after birth.

Spina bifida occurs when the lower end of the neural tube fails to close. Thus, the spinal cord and back bones do not develop properly. Sometimes, a sac of fluid protrudes through an opening in the back, and a portion of the spinal cord is often contained in this sac. Children with spina bifida can have varying degrees of paralysis of their lower limbs - some children can be confined to a wheelchair, whereas others have almost no symptoms at all. Spina bifida can also cause bowel and bladder problems.
The Food Safety Authority of Ireland (FSAI) issued an alert notification on Sudan Red 1 on 18th February last. The food alert grabbed the attention of the media with both hands. Over 50 newspaper articles were dedicated to the topic; RTE, TV3 and Sky News Ireland all gave extensive coverage to the alert; and almost every national and regional radio station updated their listeners regularly.

Where did the product recall originate?
Information was received from the Food Standards Agency in the UK concerning the discovery that Premier Foods (UK), manufacturers of Crosse and Blackwell’s Worcester sauce, had used spice contaminated with Sudan Red 1 in the manufacture of its sauce products.

Sudan Red 1 is a dye that is used industrially for colouring solvents, oils, waxes, petrol, and shoe and floor polishes. It has been banned as a food colourant throughout Europe since 2003 due to its carcinogenic properties. Sudan Red 1 could contribute to an increased risk of cancer and it is not possible to identify a safe level or to quantify the risk, hence the ban.

Premier Foods supplies to manufacturers of various branded sauce and other food products, such as ready meals and soups. As a result, a total of 67 products available on the Irish market were affected. They included products from Marks & Spencer, Iceland, Tesco, Schwartz, Pot Noodle, Waitrose, Heinz, Green Isle, Bird’s Eye, Aunt Bessies, Walkers, Dawn Fresh, Crosse & Blackwell, Colmans, Chicago Town and Aldi. This was the largest number of products ever affected by a product recall in Ireland.

How serious was the risk to consumers?
At the levels of Sudan Red 1 present in the food products affected, the risk that it could contribute to an increased risk of cancer was likely to be very small. There was no risk of immediate illness following consumption of the products. However, the fact that the dye is illegal in food products, coupled with expert advice that consumers should not be exposed to the dye, lead to the instigation of the alert.

What happened next?
The FSAI worked with the food industry and official agencies to make sure that all products which were contaminated were traced and any foods that may have been contaminated were removed from the shelves. Consumers were advised not to consume the products and if they had any affected items, they should either throw them out or return them to the shop where they purchased them. A list of affected food products on the Irish market was made available on the FSAI website and consumers could also obtain the list or seek further information or advice by calling the FSAI advice-line. All affected products were withdrawn from the Irish market.

From the time the food alert was released, visits to the FSAI website and calls to the advice-line increased substantially, with Tuesday 22nd February proving to be the peak in respect to consumer concern. On the Tuesday alone, 21,822 unique visits were recorded on the FSAI website and a total of 118,139 pages were downloaded from the site. On an average week day, the number of visits to the site is approximately just over 1,000.

The FSAI advice-line was also busy with a number of extra staff required to operate the phone line. A total of 1,261 calls were received in relation to the Sudan Red 1 related product recall, with 634 of those recorded on Tuesday 22nd. The average number of calls per week to the advice-line is just under 200.

Could this happen again?
In order to stop this happening again, all dried and crushed or ground chilli coming into any EU Member State must be accompanied by a certificate showing it has been tested and found to be free of Sudan Red 1. Any consignment that does not have a certificate is detained for sampling and analysis. Random sampling is also undertaken both at ports and by local authorities. All consignments found to contain Sudan Red 1 must be destroyed.
A recent scientific report, produced by the FSAI’s Scientific Committee; Salt and Health: Review of the Scientific Evidence and Recommendations for Public Policy in Ireland, is the first comprehensive scientific evaluation of salt intake in Ireland and concludes 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. The report reveals that Irish people are consuming far in excess of the daily allowance for salt and encourages consumers to reduce significantly their salt intake to a maximum of six grams per day. It is estimated that Irish adults currently consume on average 10 grams of salt per day. However, the recommended dietary allowance (RDA) is 4 grams of salt per day for adults, demonstrating that Irish adults are currently consuming over double what they need. While there are no data available for children in Ireland, data from the UK suggests that average daily salt intake in children aged 4-6 and 7-10 exceeds 5 grams and 6 grams, respectively.

There is a direct, causal link between dietary salt intake and raised blood pressure. An approximate 41% of all deaths in Ireland are from cardiovascular disease and over 50% of the population over 50 years of age suffer from hypertension. Excessive levels of salt are considered a contributory factor and one teaspoon less in the daily diet could have a positive influence on public health.

It is a serious health issue and one that needs a multi factorial approach by industry and consumers to resolve. It is estimated that about 15-20% of total dietary sodium intake is from people adding salt during cooking or at the table, 15% from naturally occurring sodium in unprocessed foods, and about 65-70% from manufactured foods. Two food groups, meat/fish (mainly processed meat) and bread, account for over 50% of sodium intake from foods, with the remainder contributed by various other processed foods.

The report makes a number of key recommendations including:

- Irish adults should reduce their daily salt intake to 6 grams per day. Whilst it is not the optimal level, it is considered at this time to be an achievable goal for the population.
- The particular vulnerability of children and the elderly to the adverse effects of high salt intake needs to be highlighted in discussions with the food industry regarding new product development and the reformulation of existing products. This should also be considered in health promotion campaigns mounted by public and private bodies.
- The FSAI should work in consultation with the food industry (manufacturers, retailers and caterers) to achieve gradual, sustained and universal reductions in the salt content of processed and prepared foods.
- Consideration should be given to the mandatory labelling of foods with salt content above a specific threshold as ‘high salt’, and that proposed EU health claims legislation sets clear guidelines for the use of claims such as ‘low salt’ or ‘reduced salt’.

The FSAI has worked closely with the food industry over the past year to address the issue of salt in processed foods. The FSAI favours the dual approach of incrementally reducing the level of salt present in manufactured foods, as well as ensuring that the level of salt content is clearly labelled on food packaging. In addition to current labelling legislation, the FSAI is asking manufacturers to represent ‘sodium’ as ‘salt equivalents’ in grams on food labels.

The food industry has already taken the initial steps that have already resulted in a reduction of salt levels in some processed foods like bread. The FSAI is now in the process of agreeing future salt reduction plans with key processed food manufacturers via Food and Drink Industry Ireland, IBEC, as well as major retailers and caterers.

In the long-term, the FSAI will seek global reductions by industry in salt added during processing of up to one third. This will be a technical challenge, and requires a long-term action plan and research investment by industry.

There is evidence that relatively modest reductions in salt intake have the potential to produce a significant fall in average blood pressure, which can have a substantial impact on the level of cardiovascular disease in Ireland.

See: www.fsai.ie/publications/reports/salt_report.pdf for a copy of the report. Alternatively the report can be obtained by contacting the FSAI advice-line on 1890 33 66 77. (A charge of €15 applies.)

Pictured at the launch of the salt report are: Professor Albert Flynn, Chair, FSAI Scientific Committee and Dr John O’Brien, CEO, FSAI.
The problem of acrylamide in food has not gone away. As reported in fsainews in July 2002 and on the FSAI website, acrylamide is a toxic industrial chemical which has been shown to cause cancer in animals and also causes damage to the nervous system and may affect reproductive processes. Although it was well-known as a chemical used in industry, news of its discovery in food broke in April 2002. Research into how acrylamide is formed in food showed at an early stage that the chemical was produced during the frying, toasting or baking of a variety of foods, particularly starchy foods such as potatoes and cereal products. The amino acid asparagine and reducing sugars such as glucose and fructose are key constituents of foods giving rise to high levels of acrylamide.

At the time of its discovery in food, the consensus of public health specialists, toxicologists and food scientists was that this was a matter of concern, given its toxicological properties. The advice of food safety authorities throughout the world therefore was that excessive consumption of foods known to be high in acrylamide, such as fried potatoes, chips, coffee and high-bake biscuits should be avoided, although people should not alter their eating patterns significantly otherwise and should maintain a healthy balanced diet.

What has happened since the discovery of acrylamide?

Since 2002, the risks of acrylamide in food have been debated by many international bodies including the European Food Safety Authority (EFSA), the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO). The European Commission (EC) has organised stakeholder meetings on the issue at regular intervals, with participants from national Governments, consumer organisations and the European food industry. Industry has been proactive in investigating mechanisms of formation of acrylamide and has developed approaches to control formation in many processed foods such as cereals, biscuits and prepared fried potato products. The findings have enabled the EC as well as national Governments to issue advice to consumers on measures that can be taken to reduce acrylamide in food. (http://www.europa.eu.int/comm/food/food/chemicalsafety/contaminants/index_en.htm). Formal risk management measures such as the introduction of maximum limits for acrylamide in food have not been introduced, however, as there has been a general consensus that more knowledge is needed on the exposure of consumers to acrylamide, how the chemical behaves in the human body and other aspects enabling a more detailed risk assessment.

A detailed and authoritative risk assessment, using the most up-to-date information available, has now been carried out by the Joint Expert Committee on Food Additives and Contaminants (JECFA), an expert group of scientists who advise the WHO and the FAO. At its meeting in February 2005, JECFA used the relatively new approach of the so-called Margin of Exposure in its risk assessment of acrylamide. This involves a comparison of the levels of exposure of a consumer to a toxic chemical in food with the levels known to have harmful effects in laboratory studies, including carcinogenicity. If exposure is high and the chemical has harmful effects at low levels in food, then the Margin of Exposure (toxic level of chemical divided by the estimated human exposure) is low and the conclusion is that that there is potentially an increased risk to health compared with a scenario where the Margin of Exposure is higher. In using this approach, JECFA noted that “the advice given previously by the Committee on compounds that are both genotoxic and carcinogenic has been that intakes should be reduced to as low as reasonably achievable (ALARA). Such advice is of limited value, because it does not take into account either human exposure or carcinogenic potency, and has not allowed risk managers to prioritise different contaminants or to target risk management actions.” The Margin of Exposure approach provides a qualitative/semi-quantitative estimate of risk, which is more useful for risk managers.

JECFA evaluated new data on the likely exposure of consumers to acrylamide in food and compared this to the levels shown to cause cancer (mammary tumours) in rats. They concluded that the Margin of Exposure was on the low side (75 for high consumers eating large amounts of foods high in acrylamide) and that estimated intake of acrylamide from certain foods may be a human health concern.

Consumers who eat large amounts of certain fried, roasted or baked foods may therefore have an increased risk of cancer. JECFA also concluded that changes in the nervous system cannot be excluded for some individuals with very high intake. JECFA’s opinion was that there is still considerable uncertainty about the degree of health risk, but that further research studies will provide more information which will enable the risk assessment to be refined. In the meantime, efforts to reduce acrylamide levels in foodstuffs should continue.
What are the implications of the JECFA opinion?

In 2002, scientists were not able to make any definite conclusions about the possible risks of acrylamide in food. JECFA has advanced beyond this point in more definitely concluding that intake of acrylamide from certain foods may be a human health concern. Given this conclusion, the FSAI considers that consumers should take further steps to avoid acrylamide-rich foods such as chips and other fried potatoes and to reduce their intake of coffee to 3-4 cups a day. While other foodstuffs such as cereals and crispbreads also contain elevated levels of acrylamide, they have recognised positive health benefits and the FSAI reiterates its earlier advice that consumers should maintain a healthy balanced diet with a normal intake of foods such as cereals and bread.

Some Do’s and Don’ts in relation to acrylamide consumption

**DO:**

- eat a normal balanced diet including plenty of fruit and vegetables, but low in fat
- include cereals and bread (wholemeal)
- blanch homemade chips by soaking them in cold water for 30-60 minutes before cooking them. This reduces the levels of sugars that contribute to acrylamide formation
- store potatoes in the dark at a low temperature
- avoid excess browning of baked cereal products
- follow cooking instructions on food packets carefully
- use already boiled potatoes rather than raw potatoes when frying
- follow the more detailed guidance produced by the European Commission on ways to avoid acrylamide formation in food

**DON’T:**

- eat chips or fried/roast potatoes more than twice or three times a week
- over-fry your chips (or over-cook your oven chips), or over-roast your potatoes; cook them to a golden yellow, rather than brown
- store potatoes in the refrigerator
- exceed frying temperatures of 175°C for cut potato products
- exceed baking temperatures of 200°C for conventional ovens and 190°C for fan assisted ovens when baking/cooking cut potato products

**EFSA Initiative:**

Different approaches are currently used worldwide to assess the human health risks of compounds with genotoxic and carcinogenic properties. However, the scientific aspects behind these methodologies are still very much debated. EFSA asked its Scientific Committee to propose a harmonised, scientific and transparent approach for the risk assessment of compounds that have both genotoxic and carcinogenic properties. A public consultation on the draft opinion of the Scientific Committee is now open on the EFSA website: http://www.efsa.eu.int/science/sc_committee/sc_consultations/882_en.html until 30th May next.

**National Initiative:**

In Ireland, Teagasc, the National Food Centre is funded under the Food Institutional Research Measure (FIRM) of the Department of Agriculture and Food to research acrylamide in food products. More information on this work can be accessed on www.relayresearch.ie
The FSAI has recently published the second zoonosis report for Ireland covering the years 2002 and 2003. The report was compiled jointly by the FSAI, the Department of Agriculture and Food (DAF) and the Health Protection Surveillance Centre (formerly NDSC). The report features data resulting from inspections, sampling and testing carried out by frontline staff comprising Government and local authority inspectors and laboratory personnel.

Zoonoses are diseases and infections that are naturally transmissible from animals to humans through contaminated food and water (e.g. salmonellosis) and also by direct contact with infected insects and animals (e.g. rabies). Data relating to zoonoses in humans and animals as well as food and feed contaminated with zoonotic agents are collated each year by DAF and forwarded to the European Commission, which then compiles an EU report. National zoonosis reports are vital in providing feedback that can be used to assess the effectiveness of regulatory controls and, by comparison with EU reports, may identify strengths and weaknesses in the monitoring and control of zoonoses in Ireland.

The trends in zoonoses observed in 2002 and 2003 in Ireland did not differ markedly from those reported in 2000 and 2001. Campylobacteriosis was again the predominant human zoonosis reported, and though incidence rates were comparable to those of 2000 and 2001 in Ireland, (Figure 1) this disease was in decline in the EU in 2002.

Salmonellosis was the second most common zoonosis in Ireland in 2002 and 2003 with incidence rates of nine and 12 cases per 100,000 people respectively that include 15 outbreaks. (Figure 2)

The number of human verocytotoxigenic E. coli (VTEC) infections has been increasing since 2000, with 70 and 86 cases being reported in 2002 and 2003 respectively.

“Zoonoses are diseases and infections that are naturally transmissible from animals to humans through contaminated food and water (e.g. salmonellosis) and also by direct contact with infected insects and animals”

The data presented in the most recent report does not provide definitive evidence of cause and effect with respect to the sources of zoonotic infectious agents and mode of transmission resulting in human infection. There is however, sufficient information to guide a more focused examination of certain aspects of the food production process. For example, domestic poultry had a higher level of Campylobacter contamination than imported poultry. However, it would be premature to draw conclusions based on this data due to variations in the levels of sampling and until further information is available on the specific types of products sampled and tested.

While there is no room for complacency when dealing with zoonoses, it is important to acknowledge the considerable efforts of all those involved in the routine monitoring and control of zoonoses. The decline in BSE levels between 2002 and 2003, as well as the persistently low levels of human listeriosis, tuberculosis and brucellosis among others, is testament to the success of zoonosis control and prevention in Ireland.
The first phase of the FSAI and the Department of Agriculture and Food (DAF) regional meetings for 2005 took place during February. These meetings provide a valuable opportunity for regional inspectors to come together and discuss recent developments in the area of food safety, integrating their work into the national arena.

Meetings with veterinary inspectors of the meat hygiene division took place on the 2nd, 3rd, 9th and 10th February in Cork and Roscommon. The topics discussed included developments in the DAF service contract, introduction to and implementation of the hygiene package, the meat labelling guidance note and audits, certification issues and veterinary procedural notices regarding enforcement procedures at approved meat and dairy plants.

Meetings were held with the dairy produce inspectorate (DPI) and staff from the three dairy science laboratories (DSL), in Kilkenny on 22nd February. The agenda for the DSL meeting focused on an introduction to the FSAI and the DAF service contract, as this was the first time that the DSL and FSAI met. Items discussed at both meetings included the 2004 and 2005 EU co-ordinated programmes on cheese, audit issues and the implications of the new hygiene package. Mr Jim Buckley from Cork County Council gave a presentation on a VTEC surveillance study on dairy herds supplying raw milk to farmhouse cheesemakers.

**DAF: Meat and Meat Products**

The veterinary public health service of DAF is responsible for ensuring the highest standards of food safety and animal welfare are achieved in all EU approved meat processing plants (approx 200) under the control of DAF. This is done through inspection, monitoring and surveillance programmes in meat slaughtering and processing premises for compliance with EU and National meat Regulations.

DAF veterinary inspectors are permanently located in all EU approved slaughterhouses and cutting plants. Other meat processing plants that do not have a permanent presence are inspected regularly by veterinary officers to ensure compliance with the meat hygiene legislation.

**DAF: Milk and Milk Products**

DAF is responsible for enforcing the EU milk and milk products legislation, Directive 92/46/EC, transposed by S.I. No. 9 of 1996, through the inspection of milking facilities on the farm, milk pasteurisation plants and premises manufacturing milk products. The dairy produce inspectorate has responsibility for the inspection of all establishments manufacturing milk-based products, and farms on which milk for manufacturing is produced. The veterinary inspectorate is responsible for establishments which process milk for human consumption. There are currently almost 200 milk processing establishments approved and inspected by DAF.

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**food safety in portugal: new agency established**

Agência Portuguesa de Segurança Alimentar (APSA), the Portuguese Food Safety Authority, was established in January 2005 following various high profile food scares, in order to ensure the protection of public health and re-establish confidence among Portuguese consumers. APSA aims to develop interest in Portugal for a culture of information and education; delivered using a clear, transparent and participative approach. It will focus on the importance of food safety and healthy eating habits.

Through its co-operation with the European Food Safety Authority, APSA will participate nationally in international procedures in the field of food safety. It will be notified of food safety issues through the Rapid Alert System for Food and Feed (RASFF); the system used for exchanging information between Member States.

It is APSA’s role to issue scientific reports, recommendations and warnings on issues relating to human nutrition, animal health and well-being, plant health and GMOs. APSA is also responsible for collecting and analysing data to determine risks to food safety, and for creating and promoting an information network between interested parties.

In addition to its Board of Directors, APSA also has a Scientific Committee, which is an independent group of experts who will advise on issues in the areas of risk assessment, science, technology and research. APSA also has a Consultative Council, which comprises members representing a broad range of interests drawn from various sectors of the food industry and consumers organisations.

For further information on APSA, see: www.agenciaalimentar.pt
Introduction

In March 2004, the FSAI commissioned a study, entitled; ‘Surveillance of dairy herds supplying raw milk to farmhouse cheese makers for verocytotoxin producing E. coli O157 and other VTEC’. Examination of the samples is undertaken at the veterinary food safety laboratory, Cork County Council, and the Centre for Food Safety, located in the Faculty of Veterinary Medicine at University College Dublin.

Following discussions with members of Cais (the Irish farmhouse Cheesemakers Association) and individual cheese producers, it was agreed that participation of herd owners would be on a voluntary basis. All herd owners have shown real enthusiasm towards their involvement in this surveillance project. This monitoring programme, based on milk filter residue analysis, undertaken during a number of seasonal cycles, has established (ongoing) baseline data on the prevalence and characteristics of VTEC organisms in lactating animals (bovines, ovines, caprines) supplying the farmhouse cheese sector.

Background

Escherichia coli (E. coli) O157 is but one of a group of verocytotoxin-producing E. coli (VTEC) associated with severe disease in humans. Mild infection may result in bloody or non-bloody diarrhoea but in acute cases serious complications like haemolytic uraemic syndrome (HUS) may develop. Although E. coli O157 is the most renowned VTEC, other serogroups, including O26, O111, O103, O145 and O121 have the potential to cause serious human illness. A number of non-O157 VTEC infections in humans (mostly in children) have been reported in Ireland. Human cases attributed to O26 have already been documented in the North-West region of Ireland. A recent case investigation highlighted the fact that sheep and equine faeces can be a potent source of highly virulent E. coli organisms. However, the source of most non-O157 outbreaks is largely unknown.

Healthy domestic animals, in particular, ruminants like cattle, sheep and goats can harbour O157 VTEC and other VTEC in their faeces. These species are regarded as natural reservoirs of these organisms. Milk filters can be used efficiently and cost effectively to monitor faecal shedding, direct milk secretion and environmental contamination for these organisms.

Methodologies

This surveillance project involves 74 milk production holdings throughout Ireland. 56 of these are bovine herds, 13 are caprine and the final five are ovine herds. Cais members, individual cheese producers and the local authority veterinary officers have facilitated in herd participation and with sample collection. The sampling programme is divided into three cycles thereby each farm is tested on three separate occasions (where possible). Both cycles A and B are now complete and cycle Cais underway.

All milk filters are analysed by conventional microbiological protocols. Immunomagnetic separation (IMS) is used to test for the presence of the E. coli strains, on a serogroup-specific basis. Any suspect colonies are confirmed using molecular methods such as polymerase chain reaction (PCR). Further characterisation to identify markers of virulence and pathogenicity is undertaken on all serogroups isolated. Each isolate is examined for the presence of both verocytotoxins (vt1/vt2), the hemolysin encoding gene (hlyA) and the gene encoding attaching and effacement (eae).

Results

To date five verocytotoxigenic E. coli O157 isolates have been detected. Another 20 E. coli O157 isolates were found but these were deficient for the verocytotoxin genes. Twelve E. coli O26 isolates have been detected, three of which were verocytotoxigenic, seven isolates contained the attaching and effacement gene (eae) only, and two isolates expressed none of the virulence factors examined, (Table). No E. coli O111 isolates have been detected to date. While, product and bulk milk examinations have been carried out on all VTEC positive production holdings, no VTEC organisms were detected.

All herd-owners are notified of the laboratory results. A back up advisory service has been provided by Cais specialist adviser, Sara McSweeney located at Teagasc Moorepark and the Veterinary Department of Cork County Council.

Future work

An unexpected finding in the study has been the number of E. coli O157 isolates that were VTEC deficient and the number of O26 isolates that were VTEC negative, but showed other virulence factors (Table 1). A database of these isolates has been established and the organisms will be further characterised to establish their potential pathogenicity and their flagellar gene status.

On completion of the sampling programme, all isolates recovered will also be phenotypically characterised to determine antimicrobial resistance profiles and genotypically characterised, using pulsed-field gel electrophoresis (PFGE) or multiple-locus variable-number of tandem repeat analysis (MLVA). This will enable the comparative analysis of human, animal and environmental isolates.

This surveillance project has identified a number of VTEC-positive herds, which may be supplying milk for unpasteurised cheese and also for the production of unpasteurised ice cream. Although, all products tested from these holdings are VTEC negative, routine surveillance of milk production holdings for VTEC and other such pathogens is of public health importance.

Table 1: Summary of the virulence characteristics in the E. coli isolates

<table>
<thead>
<tr>
<th>Virulence markers/genes</th>
<th>E. coli O111</th>
<th>E. coli O26</th>
<th>E. coli O157</th>
</tr>
</thead>
<tbody>
<tr>
<td>vt1, eae &amp; hlyA</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>vt2, eae &amp; hlyA</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>eae only</td>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>No virulence factors</td>
<td>0</td>
<td>2</td>
<td>20</td>
</tr>
</tbody>
</table>

verocytotoxin producing e. coli o157 and other vtec: surveillance
A very successful conference of the Local Authority Veterinary Service (LAVS) was held at the headquarters of the Institute of Public Administration on April 7th and 8th. The opening address was given by Dr Brian Redahan, Director of Consumer Protection, FSAI, and covered a wide range of issues. He expressed enthusiasm towards working closely with the LAVS in a spirit of teamwork and partnership and identified the implementation of the hygiene package and the renewal of the service contract as key upcoming issues for the FSAI and the LAVS.

The morning session on the first day was devoted entirely to Campylobacteriosis; by far the most common cause of bacterial food poisoning on both sides of the border; and was chaired by Dr Cliodhna Foley-Nolan, Food Safety Promotion Board. Dr Paul McKeown, Health Protection Surveillance Centre, gave a very interesting presentation that included a brief history of the disease and details on current incidence rates. Dr Marita Mahon, Health Service Executive, South-East, then updated the conference on moves towards enhanced surveillance in the South East area. This was followed by a presentation by Dr John Moore, Northern Ireland Public Health Laboratory, on the situation in Northern Ireland. Dr Moore also held a brief discussion on Acrobacter and its possible involvement in gastrointestinal disease. The final speaker, Dr Paul Whyte, University College Dublin, spoke on a recent study on the molecular characterisation of Campylobacters in retail foods and humans and on the difficulties in culturing and typing it in the laboratory.

During the afternoon, Mr David Foth presented on the Verifeye system; a system of detecting organic contamination during carcase inspection. This was followed by the Annual General Meeting of the LAVS.

On day two, the morning session of the conference was based on the topic of waste management. The first presenter, Mr John Aherne, Indaver, spoke on incineration and its place in waste management. This was followed by a very interesting and practical talk from Dr Anthony Staines on carrying out health impact assessments i.e. assessing the potential impact of any type of development on humans and by extension animal populations and the food chain. Dr Iona Pratt, FSAI, then spoke on toxicology and waste management. The importance of this issue was illustrated by the two examples: 1) the recent contamination of pig feed with the hormone medroxy progesterone acetate (MPA), and 2) the Belgian dioxin crisis of 1999. The final speaker, Dr Eugene Power from the Cork Regional Veterinary Laboratory, spoke about the innovative programme operated by the Cork County Council Veterinary Department that involves the monitoring of sentinel animals for evidence of environmental pollution. One of the important points which arose from this programme was the 60% reduction in dioxin levels seen in milk in the study area between 1991 and 2002.

The topic of waste management in veterinary practices was discussed during the afternoon session. Mr Sean O’Laoide, Westmeath County Council, detailed the legislative issues involved and the responsibilities of practices particularly with regard to clinical waste, and Mr Robert Kelly from Veterinary Environmental Management Ltd., gave a presentation on the practicalities of the issue.

Dr John Moore, Northern Ireland Public Health Laboratory; Dr Marita Mahon, Health Service Executive, South East Region; Dr Brian Redahan, Director of Consumer Protection, FSAI; Dr Cliodhna Foley-Nolan, Chief Specialist Public Health, Food Safety Promotion Board; Dr Paul McKeown, Health Protection Surveillance Centre; Dr Paul Whyte, University College Dublin.
The sampling plan for the 2005 national microbiological surveillance programme is outlined in Table 1. The topic for the first trimester survey was agreed following consultation with environmental health officers (EHOs) and the official food microbiology laboratories (OFMLs). The second and third trimester surveys form part of the EU Co-ordinated Programme for the Official Control of Foodstuffs 2005 as specified in Commission Recommendation 2005/175/EC.

For each survey sampling will be carried out in retail premises by EHOs. In addition, sampling for the second trimester survey will be carried out in processing establishments by dairy produce inspectors. All samples will be analysed in the official food microbiology laboratories.

### Table 1: Sampling plan for the 2005 national microbiological surveillance programme

<table>
<thead>
<tr>
<th>Topic</th>
<th>Period</th>
<th>Microbiological parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacteriological safety of cheeses made from pasteurised milk*</td>
<td>May - August 2005</td>
<td>Staphylococcus aureus, Escherichia coli, Listeria monocytogenes</td>
</tr>
<tr>
<td>Bacteriological safety of pre-mixed salads *</td>
<td>September - December 2005</td>
<td>Listeria monocytogenes</td>
</tr>
</tbody>
</table>

* These surveys will be undertaken as part of the EU Co-ordinated Programme for the Official Control of Foodstuffs 2005 (Commission Recommendation 2005/175/EC)

**Bacteriological quality and safety of loose sliced cooked ham**

Cooked sliced ham is a popular convenient ready-to-eat food. Slicing is a process which is carried out post-cooking in either the retail premises (i.e. at the point of sale) or in the manufacturing premises. The slicing process poses a microbiological risk because of: 1) the potential for spread of microbial contamination via the slicing blade onto the cooked product and, 2) the increase in the surface area (and thus the exposed area) of the sliced product.

The aim of this study is to assess the microbiological quality and safety of cooked ham sliced at the point of sale. It follows a national microbiological survey undertaken in 2003 (January-March) which investigated the bacteriological quality and safety of pre-packed cooked sliced ham (i.e. ham which was sliced and pre-packed in manufacturing premises).

### Bacteriological safety of pre-mixed salads

In recent years there has been an increase in the availability of ready-to-eat foods, such as pre-packed mixed salads containing raw vegetables, meat or seafood. The microbiological safety of pre-mixed salads is related to the microbiological status of each ingredient. Of particular concern is *Listeria monocytogenes*. This pathogen is ubiquitous in the environment and occurs naturally in many raw foods including those of plant and animal origin. It is of particular concern in ready-to-eat foods which do not receive a heat treatment (e.g. salads). In addition, this pathogen is capable of growing at refrigeration temperatures (normal storage conditions for salad products).

Implementation of food safety controls throughout the food chain (i.e. from farm to fork) is essential to prevent the contamination and growth of *L. monocytogenes* and other pathogens. These include good agricultural practices, good hygiene practices and the implementation of a food safety management system based on the principles of HACCP.

The aim of this study which will be undertaken as part of the EU Co-ordinated Programme for 2005 is to assess the microbiological safety (*L. monocytogenes*) of pre-mixed salads containing ingredients such as raw vegetables, meat or seafood. Sampling will be carried out at retail level.
National Chemical Surveillance

There are two chemical components to the EU Co-ordinated Programme for the Official Control of Foodstuffs, 2005 as specified in Commission Recommendation 2005/175/EC. They are as follows:

1) Assessing the safety, quality and labelling of poultry meat as regards the use of water retention agents

EU surveillance has identified poultry meat and poultry meat preparations being placed on the market containing excessive water, and hydrolysed proteins, which are used as water retention agents. The aim of this study is to determine if water retention agents are being used in chilled and frozen poultry meat (chicken breast) and frozen poultry preparations (chicken breast) and to check for correct labelling.

2) Assessing the safety of certain foods for infants and young children as regards the levels for nitrate and patulin

Foodstuffs containing contaminants exceeding the levels which are toxicologically acceptable may pose a potential risk to public health, especially for sensitive groups of the population such as infants and young children. Specific maximum levels of nitrate and patulin in food intended for infants and young children have been set in Commission Regulation (EC) No. 466/2001 and Commission Regulation (EC) No. 655/2004.

Patulin is a toxin produced by a number of fungal species. Although it can occur in many mouldy fruits, grain and other foods, the major sources of patulin contamination are apple products. Nitrate is an environmental / agricultural contaminant.

The aim of this study is to verify that the levels of nitrate and patulin in foods for infants and young children do not exceed the limits set in these Regulations. In particular, foods containing carrots, potatoes and leafy vegetables will be examined for nitrate and foods containing apple will be tested for patulin.
The Codex Committee on Fish and Fishery Products (CCFFP) held its most recent meeting (27th session) in Capetown, South Africa at the beginning of March. The purpose of the CCFFP is to establish internationally acceptable standards to allow for the fair trade in fish and fishery products across international markets.

This was the first occasion on which a Codex Committee met in a developing country, and although hosted by South Africa, the Committee itself was chaired by Norway. Delegates attended from Ireland, the European Union and European Economic Area Member States, the European Council and the European Commission (DG-SANCO and DG-FISH). Observers were also present from other countries and international organisations.

There were a number of items on the agenda which were of particular interest, including:

- The Joint Food and Agriculture Organization / Inter-Governmental Organisation Conference / World Health Organization ad hoc Expert Consultation on Biotoxins in Molluscan Bivalves
- The draft Code of Practice for Fish and Fishery Products
- The proposed draft Standard for Live and Raw Bivalve Molluscs
- The proposed draft Standard for Quick Frozen Scallop Adductor Muscle Meat
- The proposed draft Standard for Ready-to-Eat Smoked Fish.

Apart from the plenary sessions, ad-hoc working groups were also formed during the week-long meeting to progress a number of items. The EC held regular meetings to co-ordinate the EU position and contribution on the different agenda items.

Further information on Codex and the CCFFP can be obtained from the website: www.codexalimentarius.net

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**recent publications**

The following publications have recently been produced by the FSAI:

**Reports**
- Salt and Health: Review of the Scientific Evidence and Recommendations for Public Policy in Ireland
- Annual Report, 2003
- Report on Zoonoses in Ireland, 2002 & 2003

**Guidance Note**
- Guidance Note No. 7 - The Labelling of Fish and Aquaculture Products according to the European Communities (Labelling of Fishery and Aquaculture Products) Regulations, 2003 (S.I. No. 320 of 2003) - Revision 1

**Leaflets**
- Folic Acid: Today and Everyday
- Food Safety Information Centre
- Understanding Food Labelling (updated)

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**wireless access points in abbey court**

From the end of April 2005, visitors to the FSAI with wireless-enabled computers will be able to connect to the internet via access points (‘wireless hotspots’) installed in our Abbey Court premises. To connect to an access point, the visitor enters an access code from a voucher issued at reception, to cover the duration of the visit to the FSAI.

Information notices will be displayed throughout the FSAI offices.

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**service contract review**

The current service contracts with official agencies will expire on 31st December 2005. The service contracts have a three year duration, with the current contracts in place since 1st January 2003. They specify an agreed level and standard of food safety activity that the agencies undertake under contract to the FSAI.

The first meetings between FSAI and the official agencies to negotiate the new service contracts will commence in April 2005. The revised contracts will reflect the new hygiene legislation in place from January 1st 2006 and will build on the food safety objectives currently in place.
On the 22nd December 2004, the Minister for Agriculture and Food signed three new Statutory Instruments changing the definition of ‘consumer’ in the National Meat Regulations (Fresh Meat, Minced Meat and Meat Preparations and Meat Products Regulations). The effect is that from 1st January 2005, any retail butcher who supplies any other food business with meat products or other products of animal origin must comply with the requirements of the Meat Regulations.

Prior to this amendment retail butcher shops supplying directly to consumers and/or to the catering trade were supervised by environmental health officers in the Health Service Executive (HSE), under the EC (Hygiene of Foodstuffs) Regulations, 2000. However, any butchershop selling (wholesaling) to other retail premises had to comply with the terms of the meat Regulations and are supervised by the local authority veterinary inspectors. There were a number of premises to which both sets of Regulations (Hygiene of Foodstuffs and meat Regulations) applied. In such cases the supervision of the premises was a joint responsibility.

In light of the change in definition where ‘consumer’ means the ultimate consumer of a meat product and other products of animal origin who will not use the product as part of any food business operation or activity there has been ongoing discussion between the FSAI, the Local Authority Veterinary Inspectorate and the principal environmental health officers (PEHOs). The main issue to be addressed was the application of the meat Regulations to those retail butchers who are involved in the supply of meat products and other products of animal origin to catering establishments and other retailers. A survey of butchershop activity carried out by EHOs has helped inform decision making. Figure 1 shows the distribution per week (in kgs) by butchershop type.

On 11th Feb 2005 the following was proposed at a meeting held between FSAI and the PEHOs:

The meat Regulations would be applied as a priority to retail butchers who satisfy the following criteria:

1. supply 20% or more (by value of sales) of their trade to customers other than final consumer, and
2. where the total amount of meat/meat products/minced meat etc. sold is on average 500kgs/week or more

Nationally the number of premises this applies to is approximately 80. It was proposed that these premises would be transferred to the supervision of the Local Authority Veterinary Service.

Premises not satisfying these criteria would remain with the Environmental Health Service, including those requiring authorisation for the removal of backbone under the European Communities (Removal of Bovine Vertebral Column) Regulations (S.I. No. 528 of 2004). These Regulations make it an offence to remove vertebral column in butcher’s premises without authorisation to do so.

The criteria for deciding on the supervision of retail butchers will be reconsidered when national law implementing the hygiene package is available. Under the new legislation, applicable from 1st January 2006, retail butchers may, subject to national rules, be able to supply other retailers in a ‘marginalised, localised and restricted’ trade.

open consultation

There is currently one open consultation on the FSAI website:


The draft Guidance Note aims to provide information on the implementation, enforcement and compliance with the Food Supplements Regulations, S.I. No. 539 of 2003 (which transposes Directive 2002/46/EC on food supplements). It concerns food supplements currently on sale in Ireland, in addition to those being manufactured or imported directly, or through third parties i.e. agents.

The draft document sets out the notification procedure for food supplement products manufactured in or imported into Ireland and which are being placed on the Irish market for the first time. It also covers such areas as food supplements legislation, definitions, differences between food supplements and medicines and derogations.

The consultation will remain open until Friday, 3rd June 2005.

Reducing Neural Tube Defects in Ireland: A Consultation on Food Fortification with Folic Acid in Ireland

A consultation on the fortification of food with folic acid is open on the website: www.folicacid.ie. The consultation aims to provide an opportunity for comment on folic acid food fortification and invites comment on three policy options to ensure women in Ireland have enough folic acid at time of conception.

Closing date for submissions is 24th June 2005.
mailing list

fsainews is a resource for all public health professionals, researchers, food scientists, food hygienists and quality control personnel working in food safety. We would like to ensure that anyone who may find it useful receives a copy.

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new appointment

Dr Brian Redahan has recently been appointed Director of Consumer Protection with the FSAI. A medical doctor, he has a wide range of experience in the health service, both in a clinical and managerial capacity. Prior to taking up this position, Dr Redahan was Deputy Chief Executive Officer of the former East Coast Area Health Board, now part of the new Health Service Executive. A graduate of the Royal College of Surgeons and the National University of Ireland, he completed his higher training in general practice in the UK and worked as a family doctor in Ireland for a number of years. He was appointed as medical officer in the former Eastern Health Board in 1990, and subsequently moved to the Western Health Board as Director of Community Care/Medical Officer for Health for Mayo. He commenced his managerial career as general manager for Community Care Services in Wicklow in 1998, and later became a member of the senior management team of the former East Coast Area Health Board.

As Director of Consumer Protection, Dr Redahan will be responsible for developing and managing a multi-disciplinary team with a focus on protecting the health of the consumer. He will work closely with staff of the official agencies and the food industry to promote and encourage the highest standards of food safety and hygiene in Ireland.