



mandatory folic acid fortification of bread recommended

fsainews

Mandatory fortification with folic acid of most white, brown and wholemeal breads on sale in Ireland is the policy recommendation contained in a report presented to An Tánaiste and Minister for Health and Children, Mary Harney T.D., on 18th July, by the National Committee on Folic Acid Food Fortification. Some minor bread products and retail flour will not be fortified to allow for consumer choice. The aim of the Committee recommendation is to reduce the number of babies born with neural tube defects (NTDs) in Ireland every year.

Folic acid is a B vitamin, which, if taken for at least eight weeks prior to, and 12 weeks after conception, is known to reduce by up to 70% the risk of NTDs, a group of severe

birth defects such as spina bifida that can develop in babies during the first weeks of pregnancy.

The National Committee on Folic Acid Food Fortification, established by the Minister for Health and Children, under the secretariat of the Food Safety Authority of Ireland, was tasked with establishing the most effective public health strategy to increase the intake of folic acid among Irish women of childbearing age, to reduce the nation's high incidence (approximately 1-1.5 per 1,000 births) of NTDs.

The Minister for Health and Children has expressed her support for the recommendations contained in the report, and said that the next step will be to establish an implementation group to develop a detailed implementation process for the mandatory fortification of bread.



Pictured at the launch of the folic acid report are (l-r): Mr Alan Reilly, Deputy CEO, FSAI; Mr Brian Lenihan, Minister of State with responsibility for children, and Ms Maureen Lynott, Chair, National Committee on Folic Acid Food Fortification

food safety authority of Ireland

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report of the national committee on folic acid

Background

Neural tube defects (NTDs) are severe abnormalities of the central nervous system that develop in babies during the first weeks of pregnancy; the most common of which is spina bifida. Ireland has one of the highest incidence rates of NTDs in Europe with evidence of between 0.8 and 1.5 cases recorded per 1,000 births in Ireland, equating to between 49 and 93 babies affected per year. In addition, the genetic background for increased risk of developing NTDs is prevalent in the Irish population.

In the 1990s, the B vitamin, folate, provided in its synthetic form, folic acid, was proven to reduce the risk of having a baby with an NTD in up to about 70% of cases. This led to recommendations to women of childbearing age in many countries to take an extra 400µg of vitamin folate daily to reduce the risk of developing NTDs if they were likely to become pregnant, in addition to meeting their individual adult needs (Recommended Dietary Intake) for the vitamin. In Ireland, women of childbearing age were specifically advised that if there was any possibility of becoming pregnant, the best way to take the recommended additional 400µg of folic acid daily, was in the form of a supplement.

However, advice to women of childbearing age, to take folic acid supplements if there is any possibility of becoming pregnant, has had little impact on reducing the incidence of NTDs in Ireland. Many challenges have been found in achieving these recommendations for additional folic acid, the greatest being that less than 50% of pregnancies are planned. Thus, many women learn they are pregnant without having had the opportunity to follow recommended advice for planning a pregnancy.

Such findings led some countries, including Canada and the US, to implement a policy of fortification of cereal grains/flour with folic acid to reduce the risk of NTDs. This ensures an increased intake of folic acid by all women in the population at the time of conception. Compelling evidence from countries implementing mandatory folic acid flour fortification programmes has recently demonstrated that such a policy leads to significant reductions (ranging from 20-78%) in the incidence of NTDs. The amount of folic acid added to the food supply does not, however, provide enough to fully protect the unborn child, so Canadian and US women have been advised to continue to take folic acid supplements.

National Committee on Folic acid Food Fortification

In 2002, the Department of Health and Children asked the FSAI for advice with regard to folic acid food fortification. In 2003, the FSAI recommended a policy of mandatory fortification of flour with folic acid. In 2004, the National Committee on Folic acid Food Fortification was established by the Minister for Health and Children under the secretariat of the FSAI to further examine the option of a mandatory folic acid fortification policy for Ireland for the prevention of NTDs, given the high incidence in Ireland.

The Committee was tasked with reviewing options for the fortification of foods with folic acid and addressing the broader aspects of policy implementation, including technical issues on folic acid food fortification, risk assessment and examination of reported health benefits associated with increased levels of folic acid in the diet.

The following are some of the issues considered and researched as part of the work of the Committee:

- The role of folic acid in the prevention of NTDs in Ireland
- The food sources of vitamin folate: natural folates and folic acid
- Current food sources of folic acid in Ireland
- Folic acid intakes in Irish women of childbearing age
- The risk of NTDs and how it is reduced with improved folate status
- Selection of a suitable food vehicle for folic acid fortification
- Consultation to consider the views and concerns of Irish consumers and industry
- Technical issues involved in folic acid fortification of bread in Ireland
- Consideration of the risks and benefits of folic acid fortification
- Monitoring
- Health promotion



Conclusions of the Committee

The broad conclusions of the Committee are that:

- Consumption of folic acid on a daily basis, before conception and during the first few weeks of pregnancy, can protect up to about 70% of pregnancies from the development of a NTD. Public health policy recommends women take 400µg of folic acid prior to conception and for the first 12 weeks of pregnancy in order to reduce the risk of these serious birth defects.
- A national policy of mandatory fortification of bread with folic acid will contribute significantly to the reduction in the numbers of babies born with NTDs in Ireland.
- The best and most reliable scientific evidence indicates that enriching most bread with folic acid at a level that delivers 120µg per 100g of bread as consumed, will be both effective and safe. It will reduce the incidence of NTD-affected pregnancies by about 24% and will ensure that older adults do not consume excessive amounts of folic acid. In addition, it will yield other health benefits associated with eradicating folate deficiency, in particular, prevention of anaemia due to a shortage of vitamin folate in older adults.
- While the level of addition of folic acid to bread will significantly reduce the incidence of NTDs, it will not, however, provide women of childbearing age with the full amount of folic acid they are recommended to consume for protection of their pregnancies. This means that the policy of recommending folic acid supplements for women of childbearing age needs to continue, in conjunction with a policy of mandatory fortification.
- Folic acid fortification of bread is technically achievable for the main types of bread marketed in Ireland. Labelling, nutrition and health claims can be accommodated within existing or proposed national and European Regulations.
- Consumer choice can be accommodated by the exclusion of some minor bread products and retail flour from the mandatory requirement for fortification.
- Monitoring is essential to ensure the fortification programme is implemented in a manner that is both effective and safe.

food fortification



Recommendations of the Committee

A summary of the main recommendations of the National Committee on Folic Acid Food Fortification is outlined in Table 1. To view the full recommendations, please see the *Report of the National Committee on Folic Acid Food Fortification*.

The report is available on our website at www.fsai.ie/publications/reports/folic_acid.pdf and on the website www.folicacid.ie. It can also be obtained in hard copy by contacting the FSAI advice-line on 1890 33 66 77.

Table 1: Summary of the main recommendations of the Committee	
Policy aspects	<ul style="list-style-type: none">All bread (white, wholemeal and brown) manufactured or marketed in Ireland, with the exception of minor bread products, should be fortified on a mandatory basis with folic acid at a level which provides 120µg per 100g of bread as consumed.Consumer choice should be accommodated by excluding minor bread products as well as retail flour, from the mandatory fortification programme.
Legislation	<ul style="list-style-type: none">The Department of Health and Children should make new Regulations that would introduce mandatory fortification of all bread marketed in Ireland, with the exception of minor bread products.The new Regulations should provide for upper and lower tolerance limits around 120µg folic acid per 100g bread (which will be set by an established implementation group following consultation with the industry). They should also provide for labelling and health claims for breads fortified with folic acid.
Technical aspects	<ul style="list-style-type: none">Technical guidance and codes of practice should be developed to support ongoing quality assurance of the folic acid fortification process.External assessment procedures should be put in place to monitor the folic acid fortification levels of all fortified breads, compliance with the labelling format and health claims provided for in the new EU legislation.
Monitoring	<ul style="list-style-type: none">An assessment of all pregnancies affected by NTDs, including those that do not reach term, should be undertaken immediately to establish a baseline for monitoring.A national congenital birth defects register, which records all pregnancies affected by birth defects should be established.Dietary intakes of folate should be monitored regularly.Monitoring of folic acid levels in foods that are voluntarily fortified with folic acid and in supplements available in Ireland, should be included as part of the national food monitoring and surveillance programme.
Health Professionals	<ul style="list-style-type: none">All relevant health professionals should be updated on the implications of the mandatory folic acid food fortification programme and on the need to continue to advise women of childbearing age who are sexually active to take folic acid supplements.Information should be made widely available by health professional representative bodies and agencies.All relevant health professionals should be aware that high dose folic acid supplements may increase the risk of masking B₁₂ deficiency.
Folic acid supplements	<ul style="list-style-type: none">The policy of recommending folic acid supplements for women needs to continue.
Health Promotion	<ul style="list-style-type: none">Awareness of the need for women to take folic acid supplements should be actively promoted through a national integrated health promotion programme.

Bread Consumption Survey

A survey on bread consumption in the Irish population, commissioned by the FSAI on behalf of the National Committee on Folic Acid Food Fortification, confirmed that women of childbearing age eat bread. Fortification of bread with folic acid therefore will help to ensure a fairly even distribution of intake of folic acid among all women, which is of particular importance for women from disadvantaged backgrounds for whom other sources of folic acid may be economically out of reach.

It was found that bread consumption, and especially pan bread consumption, is extremely prevalent amongst all groups surveyed. Across all groups, the level of bread consumption (the proportion that eats any bread at all) was in the range 95% to 99%. The proportion within each group that consumed any pan bread regularly (at least 2-3 times per week) ranged from 91.8%, (amongst females aged 15-25) to 74.8% (amongst females aged 65+). Overall, the survey reveals a certain amount of consistency amongst the different age groups with regard to their bread consumption patterns.

In terms of the recommendation to fortify pan bread with folic acid to combat the relatively high incidence of NTDs in Ireland, it is clear that any such initiative will have an excellent reach.

national salt reduction policy:

further commitments from industry

The FSAI is working with the Irish food industry to achieve gradual, sustained and universal reductions in the salt content of processed and prepared foods. Extensive dietary sodium levels contribute to hypertension, an important contributory factor in cardiovascular disease which is estimated to result in 41% of annual deaths in Ireland. This work started in late 2003 with an FSAI initiated national salt reduction policy aimed at reducing the average daily salt intake of Irish adults to 6 grams by 2010.

Since the national salt reduction policy began, impressive progress has been made by the Irish food industry in reducing the level of salt in manufactured and prepared foods. In 2005, 52 food businesses and their representative groups joined the FSAI's coordinated initiative, following concern over the excessive levels of salt being consumed by Irish adults, of which 65-70% comes from manufactured foods. Currently, that number is up to 65 food manufacturers, retailers, caterers, and representative bodies committed to the ongoing programme. Key undertakings which were achieved during the first phase of the initiative are outlined in Table 1.

In addition, a number of the major retail multiples have made considerable strides in salt reduction in own brand goods, while the symbol groups have been matching the work undertaken by the multiples and have also committed to reducing salt in deli counter foods. The major food service providers have shown a high level of support, with salt reductions in bouillons by one manufacturer and in cured meats by another. Most are also liaising with suppliers to encourage them to reduce salt in their products. This is important so that salt reduction can be achieved by caterers.

The catering representative bodies are working to inform their members of salt and health issues and advise them on ways to reduce salt. A programme is underway across a number of Government bodies to reduce salt in institutional and staff canteen catering. A number of hotel groups, restaurant chains and snack food manufacturers have also come on board, increasing the breadth and penetration of the salt reduction programme into the community. The FSAI will continue to work closely with the industry to ensure that further reductions are undertaken.

Food businesses have a central role to play to assist lower salt intake levels amongst Irish people. The level of support the industry has given this initiative to date is to be commended. However, whilst considerable achievements have been made, more is required. There needs to be solid commitments by the food industry to continue to decrease levels of salt usage over the long term. The FSAI aim is therefore, to expand the focus of the programme, which to date has been on core food products such as meat/fish, bread, cereals and soups/sauces, to encompass other foods such as prepared sandwiches, milk products etc. New commitments from the food businesses to reduce salt across a wide range of foodstuffs have been agreed with the FSAI as part of the ongoing initiative (Table 2).

The FSAI is optimistic that real change can, and will be achieved, with the continued support of the industry, to reduce overall salt intake in the average daily diet in Ireland. A full review of the salt reduction programme will be undertaken later this year.

Table 1: Key undertakings which were achieved during the first phase of the initiative

Meat products	The Irish meat industry has achieved its undertakings for 2005 with a range of salt reductions across bacon, sausage, cooked hams, gammon steaks, puddings and burger products. Further salt reductions will require research to ensure food safety is not compromised.
Bread	White and brown bread brands now contain less than 1.14g salt per 100g, a reduction of 10% since 2004. Some manufacturers have extended their salt reduction work across all bread lines, and the first salt reduction in soda bread was achieved by one manufacturer.
Breakfast cereals	Salt levels are 11% lower than in 2003.
Soups and sauces	Manufacturers have reduced salt by 10%.

Table 2: New commitments from food businesses

Meat products	Sodium levels in sausages will be reduced to 0.75g per 100g by June 2007.
Milk products	Up to 10% reduction in salt in processed cheeses will be attempted and work is underway to reduce salt in yellow fat spreads, which is more difficult due to consumer taste preferences.
Soups and sauces	A further 5% average salt reduction to be achieved in dry sauces and meal makers by mid-2007 and all new products will have lower than average salt content. Some soups to be reduced by up to 10% by mid-2007.
Prepared sandwiches	10-15% salt reductions on main sandwich lines of a major manufacturer.
Retailers	A range of reductions across ready meals, pizzas, quiches, breads, soups, sauces, sandwiches and other confectionary and grocery products have been agreed.
Caterers	Continued programmes to reduce salt usage aided by the supply of low-salt processed foods.

The FSAI has published details of individual food businesses' commitments to salt reductions and this *Salt Reduction Undertakings* document is available at: www.fsai.ie/industry/salt/Salt_Reduction_Undertakings.pdf

marine institute successfully re-instates inab accreditation in new facilities



Mr Dave Clarke of the Marine Institute analyses shellfish samples for the presence of biotoxins.

The Marine Institute successfully completed a recent Irish National Accreditation Board (INAB) audit and accreditation was re-instated as of 16th June last. No non-conformances or observations were raised by INAB.

The Marine Institute's Marine Environment and Food Safety (MEFS) service area voluntarily suspended its INAB

accreditation on 15th March 2006 to allow for the Marine Institute to move into the new state-of-the-art facilities at Rinville, Oranmore, Co. Galway. In accordance with INAB regulations, laboratories are obligated to voluntarily suspend accreditation when relocating. Accreditation was maintained in the phytoplankton laboratory in Bantry throughout the relocation.

The relocation to the new facility from Abbotstown, Galway Technology Park and Parkmore went relatively smoothly. A concerted effort from a dedicated professional team meant that test methods were back functioning quickly and there was little disruption to service.

As well as re-instating accreditation for existing tests, accreditation was granted for seven new tests as part of the Marine

Institute's extension to scope. These tests included nutrients in sea and estuarine water (nitrite, total oxidised nitrogen, phosphate and silicate), metals in marine biota (chromium, silver and nickel) and veterinary residue in farmed finfish (cypermethrin and deltamethrin). This brings the total number of tests accredited in the MEFS service area to 25, covering a wide range of disciplines/analysis including: virology, microbiology, phytoplankton, biotoxin analysis, and a range of analytical chemistry tests for residue and environmental contaminants.

MEFS will continue to work on its quality system to maintain its existing scope of 25 accredited tests and work towards the accreditation of all key tests within the section in its aim to deliver a quality service to the industry and clients.

fsai and daf regional meeting

The FSAI and the Department of Agriculture and Food's egg inspectorate regional meeting took place on 7th July in Portlaoise. The regional meeting is an opportunity for the FSAI to meet with the inspectors, provide updates on projects and ongoing work initiatives, provide feedback on the service contract and facilitate discussion. Mr Eugene Doyle and Ms Mary

Herlihy recently joined the DAF egg division and were welcomed to the meeting.

The DAF egg division, which comprises 13 inspectors, is responsible for enforcement of the European Communities (Marketing Standards for Eggs) Regulations, 1992 (S.I. No. 254 of 1992) in free range and barn egg producers and egg packing centres. It is also responsible for enforcing the European

Communities (Labelling and Marketing Standards for Poultry meat) Regulations, 2004 (S.I. No. 42 of 2004) in retailers, bakeries, wholesalers, hospitals and other institutions. European Communities (Food and Feed Hygiene) Regulations, 2005 (S.I. No. 910/2005) is enforced by the inspectors in bakeries (egg products). This work is carried out through inspections, sampling and surveillance.

control of salmonella in irish egg laying hens among the best in europe

Recently the European Food Safety Authority (EFSA) published a preliminary report on findings of a baseline study of *Salmonella* spp. in egg laying hens. The purpose of this study was to establish the current salmonella prevalence in order to assist the European Community in setting targets for reduction of this pathogen (as required by Regulation (EC) No. 2160/2003). The ultimate aim is to achieve a prevalence of 2% or less in egg laying hens.

The baseline study demonstrated that the overall *Salmonella* spp. prevalence in Member States ranged from 0% to a maximum of 79.5%; with an Irish prevalence of just 1.4%. The prevalence for the two salmonella serovars responsible for the majority of human illness (*Salmonella* Enteritidis and *Salmonella* Typhimurium)

ranged from 0% to a maximum of 62.5%. The Irish prevalence was 0%.

Based on this study, the European Commission and Member States have recently agreed reduction targets. Every Member State will have to work towards reducing the number of egg laying hens infected with *Salmonella* spp. by a specific minimum percentage each year, with steeper targets set for Member States with higher levels of salmonella. Member States like Ireland, with a prevalence of less than 10%, will be expected to reduce this further by 10% of the prevalence.

The results of this baseline study show that the control programme operated by the Irish Department of Agriculture and Food and the control measures taken by the

industry are working effectively. The Irish prevalence is already below the European target of 2%.

To view the full EFSA report, *Preliminary report on analysis of the baseline study on the prevalence of salmonella in laying hen flocks of Gallus gallus*, see: www.efsa.europa.eu/science/monitoring_zoonoses/reports/1541_en.html





butchers step up to the mark: significant increase in HACCP compliance

Introduction

At an international level it is well recognised that HACCP (Hazard Analysis and Critical Control Point) is an enormously useful tool to ensure the production of safe food. In Europe, HACCP has been enshrined in legislation under Council Directive 93/43/EEC on the Hygiene of Foodstuffs since 1993; this Directive was transposed into Irish law in 1998 by the European Communities (Hygiene of Foodstuffs) Regulations, 2000 (S.I. No. 165 of 2000), which was recently revoked by the European Communities (Hygiene of Foodstuffs) Regulations, 2006 (S.I. No. 369 of 2006).

In March 2002, the FSAI and the ten Health Service Executive (HSE) areas (formerly Health Boards) launched a national HACCP Strategy to systematically address the low level of compliance with the HACCP requirement. In order to focus limited resources, the Strategy was implemented by targeting specific food business types/groups over a set time period based on the potential risk posed by the specific group and other legitimate factors. During 2003, three different food service type businesses were targeted and in 2004 the focus moved to the retail sector, targeting a group termed 'high risk butchers'. This consisted of butcher shops selling ready-to-eat food in addition to raw meat and supermarkets containing butcher's counters where the possibility for cross contamination between raw meats and ready-to-eat foods existed.

In the UK several *E. coli* O157 outbreaks have been linked to butcher shops selling ready-to-eat food, most notably the outbreak in central Scotland in 1996 which involved over 500 cases and was reported to have directly led to the deaths of 17 people. While as recently as this summer, evidence has suggested a link between an outbreak of *E. coli* O157, involving 25 people, and cooked meat bought from a butcher shop in Leeds. In Ireland, butcher shops and butcher's counters have not been reported to be associated with foodborne outbreaks. However, the risk of cross contamination between raw meat and ready-to-eat food is such that good hygiene practice and the application of the HACCP principles are essential in establishments selling these products.

Targeted Approach

The targeted approach involved a baseline assessment of compliance levels in 961 premises. This was followed by a target period of 14 months (i.e. August 2004 to end September 2005) during which environmental health officers (EHOs) visited premises and reminded butcher shops and supermarkets of their legal requirement. A simple guide to HACCP for butchers (*HACCP: Butcher Shops/Meat Counters*) which was developed by the FSAI with the assistance of the Associated Craft Butchers of Ireland (ACBI) was distributed. In addition, towards the end of the target period a nationwide radio advertisement campaign was conducted to support the message being delivered by the EHOs on the ground. At the end of the target period a final assessment was conducted to establish the effect on HACCP compliance. The final assessment was of a smaller number of premises (n=862) due to businesses either ceasing sale of ready-to-eat foods, therefore no longer falling within the scope of the target group, or going out of business.

Assessment of HACCP Compliance

HACCP compliance assessment was based on FSAI Guidance Note No. 11: *Assessment of compliance with the HACCP based element (Regulation 4.2) of the European Communities (Hygiene of Foodstuffs) Regulations, 2000 (S.I. No. 165 of 2000)* and involved examining the three major elements of a HACCP system: a) hazard analysis; b) controlling critical control points (CCPs); and c) verification. The level of compliance was divided into three categories, namely: (i) premises with no evidence of compliance; (ii) those that had commenced compliance; and (iii) those that were compliant. The 'commenced compliance' category was used to acknowledge the fact that a HACCP system is often developed and implemented in a staged manner.

The baseline assessment revealed that the majority of premises were in the 'commenced compliance' category for each of the three elements of HACCP - hazard analysis (56%); controlling CCPs (60%); and verification (45%) (Figure 1). The element for which the greatest number of premises

were classified as 'compliant' was controlling CCPs (28% of premises), with 25% compliant for hazard analysis and just 19% compliant in the verification element. This pattern was mirrored in the numbers of premises displaying no evidence of compliance where the lowest percentage (13%) was recorded for controlling CCPs, followed by 20% for hazard analysis and the highest (36%) for no evidence of verification.

In the final assessment the number of premises in both the 'commenced compliance' and 'no evidence of compliance' categories for each of the three HACCP elements had decreased, reflecting an increase in those in the 'compliant' category. This increase was double the number in this category in the baseline assessment.

At the end of the target period just 4% showed no evidence of compliance for controlling CCPs; 8% for hazard analysis and 19% for verification. The poor level of compliance with verification is thought to be due to a lack of understanding of what verification involves.

Barriers to Compliance

Both the baseline and final assessments revealed that lack of in-house HACCP skills was the principal barrier to HACCP compliance (Figure 2). The flexibility introduced by the new hygiene legislation which came into force on 1st January 2006 (i.e. Regulation (EC) No. 853/2004 on the hygiene of foodstuffs) may help to alleviate this situation. Article 5 of the Regulation requires food businesses to put in place procedures based on the HACCP principles. However, it allows for businesses to follow sector specific guides to good practice in which the principles of HACCP have been applied. In Ireland, the National Standards Authority of Ireland (NSAI) developed a standard for retailers (Irish Standard 341:1998 Hygiene in Food Retailing and Wholesaling) which was recognised as a guide to good practice under the old hygiene legislation. This standard is currently being revised to ensure that its guidance covers all the requirements of the new Regulation. The scope of this standard however, covers all types of retail businesses. Therefore the revision is unlikely to have detailed guidance specifically for

Shops/Meat Counters

Use in haccp compliance

butchers and consequently there may be a need for a specific standard/guide to good practice for butchers. Additionally, guides not submitted for formal approval (e.g. the FSAI guide, *HACCP: Butcher Shops/Meat Counters*) or guides developed by trade associations such as the ACBI, have a role to play in assisting butchers to better understand HACCP. Finally as a consequence of the new Regulation, the FSAI is currently revising Guidance Note No. 11 on HACCP compliance, in which greater clarity will be given to the verification element of HACCP.

Conclusion

The targeted HACCP campaign on this the 4th target group under the FSAI / HSE HACCP Strategy has been another success. The butcher shops and supermarket butcher's counters targeted have responded with a very significant increase in compliance. The small number of premises with no evidence of compliance will face action and those in the 'commenced compliance' category will be encouraged to fully develop their HACCP systems, whether through the application of the HACCP principles themselves or through the adoption and implementation of a guide to good practice in which the HACCP principles have already been applied. The full report can be viewed on our website at: http://www.fsai.ie/industry/haccp/survey_HACCP_july2006.pdf

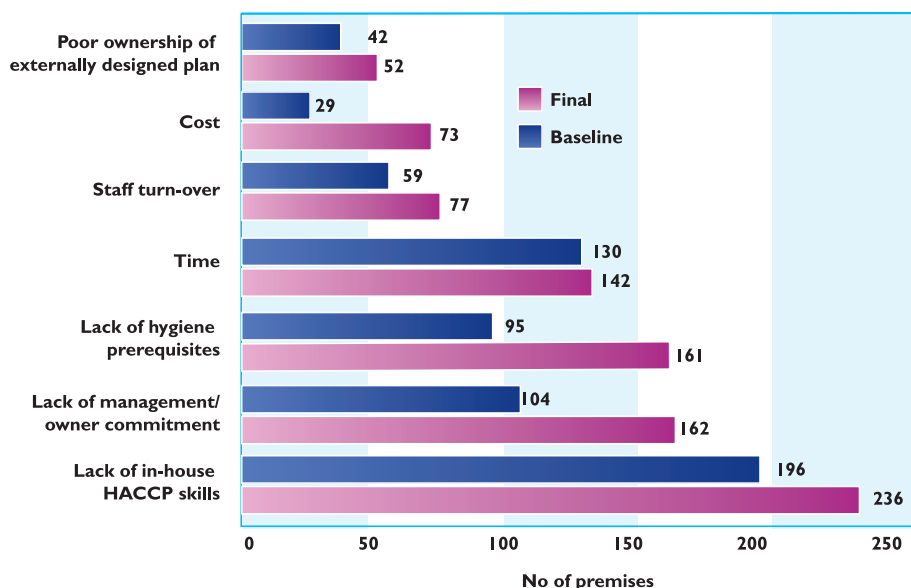
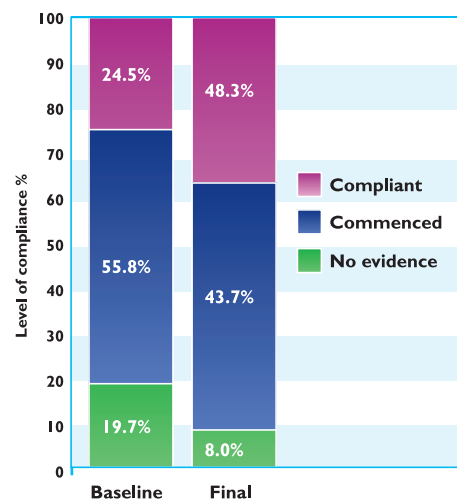


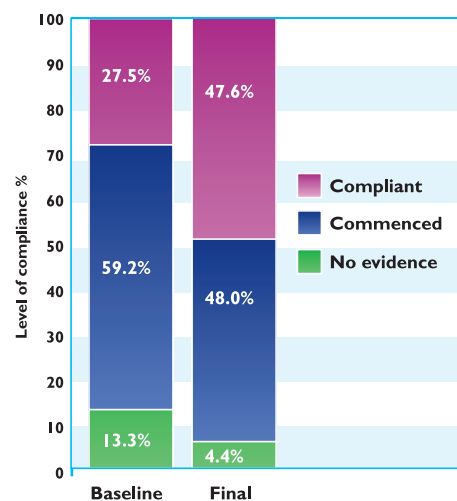
Figure 2: Comparison of barriers identified in the baseline and final assessments

Further information:

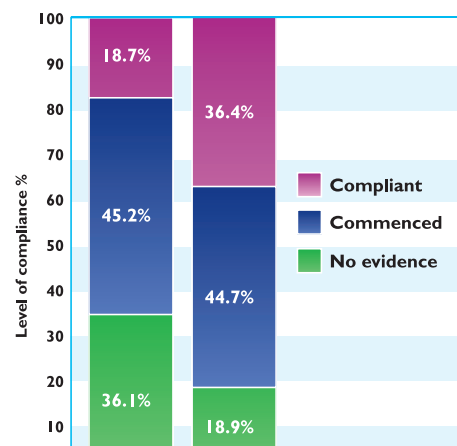
1. A Strategy to Facilitate an Increase in the Adoption of Food Safety Management Systems Based on the Principles of HACCP within the Irish Food Industry. (FSAI, 2002) http://www.fsai.ie/industry/haccp/industry_haccp_strategy.asp
2. HACCP: Butcher Shops/Meat Counters. (FSAI, 2004) http://www.fsai.ie/publications/haccp/HACCP_BUTCHER.pdf
3. Guidance Note No 11: Assessment of compliance with the HACCP based element (Regulation 4.2) of the European Communities (Hygiene of Foodstuffs) Regulations, 2000 (S.I. No. 165 of 2000) (Revision 1) (FSAI, 2004) http://www.fsai.ie/publications/guidance_notes/gn11_revision.pdf
4. Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs. OJ No L 226, 25.6.2004, p. 3 (European Parliament and Council (2004))
5. Irish Standard 341:1998 Hygiene in Food Retailing and Wholesaling. (NSAI, 1998)



I(a) Hazard Analysis



I(b) Controlling CCPs



I(c) Verification

Figure I(a)-(c): Comparison of baseline and final assessments by (a) hazard analysis; (b) controlling CCPs; and (c) verification

national microbiological surveillance: bacteriological safety and quality of cheeses m

Background

Cheese production evolved centuries ago as a means of preserving raw milk. Over the years this process has been refined and cheese has now developed into a food with epicurean qualities.

Pasteurisation of milk is one of the main critical control points (CCPs) in the cheese production process, i.e. it ensures the destruction of vegetative pathogens which may be present in the raw milk. Other control steps include low pH (high acidity) and competition from starter cultures. In general, cheeses have a good record in terms of microbiological safety; however, they have been implicated as vehicles in the transmission of foodborne outbreaks. The majority of outbreaks reported are associated with the consumption of cheeses made from unpasteurised (i.e. raw/thermised) or improperly pasteurised milk. In addition, post process contamination can also occur.

Aim

This survey was carried out as part of the EU Coordinated Programme for the Official Control of Foodstuffs, 2005 (outlined in Commission Recommendation 2005/175/EC). The aim of this study was to collate information on the prevalence of pathogenic and indicator organisms in cheeses made from pasteurised milk.

Methodology

Samples were obtained at both processing and retail level. Batch samples (each batch sample consisted of five individual samples) were obtained from processing premises by dairy produce inspectors (DPIs) while single samples were obtained from retail premises by environmental health officers (EHOs). The samples were analysed in one of the seven Official Food Microbiology Laboratories (OFMLs) using approved/standard methods. The samples were analysed for the following parameters:

1. *Salmonella* spp.
2. *Listeria monocytogenes*
3. *Staphylococcus aureus*
4. *Escherichia coli*

The microbiological status of the samples was determined using the microbiological criteria outlined by the EC in Commission Recommendation 2005/175/EC*

Additional information about the sample was recorded on a questionnaire by the sampling officer (DPI/EHO) at the time of sampling.

Results

Samples from processing premises

Fifty four batch samples were obtained from processing premises. The majority (44.44%) of batch samples were fresh cheese, while 25.93% were ripened soft cheese and 29.63% were semi-hard cheese. All batch samples were classified as satisfactory for *Salmonella* spp., *S. aureus* and *L. monocytogenes*; while two batch samples (3.7%; 2/54) were classified as unsatisfactory for *E. coli* (Table 1). The two unsatisfactory batch samples (ripened soft cheese) were from different production batches of the same product. Based on these results, improvements in production and process hygiene control were undertaken in the processing plant.

Samples from retail premises

A total of 890 single samples from retail premises were analysed for one or more microbiological parameters. All samples were classified as satisfactory for *Salmonella* spp. (n=890). Three samples (3/884, 0.34%) were classified as unsatisfactory for *S. aureus*, one sample (1/880, 0.11%) was classified as unsatisfactory for *L. monocytogenes* and three samples (3/876, 0.34%) were classified as unsatisfactory for *E. coli* (Table 2). No sample was classified as unsatisfactory for more than one microbiological parameter. The classification of one sample as unsatisfactory for *L. monocytogenes* resulted in the recall of the incriminated production batch from the market.

Questionnaires were returned for 592 of the 890 samples (i.e. a response rate of 66.5%). Information on 1) sample source, 2) type of sample, 3) type of packaging, 4) country of origin and 5) storage conditions, were captured on the questionnaire. These data revealed that 86.32% of samples were sourced in supermarkets, 44.59% were ripened soft cheese, 85.81% were pre-packed, 53.72% were imported and 93.92% were stored under refrigerated conditions.

Sample temperatures were recorded for 496 of the 556 samples which were stored under refrigerated conditions. Of particular concern was the finding that temperatures >5°C were recorded for 26% (129/496) of samples stored under refrigerated conditions (refrigerated food should be maintained at ≤5°C). This finding raises concern, as maintenance of the chill chain is a critical control point in ensuring the microbiological safety of these products. It is also a legal requirement.

Conclusions

This study found that *E. coli* and two pathogens (*S. aureus* and *L. monocytogenes*) were detected at unsatisfactory levels in a small number of pasteurised cheese samples. Although the incidence of unsatisfactory results was low, the finding nonetheless raises concern as:

- epidemiological studies have shown that cheeses made from pasteurised milk have been implicated in outbreaks of food poisoning
- the infective dose of many pathogens is quite low (e.g. *L. monocytogenes*).

Although this study did not determine where the contamination occurred, it is important to point out that control strategies must be implemented at all stages throughout the food chain. Strategies include good hygiene practices, good manufacturing practices and good process control including good temperature control during product storage. All food businesses should implement a food safety management system based on the principles of HACCP. These strategies should be incorporated into this plan.

The report of this survey and other national microbiological surveys are available on our website at: www.fsai.ie/surveillance/index.asp#food

* According to Commission Recommendation 2005/175/EC, batch samples (each batch comprising of five individual samples) should have been obtained at both processing and retail level. In Ireland batch sampling at retail level was deemed impractical; therefore, single samples were obtained and the criteria outlined in Commission Recommendation 2005/175/EC were amended accordingly. Details are outlined in the survey report available on our website: www.fsai.ie/surveillance/food/cheeses_bacteriological_05.pdf

ade from pasteurised milk

Table 1: Microbiological status of pasteurised cheese samples from processing premises

		No. (%) of batch samples with the following microbiological status*		
Microorganism	No. of batch samples	Satisfactory	Acceptable	Unsatisfactory
<i>Salmonella</i> spp.	54	54 (100)	N/A	0
<i>S. aureus</i>	54	54 (100)	0	0
<i>L. monocytogenes</i>	54	54 (100)	0	0
<i>E. coli</i>	54	52 (96.3)	0	2 (3.7)

Table 2: Microbiological status of pasteurised cheese samples from retail premises

		No. (%) of single samples with the following microbiological status*		
Microbiological parameter	Total no. of single samples tested	Satisfactory (%)	Acceptable ^[1] (%)	Unsatisfactory ^[2] (%)
<i>Salmonella</i> spp.	890	890 (100)	N/A	0 (0)
<i>S. aureus</i>	884	877 (99.21)	4 (0.45)	3 (0.34)
<i>L. monocytogenes</i>	880	870 (98.86)	9 (1.02)	1 (0.11)
<i>E. coli</i>	876	868 (99.09)	5 (0.57)	3 (0.34)

[1] No sample was acceptable for more than one microbiological parameter.

[2] No sample was unsatisfactory for more than one microbiological parameter.

* Details of the criteria used to determine the microbiological status of the samples are outlined in the survey report: www.fsai.ie/surveillance/food/cheeses_bacteriological_05.pdf



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

S.I. No. 250 of 2006

European Communities
(Animal By-products)
(Amendment) Regulations, 2006

S.I. No. 268 of 2006

European Communities
(Quality of Shellfish Waters)
Regulations, 2006

S.I. No. 192 of 2006

European Communities
(Pesticide Residues)
(Fruit and Vegetables) (Amendment)
Regulations, 2006

S.I. No. 275 of 2006

European Communities
(Avian Influenza) (Amendment of
Regulations) Regulations, 2006

S.I. No. 258 of 2006

European Communities
(Safeguard Decisions)
(Miscellaneous Revocations)
Regulations, 2006

S.I. No. 259 of 2006

European Communities
(Pesticide Residues)
(Foodstuffs of Animal Origin)
(Amendment) (No. 2)
Regulations, 2006

S.I. No. 260 of 2006

European Communities (Pesticide
Residues) (Cereals) (Amendment)
(No. 2) Regulations, 2006

S.I. No. 266 of 2006

European Communities (Pesticide
Residues) (Products of Plant Origin
including Fruit and Vegetables)
(Amendment) (No. 2) Regulations,
2006

S.I. No. 307 of 2006

Health (Country of Origin of Beef)
Regulations, 2006

S.I. No. 335 of 2006

European Communities
(Hygiene of Fishery Products
and Fish Feed) Regulations, 2006

S.I. No. 320 of 2006

Food Safety Authority of Ireland Act,
1998 (Amendment of First and
Second Schedules) Order, 2006

S.I. No. 369 of 2006

European Communities (Hygiene of
Foodstuffs) Regulations, 2006

S.I. No. 376 of 2006

Sea-Fisheries Protection Authority
(Establishment Day) Order, 2006

S.I. No. 412 of 2006

European Communities (Sampling
Methods and Methods of Analysis for
the Official Control of the Levels of
Certain Contaminants in Foodstuffs)
(No. 2) Regulations, 2006



national microbiological surveillance

programmes 2006: update

Sampling for the first National Microbiological Surveillance programme of 2006, 'Microbiological safety and quality of raw mushrooms', took place during January, February and March. A preliminary analysis of the data indicates that all samples were satisfactory for *Salmonella* spp., *Escherichia coli* and *Listeria monocytogenes*. 99.2% (721/727) of samples were satisfactory for *Staphylococcus aureus* with the remainder of samples classified as "acceptable" (0.5%, (4/727)) and "unsatisfactory" (0.3%, (2/727)) for this pathogen. A draft report on this surveillance programme will be available in September.

Sampling for the second National Microbiological Surveillance programme of 2006, 'The microbiological safety of dried infant formulae

and dried dietary foods for special medical purposes intended for infants below six months of age' concluded in June. Samples were tested for *Salmonella* spp. and *Enterobacter sakazakii*. The final date for the submission of data was 11th August. It is expected that preliminary data for this surveillance programme will be available at the end of September.

Sampling is currently underway on the final surveillance programme of this year, 'Examination of the microbiological status of food preparation surfaces'. Samples will be tested for Aerobic Colony Count and *Escherichia coli*. This six month programme will conclude in December and preliminary data will be available in March 2007.

agriculture and food show, 2006

The FSAI participated at the Teagasc 'Agriculture and Food Show, 2006', at Kildalton Agricultural College, Co. Kilkenny on 21st June last. This was the first time that the event took place, the focus of which was to provide advice and guidance to farmers and rural dwellers on a range of key farming issues. The major farm enterprises such as dairy, beef and sheep farming, and tillage were featured at the event.

The theme of the FSAI information stand was 'Clean Livestock - Your Contribution to Clean Food'. This was complemented by a new leaflet with management tips on how to keep animals clean. Many potentially harmful organisms are present in the gut and faeces, and on the hides of healthy cattle, sheep and goats. These organisms include, among others, *E. coli*, salmonella and *Campylobacter*, which are responsible for foodborne illness in humans. However, healthy animals carrying these organisms may show no symptoms, therefore it is not possible to distinguish carrier animals from non-carrier animals by visual inspection alone. The leaflet sets out reasonable efforts that farmers should take to ensure that the animals they supply for slaughter or present for milking are as clean and dry as possible. Experts from the FSAI were on hand to discuss these and other issues and many focused discussions ensued with farmers throughout the day.

health (country of origin of beef) regulations, 2006

The Health (Country of Origin of Beef) Regulations, 2006 (S.I. No. 307 of 2006) came into force on 3rd July and are intended primarily for the catering and food service sector. The Regulations mean that restaurants and other catering establishments must communicate to the consumer, information on the country of origin of beef.

Consumers should now be able to see a statement on the country of origin in all premises selling prepared beef products. It is in the interests of consumers, whether purchasing beef over the counter or choosing beef in restaurants and catering establishments, to be given information on the origin of the product.

The way this information is displayed is up to the individual business e.g. it could be on a blackboard, a whiteboard, a printed sign or on the menu. Whatever method is used the information should be visible and legible. If the animal originates in several countries by virtue of birth, rearing and slaughtering then this should be displayed. For example, an animal born in Brazil, reared in France and slaughtered in Ireland could read - 'Beef Country of Origin - Brazil, Ireland, France'. The information should be kept simple.

The FSAI priority is to ensure all businesses are aware of their obligations and are taking steps to communicate the country of

origin of beef to customers. New traceability Regulations which came into force in 2005 already make it mandatory for food businesses to maintain records of foods handled and this requirement should make compliance with the new Regulations easier. Whilst the Regulations have already come into force, food businesses may need to make adjustments to comply in full, as they may choose to reprint menus, install signs or blackboards etc.

The FSAI will be working closely with food businesses and the food inspectorate to ensure the Regulations are implemented and complied with as quickly as possible.



Pictured at the launch of the Health (Country of Origin of Beef) Regulations, 2006 were Dr John O'Brien, CEO, FSAI with Minister for Agriculture and Food, Mary Coughlan T.D.

joint fsai / iuna seminar on food consumption databases

The FSAI recently hosted a seminar, in conjunction with the Irish Universities Nutrition Alliance (IUNA), on food consumption databases. The seminar focused on the various tasks in which IUNA is involved currently and facilitated discussions with stakeholders and potential end-users of the research. Highlights from the seminar included an overview of the new Irish national food ingredient database (INFID2) and the application of the national food consumption database for pesticide and food chemical exposure.

The Irish food industry has, in the past, co-operated with IUNA in the construction of the original national food ingredient database of food consumption of Irish adults aged 16-64. This was the basis of the last estimate of food additive exposure in Ireland. Without these data, assumptions are made that if a compound can be legally present in a food, it will always be present. Since this is rarely the case, it leads to over-estimation of exposure to food additives, pesticides and other chemicals in food.

IUNA has since carried out a survey of food consumption by Irish children aged 5-12 and will shortly commence a survey of the

consumption patterns of Irish teenagers. The INFID2 will be updated based on actual brands used in the IUNA national survey on Irish teenagers and where possible the existing IUNA database of food consumption of Irish children. This part of the research will also include information on packaging ingredients which have been collected from surveys of teenagers and children to calculate the packaging material and packaging migratory chemical exposure. Ireland will be the only EU country to have packaging usage data linked to food consumption data as a result.

IUNA is also carrying out a study to examine foods in the context of meals, and meals in the context of diets, by collaborating with experts in the field of data mining. It will utilise the various software packages and statistical methods that are available and will tailor them specifically to meet its needs. In addition, the teenagers and the childrens databases will be used to examine the familial, attitudinal, psychological and lifestyle factors which influence eating behavior, and the relationship of eating patterns with dietary quality with respect to dietary fat, fibre, carbohydrates, salt and key micronutrients.

Once the teenagers survey is completed, these data will provide the food industry and authorities with information on the diets of children and teenagers, particularly with regard to the amount of additives consumed, the nutritional quality of their diets and the risks associated with chemical migration from packaging to food. The data from the survey are currently being used together with crop conversion factors to create a crop consumption database. This will provide the end-user with the necessary tools to calculate risk assessments and exposure of children to pesticides from particular food commodities. This has been done previously for the database on adults.

It is anticipated that the output of all this research will provide new scientific information that will be of value to the Irish food industry in order to support innovation, new product development and product promotion. This research will also benefit the Irish and EU agencies involved in the development and implementation of nutrition policy and dietary guidelines, as well as assisting these authorities in ensuring the safety of food.

open consultation

There is currently one open consultation on our website:

European Commission Discussion Paper on the Setting of Maximum and Minimum Amounts for Vitamins and Minerals in Foodstuffs

The EU Commission's Directorate General for Health and Consumer Protection has launched a discussion paper to identify the issues around the setting of maximum and minimum amounts of vitamins and minerals in food supplements.

The adoption of *Directive 2002/46/EC on food supplements* provides for the setting of maximum and minimum amounts of vitamins and minerals in these products via the Standing Committee procedure. Similar

provisions are contained in the proposal for a *Regulation on the Addition of Vitamins and Minerals and of Certain Other Substances to Foods* which is expected to be adopted by the EU Commission by the end of 2006. The EU discussion paper identifies the issues to be considered in the setting of maximum and minimum amounts of vitamins and minerals in such foods and addresses specific questions on the following:

- Establishment of maximum amounts for food supplements and other foods
- Intake of vitamins and minerals from dietary sources
- Reference intakes of vitamins and minerals
- Minimum amounts.

Both an information note and the EU discussion paper are available on the consultations section of our website at: www.fsai.ie/consultations

The FSAI welcomes your comments with regard to the EU discussion paper and in particular in relation to the questions highlighted in the paper.

Comments and views on this consultation should be submitted by 5pm on Friday 8th September as follows - email: consultation@fsai.ie; fax: +353 1 8171301; or post: Consultations, Food Safety Authority of Ireland, Abbey Court, Lower Abbey Street, Dublin 1.

visitors from sweden

The FSAI recently hosted a delegation from the Swedish National Food Administration. One of the main topics discussed during the Swedish visit was folic acid food fortification as Sweden is currently in the process of looking at options for the fortification of food with folic acid.



Pictured are (l-r): Dr Leif Busk, Director of Research and Development, Swedish National Food Administration; Mr Alan Reilly, Deputy Chief Executive, FSAI; Ms Hanna Sara Strandler, Chemistry Division, Swedish National Food Administration; Dr Mary Flynn, Chief Specialist in Public Health Nutrition, FSAI; Dr Christopher Laffey, Executive Analytical Chemist, Public Analyst Laboratory, Galway.



mailing list

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fsai highly commended for excellence in public relations

The 2006 Awards for Excellence in Public Relations, jointly hosted by the Public Relations Consultants Association (Ireland), the Public Relations Institute of Ireland, and the Chartered Institute of Public Relations (N. Ireland Region) were held in Dublin in June, officiated by An Taoiseach, Mr Bertie Ahern.

The FSAI folic acid campaign was awarded highly commended at the award ceremony. The award was in the 'Public Information Campaign' category. This was the second year running that the FSAI, together with its PR Consultancy, Weber Shandwick FCC, was honoured by the public relations community for excellence in communication.

recent publications

The following publications have recently been produced by the FSAI:

- Report of the National Committee on Folic Acid Food Fortification
- Food Safety Authority of Ireland Annual Report, 2004

These publications are available on our website at www.fsai.ie/publications.

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