Western Health Board

Bord Sláinte an Iarthair

Western Region Public Analyst's Laboratory

Saotharlann an Anailisí Phoiblí

Annual Report 2003
Tuarascáil bhliantúil 2003

WESTERN HEALTH BOARD

BORD SLÁINTE AN IARTHAIR

Saotharlann an Anailisí Phoiblí

Western Region Public Analyst's Laboratory

Seamus Quirke Road, University College Hospital, Galway

Tuarascáil bhliantúil 2003

Annual Report 2003

FOR YEAR ENDED 31st DECEMBER, 2003

RÉAMHFHOCAL.

Tá an saotharlann seo í bhféidhim ó 1960 agus tá an-chuid aithrithe i stair an aonad tar éis a tharlú ó shin. Bhí ceathrar sa bhfoireann ins an chéad bhliain agus anois tá daichead a dó daoine ag obair ins an saotharlann nua a osclaíodh i 1997.

Sa bhliain 1971 cuireadh ná Boird Sláinte ar bonn agus anois tá a réim thart ó mí Meitheamh, agus tá scéim nua le tarlú i mí Eanáir 2005 nuair a thagann an Seirbhís Feidhmiúcháin Sláinte isteach.

Cuireann muid fáilte roimh an scéim seo agus tá príomhoifigeach feidhmiúcháin tar éis a cheapadh, is é Aideán O'Halleagáin a bheidh mar ceannaire ar an gcóras nua.

Is é gnó Shaotharlann an Anailisí Phoiblí ná anailís a dhéanamh ar earraí bia chun aimsiú,

A: an réitíonn siad le dlíthe an Chomhphobal Eoraipeach agus an Stát seo,

B: go bhfuil siad folláin agus slán le n-ithe,

C: agus nach bhfuil aon cheimicí truaillithe iontú.

Déantar scrudú ar fhoinsí uisce phoiblí, uiscí shnámha, uiscí tionscail agus uisce ó thobair phriobháideacha le h-aghaidh na hUdaráis Phoiblí, ná Boird Sláinte agus don phobail.

Tá conradh againn le Bord Leigheas na hÉireann chun anailís a dheanamh ar earraí leigheas agus malart leigheas atá á dhíol don phobal.

Cuireann an Saotharlann seirbhís ar fáil do Comhairle Cathrach na Gaillimhe chun an t-aer a mhonatóir le h-aghaidh mion-chemicí truaillithe í dtrí stáisiun ar fud na cathrach.

Is é Bord Sláinte an Iarthair a riarainn an Saotharlann seo, ach tá tionchar réigiúnach againn a shíonann ó Dún na nGall go Luimneach, limistéar trí Bord Sláinte ar fad, sé sin Bord Sláinte an Iarthair, an Mhéan-Iarthair agus an Iarthuaisceart.

Ta Plean Athbhreithniú Straitéiseach tar éis a bheith foilsithe ag an Roinn Sláinte agus Leannaí í mi Iúil 2004 agus tá 16 moltaí ins an bplean sin a leagann amach an saol atá romhainn.

Tá an Seirbhís ar fad ag siúl go gcuirfear an plean seo í bhfhéidim gan mhoill chun na saotharlainn a chur chun cinn agus an obair a fhairsingiú ins an dtreo ceart.

Moladh amháin atá san bplean ná na seirbhisí ceimiceach agus micro - bhitheolaíocht a nascadh le chéile ar fud na tíre, mar go dtí an lá atá inniú ann tá stair neamhspleách ag na saotharlainn seo ó bunaíodh iad.

Is i mBaile Átha Cliath amháin a chuirtear seirbhís iomlán ar fáil, ach níl anseo ach aon moladh amháin gur gá don Roinn Sláinte scrudú a dhéanamh ar i measc an phlean iomlán.

Cuireann muid fáilte roimh an plean seo agus chuir an coiste gnó an-obair isteach i rith na blianta 2003 – 04 faoi cathaoirleach, an Dr. Máire Ní Mhathúna, chun na moltaí atá foilsithe a chur le chéile.

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1. INTRODUCTION:

1.1 Scope of Laboratory.

The Public Analyst's Laboratory in Galway provides a Chemical Analytical service, in the testing of food, water and pharmaceuticals, to three Health Boards:

(a) The Western Health Board;

(b) The North-Western Health Board;

(c) The Mid-Western Health Board.

The laboratory also has a contract with the Irish Medicines Board to analyse pharmaceutical products, and a Service Agreement with the Food Safety Authority of Ireland to analyse foods manufactured, distributed or imported into the country.

Air Quality is monitored for Galway City Council and the Department of the Environment. A Toxicology Service is provided for Health Board Pathologists, Veterinary Inspectors and the general public.

1.2 Administration.

The laboratory is administered by the Western Health Board and is given a budget each year to cover its running costs. Special allocations may be added to cover new appointments to staff, special projects or new equipment.

The laboratory has four divisions:

(a) Food;

(b) Water/Environmental;

(c) Drugs/Toxicology;

(d) General/Administration.

1.3 Workload.

The numbers of samples tested during 2003 are as follows:

Foods	3,539
Waters	8,517
Pharmaceuticals/Toxicology	272
Air Monitoring	1,037
Miscellaneous	32
Total	**13,397**

2 FOOD:

2.1 Strategic Review of Health Board Food Control Laboratories.

In late 2002 the Department of Health and Children commissioned a Strategic Developmental Review of Health Board Food Control Laboratories, i.e. 7 Official Food Microbiology and 3 Public Analysts' Laboratories. The food laboratory service had been given considerable increased resourcing during the 1990s. New food control bodies, - e.g. FSAI (see 2.2 below), FSPB (see 2.3 below) and the EU/FVO (European Union Food and Veterinary Office), have begun to scrutinise the national food safety services, including the Laboratory Service. Also, new EU legislation, in particular new EU Food and Feed Regulations, places special emphasis on assessing and auditing the efficiency of National Food Control Programmes, including food surveillance. A stated aim of the Strategic Review is to strengthen the Food laboratory service in preparation for future needs.

Safefood (FSPB) acted as secretariat to the Review. The Review's terms of reference included: the laboratories' legislative functions/responsibilities; specialisations; accreditation; research; staff training; survey work; resources; food safety agency needs etc. The review operated through its Strategy Review Group and three sub-committees (Microbiology, Chemistry and Organisational), which included representation from the laboratories, FSAI, FSPB, the Department of Health and Children, Health Board administration and Public Health departments. Mechanisms used in the Review include a detailed fact-finding survey of laboratories, invited written submissions from stakeholders, a one-day forum for laboratory staff, and visits to laboratories, including overseas laboratories for comparison purposes.

The Review Group produced its Report* and its main Recommendations include:

- The ***unification of the service into*** an official, multi-sited ***Food Safety Laboratory Service (FSLS).***
- The establishment of a ***Food Safety Laboratory Advisory Committee (FSLAC),*** to advise on policy matters related to FSLS.....
- The ***overall co-ordination of FSLS by a senior scientific laboratory co-ordinator...***
- The need to ***review sampling issues....***
- The need to ***ring-fence the FSLS budget.....***
- The need to ***review laboratory accommodation....***including level-3 facilities
- That FSLS and stakeholders develop a ***structured strategic approach to operational planning.....***
- That FSLS develop ***Specialised testing capacities and applied research capabilities....***
- That ***National surveys be strengthened*** and that ***electronic data management systems*** be established.
- That FSLS develop a ***robust training framework*** and that ***staffing anomalies in the service as a whole be reviewed....***

Other recommendations deal with internal HSE protocols, consultation on legislation, accreditation, analytical parameter choice, rapid screening techniques, the export certification process, laboratory operational times and international laboratory cooperation.

**Strategic Developmental Review of Health Board Food Control Laboratories – Safefood 2004.*

We wish to commend the Review Group for its work and we look forward to cooperating with The Department of Health and Children in implementing the Recommendations contained in the Review Report

2.2 Service Contracts and FSAI.

The Food Safety Authority of Ireland (FSAI), the body empowered with overall responsibility for monitoring Food Control in Ireland, has quickly established itself at international level as a strong food safety organisation. The second Food Safety Contract between FSAI and the Western Health Board began in January 2003. The contract covers the food hygiene inspection/audit, hygiene education and sampling and analysis functions of Health Board Staff. The contracts are monitored at regular contract liaison meetings, and laboratory/scientific issues relevant to our work are dealt with at meetings between the Public Analysts' Group and FSAI. A particular area of concern is the optimisation and coordination of sampling aspects of the national monitoring programmes.

In the 3 Health Board areas (NWHB, WHB and MWHB) of the Western Region, official chemical and microbiological testing of foods is carried-out by the Public Analyst's Laboratory, Galway, and by the Official Food Microbiology laboratories (Sligo, Galway and Limerick) respectively. This report only deals with the chemical testing service.

Official food inspection and sampling services are provided in our region by the EHO service, who provide the majority of food samples mentioned in this report.

The annual Western Region Chemical Surveillance Programmes form a part of the contract between FSAI and the Western Health Board. This programme is one of three regional ones agreed between the FSAI, the Public Analysts' Laboratories and the EHO service. These three programmes have become more closely coordinated, with the aim of forming a National Chemical Food Surveillance Plan.

In general the Service Contracts with the FSAI are working well.

Besides the Health Boards, other Official Agencies have contracts with FSAI to enforce food safety legislation, particularly at 'production' level, and these include the Department of Agriculture and Food (meats, dairy, eggs, fruit and vegetables, cereals etc), the Department of Marine and Natural Resources (fish, shellfish etc) and Local Authorities (meats etc).

2.3 Safefood – The Food Safety Promotion Board (FSPB).

Established in 1999, Safefood's functions include the Promotion of Food Safety, the Surveillance of Foodborne Disease, Food Safety Research, Communication of Food Alerts, Scientific Cooperation/Laboratory Linkages, and Specialised Laboratory Services. Our interaction to date with Safefood has included: participation in a North-South Functional Group on Laboratory Linkages; assistance given in production of an Irish Directory of Official Food Control Laboratories; Safefood funding of laboratory training in gluten testing, and of an R & D project on Dioxin screening; attendance at Safefood laboratory seminars

including one on Internal Auditing; liaison etc on Strategic Review of Laboratory Services (see 2.1 above); attendance at various Safefood seminars.

Safefood is presenting new opportunities for the food laboratories through funding for training and R & D.

2.4 Food Testing (Chemical) Results for 2003.

2.4.1 Regional Chemical Programme – 2003.

The food testing performed in 2003 can be categorised into Programmed Surveillance (see Appendix 1) and Non-programmed Testing (Food Complaints (see 2.7), Food Export Certification and other private samples, Food Alerts (see 2.8), ad-hoc inspection samples, FSAI surveys and other testing requested by EHOs).

Some 2003 Ad-hoc surveys (non-programmed) include:

- National survey of bread for sodium and potassium (Na^+/K^+) (FSAI).
- National survey of breakfast cereals for Na^+/K^+ (ongoing) (FSAI).
- National survey of gluten in corn/maize products (FSAI).
- National survey of herbal supplements for irradiation – (FSAI).
- National survey of various processed foods for acrylamide (FSAI).
- National survey of various processed foods for 3-MCPD (FSAI).
- Survey of caseins for lead (Dept. of Agriculture and Food…).
- Survey of fish for Biogenic amines (Dept. of Marine….).
- Survey of port-level crustaceans for SO_2 (Industry).
- Testing of wild *vs* farmed salmon for Polyunsaturated Fatty Acids (PUFAs) (out-contracted) (FSAI).
- Regional survey of Curing Brines and Cured meats for Nitrite, Nitrate and Sodium (Local Authority Veterinarians).

The EHO service implemented the sampling for the 2003 programme effectively.

The choice of parameters and foods in the Regional Programme (Appendix 1) is based on: recent Irish and EU results' trends, including RASFF Food Alerts (see 2.8); 'gaps' in the service; existing legislation; new concerns/risks; regional food production.

All of the programmed surveys for 2003 were executed. The extensive range of testing provided, and the lab.'s accessibility for non-programmed testing, results in delay in reporting some of the routine, programmed samples.

Figure 1: Stage At Which Routine EHO Food Samples Were Taken in 2003

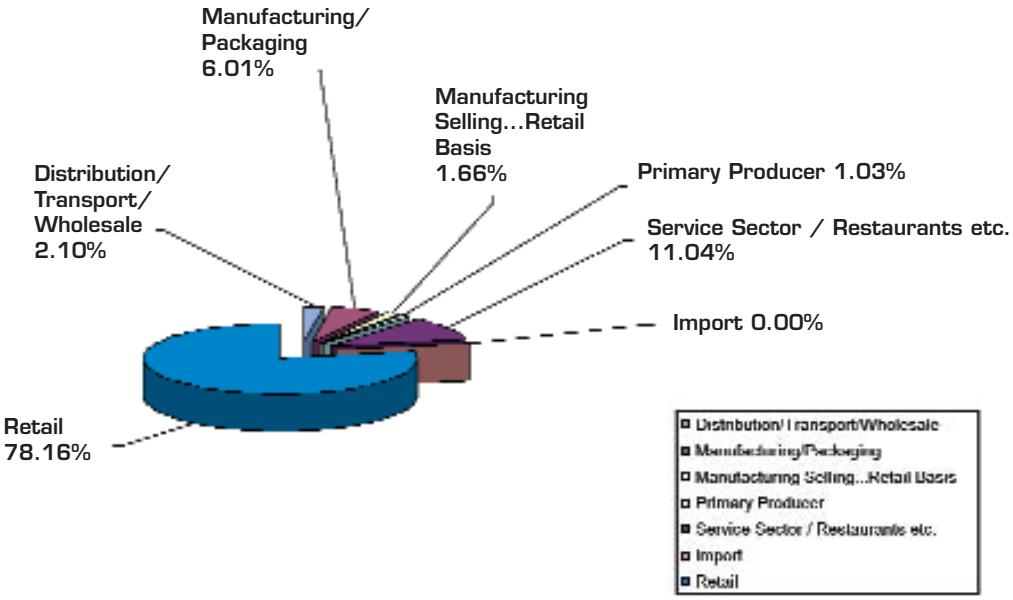


Figure 1 indicates the 'stage' at which Western Region EHO samples (excluding complaints) were taken in 2003. The high proportion (78%) of retail-level samples is apparent.

The European Commission Co-ordinated Programme for 2003 included:

1: Monitoring that olive oils are clearly and correctly labelled according to Community rules;

2: Assessing the safety of certain fishery products:

(i) Bacteriological safety of cooked crustaceans and molluscan shellfish,

(ii) Histamine levels in fish species of families Scombridae etc.

Within Ireland the testing elements of parts 1 and 2(i) of the EU Programme were carried out by the Cork Public Analyst's laboratory and by the Official Food Microbiology laboratories respectively. Part 2(ii) (Histamine in fish...) resulted in considerable testing in this laboratory in 2003 (see section 2.5.10 for details).

2.4.2 Statistics for 2003.

The geographical area covered by the laboratory has a population of approx. 940,000 (2002 Census) and the number of food samples tested per 1000 population was 3.8 in this annual period (2003).

A total of 3,539 samples of foodstuffs was tested in 2003; they consisted of 243 complaints (see 2.7) and 3,296 others. Of the 3,296 above, adverse reports (i.e. test results indicating breaches of Irish Food Law) were issued on 147 (4.5%); this figure of 4.5% compares to 5.1%, 4.2%, 5.1% and 5.7% for 2002, 2001, 2000 and 1999 respectively. The categories of foodstuffs and of infringement are summarised for both complaints and other samples in Appendices 2 (i) to 2 (iv).

Tables 1 and 2 summarise the work for 2003 according to the sampling region and source. Data on the test parameters and foodstuff types are given in more detail in sections 2.5 to 2.8.

TABLE 1 (2003)

Community Care Area, E.H.Os.	Number of Samples	Number per 1000 Population*
Galway	546	2.61
Mayo	352	3.00
Roscommon	214	3.98
Western Health Board	**1112**	
Clare	293	2.84
Limerick	428	3.27
North Tipperary	234	2.22
Mid-Western Health Board	**955**	
Donegal	407	2.96
Sligo/Leitrim	281	3.35
North Western Health Board	**688**	-
MISCELLANEOUS		
Food Safety Authority of Ireland	250	-
Dept. of Marine... S.F.O.s	126	-
Dept. of Agriculture & Food	46	-
Local Authority V.O.s	17	-
Export Certs. / General Public	235	-
Other Health Boards/ U.C.H.G.	20	-
Lab. Control and Development samples	90	-
OVERALL TOTAL	**3539**	-
**based on 2002 Census figures*		

TABLE 2 (2003)

Submitted by	No. of Samples	No. on which Adverse Reports were issued
ENVIRONMENTAL HEALTH OFFICERS (Western Region)		
Informal	2545	117
General Public (Complaints via EHOs).	210	128
GENERAL PUBLIC		
Complaints	33	23
Routine	92	8
Food Safety Authority of Ireland	250	8
Dept. of Marine.... Sea Fisheries Officers	126	0
Dept. of Agriculture and Food	46	3
Local Authority V.O.s	17	1
Export Certificates	110	0
Other Health Boards/ U.C.H.G.	20	1
Lab. Control and Development Samples	90	9
OVERALL TOTAL	**3539**	**298**

2.4.3 Summary of Overall Results and Food Quality.

A broad range of food types and tests were covered in 2003. All foodstuffs on the market must comply with Irish Food Law, and any food can be sampled and tested officially. We endeavour, through the Annual Regional Food Sampling Programmes, to cover the widest range of foods available to the consumer.

New testing introduced here in 2003 includes: Salt/Sodium in Breakfast cereals and Breads (see 2.6.1); Dioxin Screening of Oily Foods (see 2.5.2). Extensive testing for the carcinogen benzo-[a]pyrene (see 2.5.5) and for gluten in "Gluten-free" foods (see 2.6.2) was carried out in 2003. Other established surveillance (for mycotoxins, additives etc – see 2.5 and 2.6) was also continued.

There has been an increasingly diverse range of testing performed in the laboratory, over the last 10 years in particular. **The 2003 testing results generated in this laboratory, and those from previous years, indicate that the quality of food available to the Irish Consumer is generally high.** Whilst the testing has indicated various instances of chemical contamination, the current system of food surveillance in Ireland contributes to an overall high level of consumer protection.

Today, official advice is for consumers to benefit fully from the established protective and developmental benefits of food nutrients by consuming a balanced, varied diet, rich in cereals and fruit/vegetables etc. The high quality of available foods, indicated by Health Board and other Food Surveillance, supports such dietary advice.

Note: to obtain an overall picture of the safety and hygiene of our food supply, results related to microbiological quality, operational food hygiene, veterinary and other 'production-level' control, and other chemical surveillance must also be considered. The FSAI, through its Annual Reports and News Bulletins etc, provides a broad overview of Food Safety and Food Control activities in Ireland.

2.5 Food Contaminants - Natural and Man-made.

2.5.1 General.

There is currently an extensive list of chemical contaminants and residues which can potentially be present in food. It is generally difficult to quantify the risks to human health posed by long-term exposure to (low-levels of) such chemicals. Whilst some contaminants represent genuine food safety concerns, the nature and actual levels (in food) of others may move them closer to the "safety-quality interface". Even where contaminants/residues are unlikely to pose health risks, some surveillance is required to provide consumer assurance on food quality and to assist in community trade through monitoring for legislative compliance.

Today's Irish consumer has been informed of the essential nutritional and protective roles of foods, including e.g. fruit/vegetables, in human development and health. An essential role of food surveillance today is to identify and report on food contamination in an open and balanced manner, without overstating the significance or risks associated with the results; this appears particularly true today in view of the urgency of getting the population to consume a balanced, nutritious variety of foods.

Every year new contaminants emerge as potential risks to our health, e.g. recently both acrylamide (see 2.5.3) and furan have been detected in processed foods. Much research and testing is concentrated on 'new' contaminants. Often the data generated

serves as a basis for quantifying the risks and setting legislative limits (e.g. Azaspiracids in shellfish – 2000). Other times the concerns seem to dwindle and the issues fade with time (e.g. Phthalates in babyfoods?). Also, established concerns such as heavy metals in food appear to fluctuate in importance – e.g. there is increased recent concern about mercury in certain fish.

The laboratory endeavours to respond analytically to the changing risks (or perceived risks) identified from year to year by the food control authorities and agencies.

Notes: (i) data on microbiological contamination of food are to be found in the reports of the Official Food Microbiology Laboratories.
(ii) other Official Agencies also produce reports on contamination/residues in foods, particularly at 'production' level (see section 2.2).

2.5.2 Dioxin Screening of Foods.

Dioxins are considered as highly toxic organic chemicals, which may arise from incomplete combustion (burning) processes or from the industrial production of certain chlorinated organic chemicals. Although they have a very high profile as food and environmental contaminants, their real risk to human health is not accurately quantified. Two high-profile, recent 'incidents' relating to dioxins in food and feed include the Belgian dioxin crisis in early 2001, and the more recent (Jan 2004) large-scale U.S. study of Persistent Organic Pollutants, including Dioxins and Polychlorinated Biphenyls (PCBs) in wild and farmed salmon worldwide. The US-led study showed that European farmed salmon had higher dioxin levels than American farmed salmon and that farmed salmon is more contaminated than wild salmon. Different interpretation of the data led to the issuing of conflicting advice to consumers on the amount of farmed salmon which can safely be consumed per week (see FSAI News, Vol. 6, Issue 1 Jan/Feb 2004 – Food Safety Authority of Ireland – "The Health Effects of Farmed Salmon Consumption"). Food Safety Authority of Ireland (FSAI) and other EU advice, based on WHO guidelines, emphasise the highly nutritious aspects of salmon and other oily fish. These nutritional benefits (e.g. vitamins, antioxidants and polyunsaturated fatty acids) outweigh the risks due to dioxin contamination. A positive outcome of the US study is that efforts are now being made to reduce dioxin levels in the feed of farmed salmon.

Dioxins represent a contaminant group tested for and detected in Irish farmed salmon at extremely low levels (e.g. 1 nanogram Toxic Equivalents (TEQ)per kg, i.e. one part per thousand billion parts) compared to other contaminants. There is now a reassuring body of evidence that both foodstuffs' and human breast milk levels of dioxins have decreased several-fold over the last 10-20 years. Much international research is currently underway into quantifying the toxicity of dioxins, and into ways of further reducing their levels in foods.

Studies of dioxins levels in Irish foods include those organised by Cork County Council (Milk) and FSAI (Farmed and Wild Salmon, Farmed Trout; Eggs; Fish Oils/Supplements; Human Breast Milk). Testing was carried out by European laboratories and the results to date have indicated generally low levels of dioxins in Irish product compared to other EU states. Because of the parameter complexity (PCDDs, PCDFs and PCBs) and high costs of testing by GC-Mass Spectrometry (GC-MS), it was decided that one Irish laboratory, the State Laboratory, should become the official Irish expert centre for dioxin analysis. In the meantime a dioxin testing facility has been set up in University College Cork. The EU produced draft legislation in 2003 (now released as Comission Regulation 684/2004) setting limits for dioxins in various foods. The legislation allows for, in addition to the GC-

MS techniques, a biological screening assay (DR-CALUX) which is a cell-culture-based method used to measure 'dioxin toxicity' in foods. After successful application to Safefood (the Food Safety Promotion Board) for funding, the DR-CALUX method was introduced here in 2003 as an R & D project. The project had a North-South dimension with samples being taken in Northern Ireland and submitted to us via the Belfast Public Analyst.

37 Foods (meats, dairy product, fish oils, vegetable oils, eggs, oily fish etc) from the Western Region were submitted by the EHO service, Co. Roscommon. 45 Samples of various fresh and canned fish (salmon, mackerel, herring, trout, tuna, squid etc) were received from Northern Ireland. All 45 samples above were found to comply with the limits set in Regulation 684/2004, with results ranging from 0.3 to 3.5 TEQ (pg/g fat). For the 37 Western Region samples, results ranged from 0.1 to 3.1 TEQ (pg/g fat). Two samples giving elevated results in the DR-CALUX screening assay here were shown not to have excessive levels in high-resolution GC-MS confirmatory tests (out-contracted tests for Dioxins and Furans).

A report on the project is due to be completed in 2004 and sent to FSPB. We thank the Public Analyst's Laboratory, Belfast for valuable liaison during the project.

2.5.3 Acrylamide in Processed Foods.

In 2002 news came of the discovery by Swedish scientists of the presence of acrylamide, a genotoxic animal carcinogen, in a variety of processed foodstuffs, including potato chips and crisps, rye crispbreads etc. Although there has been considerable research interest in both the issues of assessing the true risk from dietary acrylamide, and in reducing the levels in foods, progress in these areas has not yet led to legislative limits.

Following introduction of acrylamide testing here in late 2002, 31 samples were tested in 2003. The samples consisted of breakfast cereals, crispbreads, biscuits, rye products, crisps, potato products etc. Results ranged from "not detected" to 2,300 µg/kg acrylamide. Only rye crispbreads, crisps and certain biscuits contained acrylamide over 500 µg/kg. The EU Comission (IRMM/JRC) has launched its acrylamide database, with over 3,000 results – see www.irmm.jrc.be/ffu/acrylamide.html. Irish results are fed into the database.

2.5.4 Mycotoxins (Fungal Toxins).

Mycotoxins are naturally occurring toxins of diverse toxicity sometimes found in foodstuffs as a result of contamination with moulds such as *Aspergillus and Penicillium* species. Mycotoxin testing of foodstuffs, including nuts, cereals and dried fruit, at EU border ports generates a significant number of EU Rapid Alert Notifications, e.g. 800 (35% of total) in 2003, concerned aflatoxins – see Section 2.8. Refusal of entry of contaminated product into the EU results in improved quality of market- level foods in member states. The import-level monitoring for mycotoxins has identified a number of

commodities and countries of origin most likely to be implicated. Market-level monitoring of foods for mycotoxins also takes place in addition to the import control. Concerns about mycotoxins in foods generally relate to long-term exposure, although shorter-term effects have also been documented.

TABLE 3: MYCOTOXINS – TESTING RESULTS FOR 2003

Toxin(s)	Foodstuff	Control Limit		No. of samples Tested	"Complying" Samples		"Non-complying" Samples i.e. Above Limit
		Limit	Basis		"Not detected	Detected but Below Limit	
Aflatoxins (B_1, B_2, G_1, G_2)	Nuts*	2 µg/kg (B_1) 4 µg/kg (total)	SI 400 of 2001	79	69[1]	8	2
	Peanut Butter	"	SI 400 of 2001	37	25[1]	12	0
	Figs	"	SI 400 of 2001	25	24[1]	0	1
	Marzipan, Satay Sauces etc	"	SI 400 of 2001	32	32[1]	0	0
	Spices	5 µg/kg(B_1) 10 µg/kg (Total)	Comm. Reg472/2002	36	25[2]	10	1
	Babyfood	0.1 µg/kg (B_1)	EU Proposal	41	41[1]	0	0
			Sub-total Aflatoxins	**250**	**216**	**30**	**4**
Ochratoxin A	Cereals and Cereal Products	5µg/kg and 3µg/kg	EU Commission Regulation 472/2002	21	20[3]	1	0
	Babyfoods	Proposed 0.5µg/kg	EU Proposals	34	34[3]	0	0
	Wines and Grape Juices	2 µg/kg	EU Proposals	28	20[4]	8	0
			Sub-total Ochratoxin A	**83**	**74**	**9**	**0**
Fumonisin B_1	Corn/Maize (& Products) & Breakfast Cereals	1 mg/kg 1 mg/kg 0.4 mg/kg 0.15 mg/kg	Swiss/FSAI Guide (see new EU proposals)[6]	86	79[5]	6	1
Patulin	Apple Tart Filling	25 µg/kg	Comm. Reg 1425/2003	4	4	0	0

*Consisting of Almonds (21), Peanuts (18), Pistachio Nuts (13), Hazelnuts (12), Brazil Nuts (12) and Walnuts (3).

[1]Not detected corresponds to less than 0.2 µgB_1/kg.

[2]Not detected corresponds to less than 0.5 µgB_1/kg.

[3]Not detected corresponds to less than 1 µg/kg

[4]Not detected corresponds to less than 0.1 µg/L

[5]Not detected corresponds to less than 0.13 – less than 0.5 mg/kg, depending on sample type.

[6]Proposed limits for fumonisins B_1 and B_2: Maize meals/grit etc: 1,000 µg/kg;
Maize.....:400 µg/kg;
Maize.....foods for infants: 150 µg/kg.

Table 3 summarises results of testing here in 2003.

250 samples were tested in 2003 for aflatoxins (see Table 3). Four samples had excessive aflatoxins, two pistachio nuts samples (aflatoxin B_1: 357 and 227 µg/kg), one figs sample (15µg B_1/kg) and one sample of chilli flakes (13 µg B_1/kg). The statutory limit for aflatoxin B_1 in nuts in 2 µg/kg.

Discussions are on-going at EU level to set lower limits for mycotoxins in babyfoods, including a proposed level of 0.1 µg/kg for aflatoxin B_1. Recent method development here has been carried out, enabling us to detect aflatoxins at these lower levels.

Of the 83 samples (see Table 3) tested for Ochratoxin A just nine had detectable toxin, with no sample exceeding its statutory limit. In a survey of red wine, 8 of the 28 samples tested contained Ochratoxin A (range: 0.1 – 0.5 µg/L, i.e. well below the EU proposed limit of 2µg/L). Of the 21 cereal samples tested, just 1 bran contained detectable Ochratoxin A (1.9 µg/kg). A legislative limit of 0.5 µg/kg is currently proposed by the EU for Ochratoxin A in babyfoods etc. A survey of 34 babyfoods here in 2003 showed no detectable (less than 1 µg/kg) Ochratoxin A.

86 samples of corn/maize and products were tested for the Fusarium toxin Fumonisin B_1. Food categories included corn on the cob, tortilla chips, popcorn, babyfoods, sweetcorn, maizemeals/flours, corn spaghetti, cornflakes, corn-based snacks etc. Of the 86 samples, 7 had detected fumonisin B_1, only one of which was deemed excessive, a maize meal at 2.35 mg/kg.

Table 4 below summarises results of exceedances for mycotoxins tested for in this laboratory in recent years.

Table 4: Summary of Recent Mycotoxin Surveillance (P.A. Lab, Galway).

Year(s)	Rate of Exceedances of Mycotoxins (in all foods tested).			
	Aflatoxins	**Ochratoxin A**	**Fumonisin B_1**	**Patulin**
1996 – 1999 incl.	5.4% (23 out of 427)	1.3% (2 out of 149)	0% (0 out of 41)	0% (0 out of 34)
2000	5.6% (11 out of 198)	0% (0 out of 152)	9.5% (2 out of 21)	0% (0 out of 52)
2001	4.7% (12 out of 254)	0.6% (1 out of 174)	0% (0 out of 121)	0% (0 out of 75)
2002	2.3% (3 out of 133)	3.4% (3 out of 88)	1.4% (1 out of 72)	0% (0 out of 27)
2003	1.6% (4 out of 250)	0% (0 out of 83)	1.2% (1 out of 86)	0% (0 out of 4)
Overall	**4.2% (53 out of 1262)**	**0.9% (6 out of 646)**	**1.2% (4 out of 341)**	**0% (0 out of 192)**

2.5.5 Benzo-[a]-pyrene in Fatty foods and Miscellaneous Products.

Benzo-[a]-pyrene is a carcinogenic, polycyclic aromatic hydrocarbon (PAH) found in smoke and occasionally in certain heat-treated foods. Testing for benzo-[a]-pyrene was introduced here, following the detection of considerable contamination of Spanish Olive Pomace Oils in 2001. Intensive testing of a diverse range of oils and fatty foods and some 'drinks' was carried out in 2003, - see Table 5 for summary of results.

The testing indicated that the vast majority of commodities were free of benzo-[a]-pyrene. Only 4 samples (Fish/Fish oils) of the 282 tested had excessive benzo-[a]-pyrene. The overall results are reassuring and they indicate that decreased and/or redirected surveillance can take place in 2004.

The % exceedance rate of 1.4% (4 out of 282) referred to above compares to 5.9% (9 out of 152) in 2002, and to 28% (28 out of 99) in 2001. The sampling ranged from "targeted" in 2001 to "random" in 2003.

Table 5 Summary of Benzo-[a]-pyrene testing in 2003

	Number of Samples		
Sample Categories	**No. of Samples Tested**	**Non-Complying (Results in brackets µg/kg)**	**Complying (Results in brackets µg/kg)**
Fats & Oils	50	0	50 (<2)
Cakes & Puddings	47	0	47 (<1)
Meat & Meat products	40	0	40 (<1)
Tea (Infusions)	19	0	19 (<0.04)
Coffee (Solids)	16	0	16 (1 x 2.1, others <1)
Canned fish in Oil (Oil portion)	30	2 (2.8 & 3.1)	28 (<2)
Oil Supplements (Cod Liver & Fish oil, etc.)	22	2 (2.9 & 6.6)	20 (<2)
Fish & Fish products	26	0	26 (<1)
Stouts	15	0	15 (<0.08)
Margarines & Spreads	14	0	14 (<2)
Milk	3	0	3 (<0.2)
Totals	**282**	**4**	**278**

2.5.6 Marine Biotoxins in Shellfish.

Marine biotoxins may accumulate in shellfish exposed to sea water containing toxic phytoplankton (marine algae). The toxins include DSP (Diarrhetic Shellfish Poisoning) toxins (Okadaic acid and DTX 1-3), AZP (Azaspiracid) toxins and ASP (Amnesic Shellfish Poisoning) toxins. The principal official monitoring for marine biotoxins is carried out at production level by the Marine Institute and the Dept. of Marine and Natural Resources. The 'Health Boards' have an agreed, supportive role in targeting retail- and catering level premises. There is currently a move away from testing using animals (bio-assays) and for that reason chemical methods are now more relied upon.

In 2003 we tested 108 samples of molluscs, largely raw mussels, raw oysters, scallops and processed mussels, for DSPs (74 mussels and 29 oysters), and for both ASPs and AZAs (74 mussels, 29 oysters, 5 scallops). None of the 108 samples exceeded the limits specified in EU Decisions 2002/225/EC and 2002/226/EC. This is the third successive year where the 'Health Board' surveillance has indicated a reassuringly low level of biotoxin contamination in molluscs. The problem of biotoxin contamination in Irish shellfish appears to have decreased significantly from the levels encountered in 2000. The improved situation reflects 1: the enhanced control and monitoring by the Marine Institute/Dept. of Marine and Natural Resources, in association with FSAI/Molluscan Shellfish Safety Committee, 2: industry's control procedures, and 3: a reduced level of algal blooms in the shellfish-growing areas. The success of the biotoxin control programmes has given food control bodies an opportunity to increase focus on microbiological (including viruses in particular) risks associated with shellfish consumption.

2.5.7 Heavy Metals in Foods.

Comission Regulation No. 466/2001 sets limits for Lead, Cadmium and Mercury in various foodstuffs. EU member states are required to monitor for compliance with the new standards.

During 2003, 170 samples, including a survey of 40 bottled waters, herbs and spices (25), meat and offal (17 samples), infant formula, food supplements, fish and cereals, were tested here for **lead (Pb);** no sample exceeded its regulatory limit, and non-violative levels were detected in 22 products. The testing included a survey of 43 caseinates and rennets performed for the Department of Agriculture and Food/Dairy Science Laboratory Service.

120 Samples were tested for **cadmium (Cd)**, - sample types generally as for Pb above; cadmium was detected in 37 samples (range 0.01-0.74 mg/kg), none of which were excessive.

Recently **mercury (Hg)** contamination of certain large 'predatory' fish, e.g. tuna, swordfish, marlin and shark, has been increasingly associated with human illness. Although not major food items in Ireland, the above fish, tuna in particular, are consumed here. 55 Samples of fish (tuna (34), mackerel (15), swordfish (2) and others (4)) were tested here in 2003. 13 of the tuna contained detectable levels of mercury (range: 0.1-0.4 mg/kg), with none exceeding the limit of 1.0 mg/kg. Both swordfish tested contained mercury levels above the limit of 1.0 mg/kg (i.e. 1.3 and 2.7 mg/kg). A survey of 41 samples of bottled water revealed no contamination with mercury (all samples less than 1 µg/L).

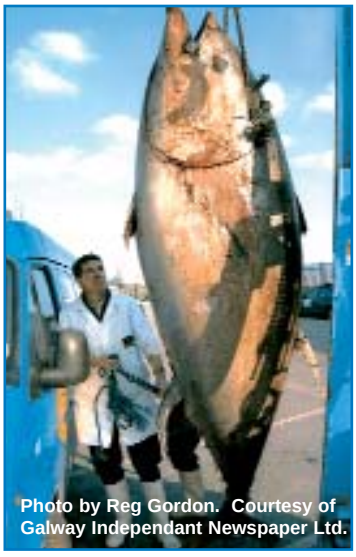


Photo by Reg Gordon. Courtesy of Galway Independant Newspaper Ltd.

39 Samples of mains drinking water, sampled by EHOs in food premises under food legislation, were tested in 2003 and found to contain no detectable **arsenic (As)** (<5µg/L). 79 out of 82 bottled water samples tested were found to be free of arsenic, with just three brands containing detected levels (5.6, 5.7 and 6 µg/L). The statutory limit for arsenic in Drinking Water and Bottled Water is 10 µg/L – see Statutory Instruments SI No 439 of 2000 and SI 6 of 2004 respectively.

42 samples of miscellaneous meats (19) and vegetables (23) contained no detectable total arsenic (all less than 0.1 mg/kg).

4 samples of edible seaweed yielded total arsenic levels between 1.5 and 4.5 mg/kg. 21 samples of miscellaneous fish (salmon, tuna, trout, prawns, mackerel, monkfish, herring, sole etc) were tested in 2003; 19 of the 21 had detectable total arsenic with levels varying between 0.25 and 15.1 mg/kg (sample of sole), with an average level of 3.0 mg/kg. The toxicity of arsenic in fish and other marine products is generally considered as relatively low due to the type (organic arsenic) present.

In 2003 the laboratory provided data to an EU SCOOP working group measuring EU population dietary exposure to arsenic, cadmium, lead and mercury. A full SCOOP report (Task 3.2.11) has been published in March 2004 by the EU Commission – D.G. Health and Consumer Protection.

2.5.8 3-Monochloropropanediol (3-MCPD).

3-MCPD may be formed in certain processed foods, in particular as a result of acid hydrolysis, a food processing technique used in the production of some soy sauces and

hydrolysed vegetable protein (HVP). EC Comission Regulation 466/2001 sets a maximum limit of 20 µg/kg for 3-MCPD in soy sauces etc. The need for legislation arose due to findings in 1998/99 of the widespread presence of 3-MCPD in soy sauces on the market. In 2003, 55 samples of soy sauce, 7 oyster sauces, 28 other 'sauces' were tested here for 3-MCPD. None of the 90 samples contained 3-MCPD, representing a dramatic improvement since 1999, see below for summary of results for sauces (largely soy) and HVP.

As part of the worldwide search to identify new food types which might contain 3-MCPD, 22 samples of miscellaneous processed foods (crackers, biscuits, snacks, beer, bread etc) were tested as a FSAI-commissioned survey. Detectable 3-MCPD was found in just two of the crackers samples (0.036 and 0.096 mg/kg).

Year	Non-complying Samples
2003	0 out of 90 (0%)
2002	1 out of 94 (1.1%)
2001	9 out of 163 (5.5%)
2000	15 out of 60 (25%)
1999	30 out of 39 (77%)

2.5.9 Anti-bacterial Substances in Meats.

In 2003, 119 samples of meats (fresh muscle tissue) were screened here using the EC Four-Plate Test for anti-bacterial substances (ABS), yielding the following results:

Meat	No. of Samples	No. of "Positive" Results
Chicken	70	0
Pork	39	0
Beef/Lamb/Turkey	10	0

2003 is the 4th successive year in which no "positive" results were obtained for ABS (previous "positive" results: 2002: 0 out of 95 samples (0/95); 2001: 0/48; 2000: 0/209; 1999: 4/269; 1998: 226/1,276; 1997: 9/142). Whilst the recent results are reassuring 'Health Board' surveillance in this area has continued (at a relatively low level), targeting largely retail- and catering-level premises. The vast majority of monitoring and control of ABS in meats is performed at meat plants by the Dept. of Agriculture and Food, and by the Local Authorities.

2.5.10 Histamine/Biogenic amines.

Consumption of fish containing excessive histamine may induce an allergic-type reaction (scombroid fish poisoning). The maximum allowable level of histamine in fish is set by Directive 91/493/EEC; high concentrations indicate inappropriate post-mortem handling.

The EU Commission, through its Co-ordinated Programme for Foodstuffs 2003, requested EU Member States to examine the Histamine levels in fish of the families Scombridae (tuna, mackerel etc), Clupidae (e.g. herring, sardines), Engraulidae (e.g. anchovies) and Coryphaenidae.

Following the request, the FSAI co-ordinated the Irish

sampling and testing programme nationally. This laboratory received 297 fish samples in 2003 and they were tested for histamine and 3 other biogenic amines, viz Putrescine, Cadaverine and Tyramine. 126 of the samples were taken from fishing vessels at fishing ports by Sea Fishery Officers (SFOs) of the Dept. of Marine and Natural Resources; 171 fish were taken by Environmental Health Officers (EHOs) at retail, restaurant and manufacturing/processing stages. Only one sample, a smoked trout, exceeded 200mg/kg for histamine. 16 of the fish contained detectable histamine in the range of 17-88 mg/kg. The histamine results indicate overall that the fresh fish received were in a particularly good condition.

Just one of the 297 samples contained elevated (greater that 100mg/kg) putrescine, a smoked salmon at 143 mg/kg. 12 samples, both processed and "fresh" fish, showed elevated cadaverine, ranging from 101 to 417 mg/kg. None of the tested samples contained tyramine above 100 mg/kg. The significance, if any, of elevated amines other that histamine (i.e. cadaverine etc) in fish is an area of current study.

2.5.11 Other Contaminants.

The composition of cooking oils can change considerably with use. Many EU Food-Control agencies monitor oil quality/safety parameters such as smoke point, acid value, peroxide value and polymerised triglycerides (PTGs). Although we do not have EU or Irish legislative standards for the above parameters, some monitoring is carried-out at Health Board level to obtain an overview of the quality of used oil in our region. In 2003, 74 samples tested for PTGs gave the following results: 72 samples less than 10% PTGs: 2 samples greater than 10% PTGs (10.1% and 12.8%). The results may be compared to the Dutch and Belgian national limits of 15% and 10% respectively. 14 of the 74 oils yielded Acid Values above 3.0, a value traditionally used to indicate decomposition; results ranged from 5.8 to 12.

2.6 Composition and Labelling, Additives and Food Processing

2.6.1 Sodium/Salt in the Diet.

Recent public health studies indicate that excess consumption of dietary salt contributes significantly to human morbidity and mortality. What we commonly refer to as "salt" consists largely of sodium and chloride ions. Excessive intake of sodium is considered as one factor contributing to hypertension (high blood pressure). Official UK Food Committees have recommended that adult salt intake be reduced from the currently estimated intake of ca. 9g to 6g (equivalent to ca. 2.4g of sodium (Na)). A U.S. Institute of Medicine report (2004) recommends daily adult intake at 1.5g sodium per day. Processed foods are estimated to contribute approx. 75% of total dietary sodium intake, with the remainder coming from added salt and sodium naturally occurring in unprocessed foodstuffs. Thus, reducing salt levels in processed foods has the potential to significantly reduce dietary sodium intake.

FSAI initiated a national study on dietary salt in Ireland in 2003. One of the first steps in this process was to determine the current levels of sodium and potassium in the main contributing food groups. Bread, and breakfast cereals have been identified as two major food groups contributing to dietary intake of sodium. 219 samples of various bread categories were submitted here and tested in 2003. Potassium levels were also

checked as its ratio to sodium is also considered a factor in hypertension. 83 samples of miscellaneous breakfast cereals were submitted by FSAI for testing. The results for both groups are summarised below.

Bread Survey:	Sodium	Potassium
No. of samples	100	100
Mean	0.603 % (g/100g)	0.193 % (g/100g)
Median	0.540 % (g/100g)	0.194 % (g/100g)
Minimum Value	0.171 % (g/100g)	0.103 % (g/100g)
Maximum Value	1.128 % (g/100g)	0.358 % (g/100g)
Maximum value was detected in a brown soda bread.		

Breakfast Cereal Survey:	Sodium	Potassium
No. of samples	83	83
Mean	0.333 % (g/100g)	0.355 % (g/100g)
Median	0.314 % (g/100g)	0.327 % (g/100g)
Minimum Value	0.002 % (g/100g)	0.057 % (g/100g)
Maximum Value	0.911 % (g/100g)	1.121 % (g/100g)

The mean (average) sodium level of 0.603 g/100g (0.6%) obtained in the bread survey compares to 0.52% sodium obtained in a more limited survey (32 samples) of local breads tested here in 2001, and to a value of 0.49% sodium obtained from a UK survey (FSA-LGC) of 60 breads, also in 2001. FSAI intend to use these and other future data as a baseline study to assist in getting industry to lower the levels of salt in processed foods. A report on this matter is expected on the FSAI website (www.FSAI.ie) in late 2004. Future surveys in this area are to include meat products and ready-to-eat meals. The testing above has been largely a fact-finding/surveillance exercise. It has been suggested that testing (for sodium) from the perspective of monitoring for compliance (i.e. enforcement monitoring) with labelled values may also be required.

36 other samples were also tested for sodium/potassium in 2003; these include:

8 curing brines tested for local authority veterinarians;

8 chicken fillet samples, - FSAI-organised survey of chicken fillet quality;

11 baby foods – manufacturing and retail-level inspection samples from EHO service;

9 miscellaneous foods – routine sampling programme.

2.6.2 Gluten-free Foods.

Gluten is a general term used to describe a complex mixture of proteins including prolamins (and glutenins) which are toxic to coeliacs. The prolamins in wheat (gliadins), barley (hordeins) and rye (secalins) are considered toxic, whilst those found in oats (avenins) appear to have little toxicity to most coeliacs (e.g. in Finland coeliacs are generally encouraged to consume oats). There are no Irish or EU legislative limits for gluten in foodstuffs supposedly "gluten-free". The WHO-FAO Codex Alimentarius Commission (Codex)

have produced draft, revised standards for gluten in foodstuff labelled as "gluten-free", viz 200ppm for foodstuffs rendered "gluten-free", and 20ppm for naturally gluten-free foods. The adoption of agreed Codex standards for "gluten-free" foods has been hampered until recently by the lack of a suitable analytical method for gluten, and by the uncertainty concerning the 'threshold' quantities of gluten which coeliacs can consume without adverse reaction. The Mendez R5 ELISA method represents a newly developed, improved analytical method for gluten. This method is currently being assessed by a Codex Committee (CCMAS) for its overall suitability. Much work on gluten 'thresholds' has been carried-out, in particular by the Working Group for Prolamin Toxicity and Analysis (PWG). In the absence of legislative or agreed Codex limits the draft Codex limits (20 and 200ppm) are used to assess compliance of gluten-free (G.F.) foods in Ireland. An FSAI group, including membership from this laboratory, is currently reviewing these limits and working-on other aspects of control of G.F. foods.

In 2003 the Mendez R5 ELISA method was used, in conjunction with the Cocktail extraction solution, to test a total of 317 samples for gluten. The Cocktail solution gives improved detection of gluten, in heat-treated samples particularly. In addition to the most commonly available G.F. foods (G.F. flour, breads, biscuits, cakes, etc), monitoring of 6 food 'groups' was built into the 2003 Programme:

(i): G.F. Soups, Sauces etc and Mayonnaises;

(ii): G.F. "Local Produce" (Bakeries, Manufacturers…);

(iii): G.M.S. G.F. foods etc.;

(iv): G.F. products from Coeliac Society Book of G.F. foods;

(v): G.F. Babyfoods and Infant Formula;

(vi): Irish-origin G.F. foods.

Some features of 2003 surveillance results are as below:

- Of the 14 soups (all retail-level) tested, 13 had no quantifiable gluten (less than 10ppm) and one sample contained 86ppm.
- None of the 34 samples of sauces, mayonnaise and granules/stocks contained gluten (all less than 10 ppm).
- Testing of 3 infant formula and 19 babyfoods showed only trace gluten levels in one formula (14 ppm) and 5 babyfoods (10-29 ppm).
- Gluten-free foods commonly consumed by coeliacs include G.F. bread, biscuits, flour, cakes, and other G.F. cereals/bakery products. 106 of such samples were tested in 2003. Also tested were 20 rice and rice products, 10 meat products, 7 peas and muesli, 6 various desserts, 8 spices and miscellaneous foods (including millet flours, buckwheat, soy flour, nuts etc), - see Table 6.
- 29 samples of G.F. Corn products (23 G.F. pastas, 5 G.F. Cornflakes and 1 corn crispbread) were surveyed. Four G.F. pastas had gluten levels over 200ppm (range: 260 – 620 ppm); the 4 pastas were made by one manufacturer and the results were alerted to the EHO service and FSAI, who took appropriate action.

Table 6 summarises the overall results of testing in 2003 of those G.F. foods labelled as such.

TABLE 6: GLUTEN TESTING 2003

RESULTS FOR FOODS LABELLED "GLUTEN-FREE"

Food Category	Applied Limit	No. of Samples Tested	Results Range			
			<50ppm	**51-100ppm**	**101-200ppm**	**>200ppm**
Deglutenised Wheat-Based Foods, eg. 'gluten-free' flour, bread, certain confectionery etc.	200 ppm	56	44	7	1	4
Naturally 'gluten-free' foods, eg. rice-based foods, Babyfoods, Soups, Sauces etc, G.F. pasta, certain confectionery etc.	20 ppm	214	196	4	10	4
Totals		**270**	**240**	**11**	**11**	**8**

Note: results for maize meals/flours (not labelled as "gluten-free") are excluded from Table.

The Table indicates in particular that the quality (with respect to gluten content) of naturally gluten-free foods labelled as such is high. The only 4 samples in this category exceeding 200 ppm consisted of the G.F. corn pastas from the one manufacturer (see above). 92% (196 out of 214) of these naturally G.F. foods contained less than 50 ppm gluten.

Four 'deglutenised' wheat-based foods exceeded 200 ppm. Whilst these 4 results are unsatisfactory the data also indicate that 80% (44 out of 56) of such G.F. products contain gluten levels of less than 50 ppm. This figure of 80% compares to 85% (80 out of 94) for 2002, and to 90% (78 out of 87) in 2001. Thus the data indicate that between 80 and 90% of wheat-based, 'deglutenised' G.F. foods achieve levels of 50 ppm or better in their products. ***The figures lend support to the possible introduction of gluten limits lower than 200 ppm (e.g. 50 or 100 ppm) based on good manufacturing practice, in support of future clinical studies on intakes/thresholds.***

Preliminary testing of a small number of maize meals/flours indicated relatively high levels of gluten. The sampling was supplemented by national sampling of such maize products by FSAI. Out of the 44 samples tested overall, 5 had gluten levels above 200 ppm, values ranging from 230 to 1,080 ppm; three brands were involved. These maize products were not specifically labelled as "gluten-free". As some of them appear to contain considerable gluten they may not be suitable for coeliacs.

Note: the above results contrast with those obtained previously (2002) for available "cornflours", which upon testing did not contain gluten (all less than 20 ppm).

Other laboratory activities in 2003 related to gluten include: a staff member was funded by Safefood to visit Dr. Enrique Mendez's leading laboratory for gluten testing, in Spain. The latest techniques were introduced here on returning. Staff organised and collated an EU-wide survey on Gluten Control and Surveillance through a FLEP (see section 9) working group. The report is due to be published in late 2004 on the FLEP website (www.flep.org).

Gluten testing represents for us an entry into the area of food allergen testing. With the increasing numbers of people suffering from food allergies, the control of allergens in "allergen-free" foods is of great importance. EU legislation, making compulsory the labelling of the presence of allergens in food, is imminent.

It is hoped to survey oats' products and breakfast cereals for gluten in 2004. Codex draft standards for "gluten-free" foods include the need for a high nutritional (e.g. vitamins and minerals) quality, in addition to gluten limits. It is hoped that some aspects of the nutritional quality of gluten-free foods can be studied from 2004 onwards.

2.6.3 Food Irradiation Testing.

Although many consumers remain cautious about it, food irradiation is generally considered as a safe 'preservation' technique when applied to appropriate foods under controlled conditions. In 2003 the list of foodstuffs approved in the EU for irradiation includes aromatic herbs, spices and vegetable seasonings. Irish Statutory Instrument No. 297 of 2000, implementing EU Directives 99/2 and 99/3/EC, authorises irradiation of the above foodstuffs. One element of the legislation requires that irradiated foods must be clearly labelled as such.

In 2003, 115 programmed samples (102 herbs, spices and seasonings, and 13 others) were tested here using a PSL screening method. 3 of the 115 samples gave a "positive" screening result; 2 of the 3 were sent for TL (Thermoluminescence) analysis, one of which was confirmed as positive ("….minor irradiated component") by SURRC, Scotland, a specialist centre for food-irradiation testing. 11 further samples yielded " Intermediate" results.

The EU Commission reported in 2002 that Official UK surveillance indicated that ca. 40% of UK-tested herbal supplements were irradiated but not labelled as such. 26 samples of herbal supplements were submitted by FSAI for screen-testing here as part of an inter-laboratory exercise. 4 of the 26 samples were "positive" on screening by PSL, and each of the 4 were "positive" when tested by SURRC, Scotland. Three of the 26 yielded "Intermediate" PSL results here, only one of which was confirmed as "positive" by SURRC, using TL techniques.

The Laboratories in conjunction with FSAI are reviewing the inter-laboratory study to ascertain which of these new materials, ie. Herbal Supplements, can reliably be screen-tested by the PSL technique. In general it appears that PSL may not be suitable for testing many of these food supplements.

Note: FSAI have issued a report on the above survey (see Food Safety Authority of Ireland – Irradiated Herbal Supplements….. Survey 2003, February 2004)

Table 7 below summarises PSL screening results for herbs, spices and seasonings tested here to-date.

TABLE 7: Summary of Food Irradiation Results for Herbs, Spices and Seasonings (P.A. Lab., Galway)

	PSL Screening results (P.A. Lab., Galway)			
Year	No. of samples tested	No. of 'negative' results	No. of 'intermediate' results	No. of 'positive' results
1998	62	51	11	0
1999	67	57	10	0
2000	35	33	2	0
2001	191	178	12	1
2002	57	54	3	0
2003	102	88	11	3

2.6.4 Additives.

There is today a heightened sense of concern about the presence of artificial chemicals, including additives, in food. This concern about additives prevails with some consumers despite the fact that additives have a good safety record and are strictly regulated. The new European Food Safety Authority (EFSA) is to review the safety of many additives, including colours in 2005. Irish Statutory Instruments SI. No. 58 of 2004 and SI 437 of 2000 authorise usage and set limits for additives in food. Health Boards, in conjunction with the FSAI, continue to monitor additives in food in particular nitrites and sulphites which have been identified as requiring surveillance. Table 8 below summarises results for 2003.

Table 8 - Summary of Principal Testing for Additives in 2003

Additive Details			Number of Samples Tested		
Name(s)	**Function**	**Sample Categories**	**Total**	**Non-Complying***	**Complying**
Benzoic & Sorbic acid (Benzoates & Sorbates)	Preservatives	Soft Drinks (24) Cheese (13) Flavoured Bottled Water (8) Salads (7) Others (11)	63	2	61
Sulphur dioxide (sulphites)	Preservatives	Meats(+ products) (53) Dried Fruit/ Vegetables (43) Wines/Beers (12) Prawns (11) Others (1)	120	1	119
Nitrite and Nitrate	Preservatives (control of production of botulinum toxin)	Cured Meats (+ Products) (127) Other meats (32) Others (13)	172	7	165
Saccharin, Acesulfame K & Aspartame	Artificial Sweeteners	Poultry Meat (8)	8	0	8
Sudan Red	'Banned' Colour	Chilli sauces/powders and curry sauces etc	39#	1	38

**Non-complying = undeclared or excessive levels or prohibited use.*

#Note: This testing was carried-out on our behalf by the Public Analyst's Laboratory, Cork.

The 7 samples which were found to be non-complying for nitrate &/ nitrite were either cooked bacon or rashers.

The Western Region results for 2003 indicate a relatively high level of compliance with the legislation. The 39 samples of chilli sauce etc received to analyse for Sudan Red arose from an EU Food Alert (See 2.8 below).

The testing of 11 samples of prawns from trawlers arose as a result of the detection by Italian authorities of excessive sulphur dioxide in Irish prawns at the end of 2003.

2.6.5 Dairy Products.

A total of 222 samples of dairy products (milk, cream, cheese, yoghurts, butter etc) was tested here in 2003. Parameters tested-for include ALP (pasteurisation efficiency), inhibitory substances (Delvo test), extraneous water, pH, Lead (Pb), general labelling, fat, protein and Milk Solids Non-Fat. Due to the possible link between the bacterium MAP *(Mycobacterium avium subspecies paratuberculosis)* in milk and Crohns' disease in humans, milk pasteurisation temperatures and times have been increased. These increases are being clearly seen in reduced ALP levels in milks submitted to this laboratory. 5 samples (3 food complaints and 2 private samples) were positive for inhibitory substances. None of the tested routine milks from the EHO service were positive for inhibitory substances. Overall, the 'chemical' testing in 2003 indicates a generally high quality of dairy products on the market. Results of microbiological testing of dairy products at 'Health Board' level are contained in Health Board Food Microbiology reports.

Note: the majority of surveillance of dairy products is carried out at production level by the Department of Agriculture and Food and by the Local Authorities.

2.6.6 Labelling of Food.

Statutory Instrument No. 483 of 2002 consolidates legislation on the labelling of foodstuffs in general. A number of other laws govern the labelling of product-specific foodstuffs. The administration of SI 483 of 2002 is primarily the responsibility of the Department of Enterprise, Trade and Employment, and FSAI; some enforcement functions are delegated to the Health Boards. An overview of labelling legislation and enforcement procedures etc is outlined in a recent FSAI publication (The Labelling of Food in Ireland – FSAI 2002).

The provision of accurate labelling of foods is an important consumer protection matter, in particular in the area of allergen labelling. Detailed new legislation on labelling is being introduced at EU level.

In 2003, 48 samples were designated here as being in breach of labelling legislation.

2.6.7 Miscellaneous Composition etc.

- The three available market brands of soy-based infant formula were tested for the 6 **isoflavones,** -Daidzin, Glycitin, Glycitein, Genestin, Daidzein and Genistein. Isoflavone levels varied between 186 and 320 mg/kg. This testing arose from an FSAI request, following recent interest in the levels and effects of phytoestrogens (plant oestrogens) in soy products.
- As a follow-up to a more extensive survey in 2002, 8 samples of **chicken fillets** were tested for a range of compositional indicators, including moisture, sodium, hydroxyproline*, meat content, fat and protein. Three samples had meat contents

lower than their labelled values. This survey was organised by FSAI in conjunction with the Health Boards and the Department of Agriculture and Food.

**Hydroxyproline testing performed in Cork Public Analyst's Laboratory.*

- 94 samples of **bottled waters, 43 Drinking Waters (as Food Ingredients) and 8 flavoured waters** were tested for a varying range of parameters including pH, nitrite/nitrate, heavy metals and general labelling.
- 42 samples of **pub-level spirits** screen-tested for alcoholic strength showed no evidence of adulteration.
- Other routine testing during 2003, related to food processing and compositional quality, include: 29 samples (babyfood powders etc) were checked for **moisture** levels; 63 samples (acidic, processed foods) for **pH;** 18 samples (jams, preserves, sauces and juices etc) for **soluble solids as sucrose;** 11 samples for **ash** content.
- Following a request from FSAI, a sample each of farmed and wild salmon were procured to compare their content of polyunsaturated fatty acids (PUFAs). This testing was out-contracted to the Belfast Public Analyst's Laboratory. These preliminary results indicate somewhat different PUFA profiles between farmed and wild product.

2.7 Complaint Samples.

Complaint samples arise when consumers find contamination, infestation, spoilage, extraneous matter or other defect in foods. Some complaints arise from food poisoning incidents (these will generally result in microbiological examination). Complaint samples processed in this laboratory usually involve the presence of foreign bodies such as plastic, metal, insects, plant 'debris', general dirt/unidentified material or abnormal odours/tastes in food. Some of the received samples require microbiological examination, and we acknowledge the cooperation of the Food Microbiology service to whom we occasionally divert samples.

A total of 241 complaint samples, received from the EHO service (208) and directly from the public (33), was investigated here in 2003. Of the 241, the number of adverse reports issued was 149 (62%)* - see Appendices 2(iii) and 2(iv) for a breakdown.

*Previous adverse results:

2002:	2001:	2000:	1999:	1998:
65%(147/226)	75% (180/239)	63% (129/206)	66% (154/233)	70% (139/199)

The annual number of food complaints received represents a tiny proportion of the total number of food items consumed annually in our region.

2.8 Food Alerts (RASFF) and Hazard/Contamination Reports.

The EU Rapid Alert System for Food and Feed (RASFF) operates when a member state reports significant contamination in, or risk associated with, a batch of food or feed. After being notified, the European Commission alerts other member states to the problem. The EU Notifications are sent as Alert Notifications (immediate action required) or Information Notifications (immediate action not required – e.g. contaminated product may have been rejected at the port of entry into EU). FSAI is the delegated (by FSPB) Irish administrator for RASFF. The number of issued Notifications continues to rise yearly as more Food and Feed authorities use the system. During 2003, 2,310 Notifications (454 Alerts and 1,856 Informations) were issued, an increase of 66% over 2002.

Appendix 3 summarises the RASFF Notifications in the format used here for several years now. Also, the EU Commission have produced a detailed "Annual Report on the Functioning of the RASFF 2003" – Eur. Comm., DG Health & Consumer Protection, 2004. The EU summary covers such issues as Increasing Occurrence, Recurring Problems requiring action, Alerts etc by product origin, by Notifying Country, by Product Category, and by Contaminant Category. Detailed information is also given on both the country of origin of the offending foods, and the country initially notifying the Commission of the problem. Ireland ranks low in this latter category, with just 8 Notifications to RASFF in 2003. One factor in this low notifying rate is the fact that Ireland does not directly import much foodstuffs of non-EU origin, a major source (ca. 80%) of RASFF Notifications.

Food Hazard/Contamination Reports are issued by the laboratory when contamination deemed significant is detected. Upon risk assessment by the FSAI, a Food Alert notification may be issued (to EU) depending on their evaluation of the risk. In 2003, 16 Food Hazard/Contamination reports were issued from here relating to: Benzo-[a]-pyrene in oils/fish (5); Aflatoxins in nuts, figs and chilli (3); Gluten in 'gluten-free' flour and pastas, and maize meal (6); Fumonisin B1 in maize meal (1); Sudan Red 1 in pesto sauce (1).

Numbers of Food Hazard/Contamination Reports issued to-date from this laboratory include:

2003	2002	2001	2000
16	19	43	31

3. WATER/EFFLUENTS:

3.1 Introduction.

The laboratory provides a service to the Local Authorities in the region for the chemical analysis of bathing waters, drinking waters and effluents.

A service is also provided to the General Public, Local Industry and Hospital Renal Dialysis Units.

Bathing Waters are tested for compliance with the Quality of Bathing Water Regulations 1992 (S.I. No. 155 of 1992).

Drinking Waters are tested for compliance with the European Communities (Quality of Water Intended for Human Consumption) Regulations 1988 (S.I. 81 of 1988).

3.2 Workload.

The total number of samples tested during the year was 8,517.

They were received from the following sources:-

SOURCE	NUMBER
Galway (Environmental Health Officers)	1,328
Galway County Council	44
Galway City Council	549
Mayo	1,323
Roscommon	233
Donegal	1,022
Sligo/Leitrim	657
North Tipperary	440
Clare	269
Limerick	858
Roscommon County Council	31
Haemodialysis	369
Miscellaneous	1,394
TOTAL	**8,517**

3.3 New Drinking Water Regulations.

In December 2000, the Minister for the Environment and Local Government published the new European Communities (Drinking Water) Regulations (S.I. No. 439 of 2000).

These regulations give effect to the Council Directive 98/83/EC of 3 Nov. 1998 on the Quality of Water intended for Human Consumption.

- The new Regulations come into force on Jan 1st 2004.
- Some of the principal changes in the new Regulations are:-
- The number of parameters listed for testing has reduced.
- Sixteen chemical parameters have been removed.

- Ten chemical parameters have been added.
- The acceptable concentrations for some existing parameters have changed.

The most notable are the reduction in the limits for Arsenic and Lead from 50µg/L to 10µg/L. (An interim limit of 25µg/L for Lead is set until Dec. 2013).

- The four levels of monitoring have been reduced to two.
- The parameters to be tested under the new categories are more clearly defined and are less open to discretion than the old regulations allow.
- Performance criteria are specified for some parameters.
- Each laboratory must have an audited quality control system.

A Drinking Water National Monitoring Programme (DWNMP) has been established by the Department of the Environment and Local Government (DOELG) to co-ordinate the implementation of the new Regulations.

Consultants have been appointed by the DOELG to assist in the implementation of the DWNMP.

The full implementation of the new Regulations will involve considerably more monitoring than is currently being carried out. In particular, parameters previously not tested for must be now monitored.

Part of the consultants' brief is to assess the laboratory capacity compared with the requirements of the new Regulations, and make recommendations for upgrading Public Sector Laboratories. It is anticipated that there will be a need to increase capacity and capability.

This laboratory was scheduled to be audited by the consultants before the end of 2003, however this was unavoidably delayed until Feb 2004.

3.4 Fluoridation of Public Water Supplies.

Regulations made under the Health (Fluoridation of Water Supplies) Act 1960 require Sanitary Authorities to add Fluoride to public water supplies to bring the level of fluoride up to between 0.80mg/L and 1.0mg/L.

The 1988 Drinking Water Regulations set a maximum admissible concentration for fluoride of 1.0mg/L. The new Drinking Water Regulations also set a limit of 1.0 mg/L.

The corresponding Directives (80/778/EEC) and (98/83/EC) both specify a limit of 1.5mg/L.

The practice of adding Fluoride to water to protect dental health has been endorsed by a forum appointed by the Minister for Health to review the issue. The forum issued its report in March 2002.

The laboratory carries out a monthly test for fluoride on all fluoridated supplies.

The results for the current year are summarised in Appendix 4.

3.5 Trihalomethanes (THMs).

Trihalomethanes are halogen substituted single carbon compounds with the general formula CHX3 where X may be Fluorine, Chlorine, Bromine or Iodine, or a combination thereof. With respect to drinking water contamination, only four members of the group are important: bromoform, dibromochloromethane, bromodichloromethane and chloroform.

Trihalomethanes occur in drinking water as products of the reaction of chlorine with

naturally occurring organic matter. They do not occur naturally.

Concern about THMs arises because chloroform is classified as a possible human carcinogen.

Control of THMs should also serve to reduce levels of other uncharacterised chlorination by-products.

It must be emphasised that in controlling THM levels, adequate disinfection must not be compromised.

The current Drinking Water Directive did not set a limit for THMs. The current Regulations set a limit of 100µg/L for total THMs.

The new Drinking Water Directive specifies a limit of 150µg/L. The new Regulations which come into force on 1st Jan 2004 also set a limit of 150 µg/L, but a value of 100 µg/L must be met by Dec 25th 2008.

This means that there is a relaxation in the limit from 100 µg/L to 150 µg/L from 1st Jan 2004 to 25th Dec 2008.

The results for the year are summarised in the table below.

Trihalomethane Results µg/L Numbers of Analytical Results Expressed in Ranges (µg/L)				
No. of Samples	0 - 50	51 - 100	101 - 200	201 - 300
720	333	300	83	4

3.6 Aluminium.

Aluminium salts are used in some water treatment plants for the removal of colour and colloidal matter. Traces of Aluminium may persist in the treated water. The current and the new regulations set a limit of 0.20mg/L Al (200µg/L Al).

The results for the year are shown in the Table below.

Aluminium in Public Supplies- Results in mg/L.				
No. of Samples	<0.02	>0.02 – 0.2	>0.2 – 1.0	>1.0
663	164	417	73	9

3.7 Arsenic.

Inorganic arsenic compounds are classified in Group 1 (carcinogenic to humans) by the International Agency for Research on Cancer.

Arsenic may be introduced into drinking water as a natural phenomenon, through the dissolution of minerals and ores, or through commercial or industrial activity.

Inorganic Arsenic mostly occurs as arsenite, As (III) or arsenate, As (V).

The current limit for Arsenic is 50 µg/L as As.

The new Drinking Water Regulations (S.I. No. 439 of 2000), which come into effect in Jan 2004 set a limit of 10 µg/L as As.

The Arsenic levels found in Drinking Waters for this year are shown below.

Arsenic Results (µg/L As)					
No. of Samples	<5	5 - 10	11 - 50	51 - 100	>100
933	857	46	27	1	2

All the elevated levels of Arsenic (>10 µg/L) were found in private wells.

3.8 Haemodialysis Water.

The laboratory provides a chemical analysis service to the hospitals for the examination of the water used in their haemodialysis units. The number tested during the year was 369.

3.9 Private samples.

The number of samples received during the year from the general public and private industry was 1,176.

4. PHARMACEUTICALS AND TOXICOLOGY:

4.1 Pharmaceuticals:

A total of 77 pharmaceutical products was received during 2003. They were received from:

Irish Medicines Board:	Inspectorate	43
Irish Medicines Board:	Enforcement	23
EDQM: Centrally Authorised Products		8
EDQM: Proficiency Tests		2
APLAC: Proficiency Tests		1

Since 1976 the laboratory has provided a service to the Irish Medicines Board (IMB), formerly the "National Drugs Advisory Board", on a contract basis to test drugs and medicines. The original objectives of the scheme were: -

(a) to test products requiring a Product Authorisation to see if they comply with the Pharmacopoeial or the Applicant Company's finished product specification;

(b) to test the methods of analysis submitted by the applicant;

(c) to deal with complaints from Physicians, Veterinarians and members of the public;

(d) to test samples taken at retail level.

Over the years, the nature of this work has changed from surveillance of products on the market to functioning as an Official Medicines Control Laboratory with the Irish Medicines Board.

Official Medicines Control Laboratories (OMCL)

The Public Analyst's Laboratory together with the Irish Medicines Board acts as an Official Medicines Control Laboratory (OMCL) under the framework of the European Directorate for the Quality of Medicines (EDQM).

OMCLs operate at two levels: Nationally and at a European level.

National Role of OMCL

At a national level, the laboratory contributes to the protection of public health and the regulatory function of the IMB by providing independent analytical data on medicinal products that enable the IMB to make informed decisions on the quality of medicines. This independent testing includes areas such as:

- support of pharmacovigilance assessment,
- pre-marketing analysis,
- post-marketing surveillance of authorised medicinal products,
- analysis of generic medicines,
- support of GMP inspections,
- analysis of unlicensed (unauthorised) medicines,
- support to the expertise in evaluation of the quality part of Market Authorisation files.

European Role of OMCL

At a European level, the laboratory participates in activities of the OMCL Network co-ordinated by the EDQM. These activities include:

- the testing of Centrally Authorised medicinal Products (CAP),
- participation in Proficiency Testing Studies (PTS),
- Collaborative Market Surveillance Studies.

Quality System

To ensure quality and comparability of results within the Network, OMCLs must operate to a quality system based on ISO/IEC 17025 - the current standard which replaced EN 45001. Since 1991, the laboratory has been accredited to EN 45001 for the analysis of Pharmaceuticals. On 5th May 2002, the laboratory was formally recognised by NAB (National Accreditation Board) as having successfully made the transition to ISO/IEC 17025 .

CAP Testing

In 2003, eight Centrally Authorised Products were tested on behalf of the EDQM.

PTS Testing

The laboratory successfully took part in two EDQM-organised Proficiency Testing Schemes in 2003, covering the following areas:

(a) Determination of Preservatives by HPLC

(b) Dissolution Testing: Extended Release Products

At the request of NAB (National Accreditation Board), the laboratory also took part in and successfully completed a proficiency test organised by APLAC (Asia-Pacific Laboratory Accreditation Co-operation).

Further proficiency tests are planned for 2004.

4.2 Toxicology:

The number of samples tested during 2003 was 195. They were made up as follows:

Alcohol (Post Mortem)	148
Alcohol (Antemortem)	4
Alcohol (R.T.A.)	31
Ethylene Glycol	2
Strychnine	1
Miscellaneous	9

This service is mainly for the Consultant Pathologists and Physicians in the Western Health Board and for Veterinary Surgeons as well as for members of the public. The number of samples tested for alcohol, taken under the Road Traffic Act was 31, of which 25 were above the legal limit.

The laboratory takes part in an External Quality Assessment Scheme (UKNEQAS) organized by Cardiff Bioanalytical Services Ltd. Samples of blood and urine are received on a monthly basis and analysed for ethanol. All results to date from this scheme have been very satisfactory.

5. ENVIRONMENTAL:

5.1 Air Pollution Monitoring:

5.1.1 Sulphur Dioxide and Smoke/Particulate matter.

Air quality in Ireland is controlled by the Air Pollution Act of 1987.

Air quality standards are set out in S.I. No. 244 of 1987.

Under the regulations the parameters sulphur dioxide and smoke/particulate matter are measured at two locations in the City, viz., City Council Office at Sandy Road and the Waterworks at Terryland.

The monthly results are shown in **Appendix 5.**

The values are very low, the standards were not exceeded at any time during the year.

5.1.2 PM 10s.

The Air Quality Framework Directive (EU Directive 96/62/EC) provides a framework for further EU legislation on the management of air quality (so-called daughter directives).

The first such daughter directive was adopted on 22nd April, 1999.

This sets new limit values for a range of parameters and for the first time sets limit values for particulate matter measuring 10 micrometers or less in diameter (PM 10s).

In June 2002 the Minister for the Environment and Local Government published the "Air Quality Standards Regulation 2002" (S.I. No. 271 of 2002). These regulations give effect to E.U. Directive 96/62/EC and its daughter directives 1999/30 EC and 2000/69/EC.

Limit values for sulphur dioxide, nitrogen dioxide, oxides of nitrogen, PM10s, lead, benzene and carbon monoxide are set out in the Regulations.

The limits cited in the regulation for PM10s apply from 2002 forward.

The limits for the other parameters must be attained by 2005, and in some cases 2010.

The laboratory operates a PM10 monitoring station at the roundabout close to Barry Motors.

Results for the year are shown in **Appendix 5.**

6 LABORATORY ACCREDITATION:

6.1 Background

Accreditation is a formal recognition that a laboratory is competent to carry out specific tests or types of tests. The concept of accreditation was first introduced into the Laboratory around 1989. It was triggered off by a number of events, mainly:

- Directive 89/397/EEC on the Official Control of Foodstuffs which stated that for the enforcement of food law, samples shall be analysed in official laboratories or other laboratories authorised to carry out analysis.
- The Commission's policy published in a document entitled " A Global approach to Certification and Testing" which proposed that all laboratories engaged in testing in the context of EC regulations or directives, should be obliged to show that they satisfy the criteria laid down in the European Standard EN 45001.
- Subsequent Directive 93/99/EEC on Additional Measures concerning the Food Control of Foodstuffs (AMFC) specified that official laboratories comply with EN 45001 before 1st November 1998 or lose their status.

From 1989 onwards, the laboratory built up its scope of accreditation so that it was able to meet the deadline of 1st Nov. 1998. While accreditation was mandatory in the area of Food analysis, the laboratory also extended its scope of accreditation to most of its Water and Pharmaceutical analysis. This was to give formal recognition to the quality of the analysis. The process represented a huge change in working practices for the Laboratory and was a steep learning curve.

ISO/IEC 17025

Early in 2000, ISO/IEC 17025 was published. This new international standard replaced the European Standard EN 45001, the International ISO 25 and the National P1 ILAB standards. The laboratories were given a deadline of 1st Jan. 2002 to transfer to the new standard. The new standard is more detailed and extended and has a broader scope than the standards it replaced. It puts more emphasis on matters such as:

- Document control,
- Validation of Methods,
- Traceability of Reference Standards,
- Measurement Uncertainty,
- Review of requests, tenders, contracts,
- Service to the client,
- Control of nonconforming testing,
- Preventive Actions.

To comply with this new standard, the laboratory had to write a new Quality Manual and new protocols to comply with the new and more stringent requirements.

Following a successful reassessment by the National Accreditation Board (NAB) at the end of November 2001, the Laboratory was granted formal accreditation to ISO/IEC 17025 on 5th May 2002.

The annual NAB surveillance visit took place at the end of April 2003. Our application for extension to scope in the Food and Water Laboratories was approved and we were successful in maintaining accreditation to ISO/IEC 17025 for our existing scope.

Proficiency Testing

As part of our external quality control, the Laboratory participates in a range of proficiency testing schemes. The results are monitored and any non-conformances are investigated and corrective and preventive action is formulated and implemented. Our record to date is very good with very few results outside acceptable limits.

Proficiency Testing Schemes - 2003.	
Scheme	**Parameters Tested**
FAPAS	***Nutritional components (Milk and Fish),*** Nitrogen, Moisture, Ash, Fat
FAPAS	***Nutritional components (Cereals)*** Nitrogen, Moisture, Ash,
FAPAS	***Aflatoxins*** – B_1, B_2, G_1, G_2, Total Aflatoxins
FAPAS	***Trace Elements*** – Lead, Cadmium, Mercury, Arsenic
FAPAS	***Nitrate/Nitrite***
FAPAS	***Environmental Contaminants*** – Benzo[a]pyrene
FAPAS	***Ochratoxin A***
FAPAS	***Fusarium Mycotoxins*** - Fumonisin B_1
FAPAS	***3-MCPD***
FAPAS	***Allergens*** Histamine
FAPAS	***Acrylamide***
FAPAS	***pH, Brix*** – Fruit Juice
FAPAS	***Food Additives*** - pH, Brix, Sodium
FAPAS	***Food Additives*** - Sulphite
IRMM/JRC	***Acrylamide***
IRMM/IMEP	***Trace Elements*** - Arsenic, Lead, Mercury
CHEK	***Benzoic Acid, Sorbic Acid, Histamine*** (Fish Salad)
CHEK	***Sorbic Acid, Sulphite*** (White wine)
CHEK	***Polymerised Triglycerides***
CHEK	***Aflatoxins*** (Spices)
DAPS	***Alcoholic Beverages***
Quasimeme	***Domoic and epi-Domoic Acid***
AQUACHECK	***Water*** – Fluoride, Conductivity, T.O.N., Nitrite, Ammonia, pH, Colour, Turbidity, Iron, Manganese, Aluminium, Arsenic, Trihalomethanes,
EDQM	***Pharmaceutical Analysis*** – HPLC, Dissolution
APLAC	***Pharmaceutical Analysis*** – HPLC
UKNEQAS	***Alcohol*** in Biological samples

7. STAFF TRAINING:

Directives 89/397/EC and 93/99/EC, as well as the service contract with the Food Safety Authority of Ireland, place considerable emphasis on training and ongoing professional development. These are progressed by sending staff to courses in the UK and Ireland and on in-house programmes. The rate of change in information technology, legislation, quality assurance demands and new instrumentation is such that to keep staff up-to-date is becoming a full-time task. Safefood (see section 2.3) has begun to provide valuable training opportunities for the food laboratories.

8. BUDGET 2003:

Income/Expenditure:

The total Budget for the Laboratory was €2,466,771 and this included the pay and non-pay elements. The income generated from analyses and contracts was €221,818.

A special allowance was made by the Department of Health and Children (Food Unit) of €21,000 for Food Control and a Freeze-Drying Unit was purchased.

9. EXTERNAL LIAISON/COMMITTEES ETC.:

Laboratory staff participated in a number of 'external' activities and working groups related to our work; in 2003, committee (and sub-committee) meetings with the following groups were attended or organised:

Department of Health & Children/FSPB

(Strategic Review of Food Laboratory Service)

- Baseline Survey – data submitted.
- Written Submission to Strategy Group.
- Membership of Chemistry sub-group.
- On-site visit by, and presentation to, Strategy Group.
- Attendance at open-forum/information sessions.

FSAI:

- Quarterly Liaison Meetings with Public Analysts' Group;
- Contracts Meetings with Western Health Board;
- Gluten Working Group;
- Scientific Sub-committee; (Additives, Contaminants….);
- EHO – P.A. Lab – Liaison Group;
- Molluscan Shellfish Safety Committee;
- FSAI – Inter-Agency Meetings on Food Control.

FSPB:

- Food Safety Promotion Board – Functional Group (Scientific Co-operation & Laboratory linkages);
- See also section 2.3.
- **Regional Food Control Group** (Western Region);
- **Zoonoses Committee** (Western Health Board Region);
- **EU/FVO (Food and Veterinary Office)** – membership of EU/FVO mission team to Turkey on control of aflatoxins in nuts and dried fruit (2003);
- **SCOOP:** Scientific Co-operation in respect of food (various Tasks);
- **F.L.E.P.** F.L.E.P. is an informal grouping of European Food Law Enforcement Practitioners whose terms of reference include the exchange of information and co-operation, in order to develop mutual confidence between National Food Control systems. Gluten Control Survey was carried-out.

• **I.A.P.A.L:** The Irish Association of Public Analysts' Laboratories;

Fluoridation Committee (W.H.B.);

Irish Mass Spectrometry Society;

EURACHEM Ireland;

Local Authority – Health Board: (Water monitoring);

Irish Medicines Board: Liaison Meetings;

The Laboratory hosted a team of East European Public Health Officials as part of a visit to view the Irish Food Control system.

10. MISCELLANEOUS TESTING

Disinfectant samples were tested for Chlorine Dioxide and Total Available Chlorine for the Endoscopy Unit in Castlebar General Hospital.

Appendix 1

Western Region – Food Sampling/Analysis (Chemical) Programme for 2003				
Jan 1 – 15		**Gluten-free Soups,** 35 **Sauces and Mayonnaise** **(by label/ingredients)** (Gluten) *Co.Galway*	**Spices** 30 (Irradiation/Mycotoxins) *Co. Sligo/Leitrim*	
Jan 16 – 31	**Canned Fish in Oil** 30 **& Smoke Flavourings** **(Benzo-[a]-pyrene)**	**Scombroid Fish etc** 50 **(EU Programme 2003)** (Biogenic amines) *NWHB survey*		**Oysters & Mussels** 10 **Scallops** 10 (AZA/DSP + ASP)
Feb. 1 – 15	**Pasteurised Goats' Cheese** 50 **& Imported Cheese** (Routine dairy tests)	**Soy sauces,** 30 **Oysters sauces,** **Other sauces** **HVP and Malt Extracts** (Chloropropanols)	**Maize Meal, Tortilla Chips,** 50 **Popcorn, Corn-on-the Cob** **Canned Corn, Babyfoods** (Fumonisin B1)	**Drinking Waters** 100 **(as food ingredients)** (Arsenic +other?)
Feb. 16 – 28	**Chicken Fillets** 40 **(FSAI Sampling)** (Composition/Adulteration)	**Brazil Nuts, Hazelnuts,** 40 **Peanut butter, Peanuts** **Pistachios, Almonds** **& Dried Figs** (Aflatoxins)	**Miscellaneous** 30 **Processed Foods** (Acrylamide) *Co. Nth Tipperary*	
Mar. 1 – 15	**Margarines and** 20 **Vegetable-Oil Spreads** (Benzo-[a]-Pyrene) *Co.Limerick*	**'Local Produce'** 35 **Gluten-Free Foods** (Gluten)		**Oysters & Mussels** 10 (AZA/DSP)
Mar. 16- 31	**Raw Poultry & Pork** 60 (Anti-bacterial substances)	**Bakery Products &** 50 **Confectionery** (general examination / labelling, etc.)	**Miscellaneous Foods** 50 (Dioxin Screening) *Co. Roscommon*	
Apr. 1- 15	**Scrombroid Fish etc** 50 **(EU Programme 2003)** (Biogenic amines) *WHB survey*	**"Gluten-free" Foods** 35 **(including GMS** **scheme foods)** (Gluten) *Co.Mayo*	**Fish Oils/Supplements** 20 (Benzo-[a]-pyrene) *Co. Limerick*	**Oysters & Mussels** 10 (AZA/DSP/ASP)
Apr. 16 – 30	**Miscellaneous Foods** 50 (SO2)	**Bottled Waters** 50 (Arsenic, Fluoride & others)		
May 1 – 15	**Brazil Nuts, Hazelnuts** 40 **Peanut butter, Peanuts,** **Pistachios, Dried Figs,** **Almonds** (Aflatoxins)	**Stouts/Porters** 30 Benzo-[a]-Pyrene *Co. Clare*	**Herbs, Spices, Offal,** 40 **Clams, Prawns, Crabs** **+Misc. Health Foods** (Pb/Cd + Irradiation)	**Oysters & Mussels** 10 (AZA/DSP)
May 16 – 31	**Used Frying Oils** 50 (DPTGs/AV/PV)	**Cured Meats etc** 60 (NO_5/NO_3)	**Soy Sauces, Oyster** 40 **Sauces, Other Sauces** **& HVP** (Chloropropanols)	
June 1 – 15	**Tea & Coffee** 30 (Benzo-[a]-Pyrene) *Co. Galway*		**Cereal-based Babyfoods** 25 **Bran & Oatflakes** 15 (Ochratoxin A) *Co. Mayo*	**Oysters & Mussels** 10 **Scallops** 10 (AZA/DSP/ASP)
June 16 – 30	**"Gluten-Free" Foods** 35 **(From Coeliac Soc. Book)** (Gluten) *Co. Sligo/Leitrim*	**Disco and Pub-level** 60 **Spirits** Whiskey, Gin, Vodka (Adulteration)	**Miscellaneous Foods** 60 **(Manufacturing etc. level)** (Labelling, Salt, others)	
Jan-Dec	- **Food Complaints, Food 'Alerts' etc., 'suspect' samples and tap waters from food premises (where relevant)** - **'Inspection' samples of Manufacturing/ Processing etc. premises when required**			

Western Region – Food Sampling/Analysis (Chemical) Programme for 2003				
July 1 – 15	**Scombroid Fish etc** 50 **(EU Programme 2003)** (Biogenic Amines) *MWHB survey*	**Milk, Goats' Milk/Cheese** 50 **Cream & Dairy products** (Routine Tests)		**Oysters & Mussels** 10 (AZA/DSP)
July 16 - 31	**Cereal –based Baby Foods** 40 (Aflatoxins)	**Misc. Vegetable Oils** 30 (Benzo-[a]-pyrene)	**Maize meal, Tortilla Chips,** 50 **Popcorn, Corn on the Cob** (Fumonisin B_1)	
Aug. 1 – 15		**Cured Meats etc** 50 (NO_2/NO_3)	**Herbs/Spices/Seasonings**60 (Irradiation and other)	**Oysters & Mussels** 10 (AZA/ASP/DSP)
Aug. 16 – 31	**Soy-based Infant Foods,** 10 (Phytoestrogens) *Co. Roscommon*	**Miscellaneous Foods** 50 (Arsenic)	**Used Frying Oils** 50 (DPTG's, A.V./P.V)	
Sept. 1 – 15	**Farmed Fish** 30 **Processed Shellfish** **Miscellaneous Fish** (Benzo-[a]-pyrene) *Co. Donegal*	**Marzipan, Satay sauces,** 25 **Almonds, Brazil Nuts, Hazlenuts, Dried Figs** (Aflatoxins)		**Oysters & Mussels** 10 (AZA/DSP)
Sept. 16 – 30	**Chicken Fillets** 30 **(FSAI Sampling)** (Composition/Adulteration)	**Tuna, Mackerel,** 40 **Swordfish & Shark** (Mercury)	**Bottled Waters** 50 (Parameters to be decided) *Co. Nth Tipperary*	
Oct. 1 - 15	**Soy Sauces, Other** 30 **Sauces, HVP, Malt Extracts** (Chloropropanols) Note 7	**Infant Formula/Babyfoods** 35 (labelled "gluten-free") (Gluten)	**Raw Pork & Poultry** 60 (Anti-bacterial substances)	**Oysters & Mussels** 10 **Scallops** 10 (AZA/DSP/ASP)
Oct. 16 – 31	**Scombroid Fish etc** 50 (EU Programme 2003) (Biogenic amines) *NWHB - 25* *WHB - 25*		**Miscellaneous Foods** 50 (Sorbates/Benzoates)	
Nov. 1 – 15	**Miscellaneous Foods** 40 (SO2)	**Offal** 10 **Sausages and Puddings** 10 (Benzo-[a]-Pyrene)	**Red Wines &** 40 **Grape Juice** (Ochratoxin A) *Co. Clare*	
Nov. 16 – 30		**Cured Meats etc** 30 (NO_2/NO_3)	**"Gluten-free" Foods** 35 **Irish origin preference** (Gluten)	**Oysters & Mussels** 10 (AZA/DSP)
Dec. 1 – 7	**Christmas Cakes** 20 **/Puddings** (Benzo-[a]-Pyrene & labelling etc.)	**Brazil Nuts, Hazelnuts,**40 **Peanut Butter, Peanuts,** **Pistachios, Almonds** **& Dried Figs** (Aflatoxins)		
Dec. 8 - 31	**Non -routine samples only**	**Non -routine samples only**	**Non -routine samples only**	**Non -routine samples only**
Jan-Dec	**- Food Complaints, Food 'Alerts' etc., 'suspect' samples and tap waters from food premises (where relevant)** **- 'Inspection' samples of Manufacturing/ Processing etc. premises when required**			

Appendix 2(i) Laboratory Results which revealed infringements 2003

SAMPLES FROM ALL SOURCES

Food Category	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling (1) and presentation	Others	Total No. of samples received	% of Samples with Infringements
1 Dairy Products	33	26	2	4	1	222	14.86%
2 Egg and Egg Products	0	0	0	0	0	3	0.00%
3 Meat and Meat Products, Game and Poultry	37	14	7	15	1	480	7.71%
4 Fish, Shellfish and Molluscs	9	9	0	0	0	567	1.59%
5 Fats and Oils	16	14	1	1	0	150	10.67%
6 Soups, Broths and Sauces	3	1	1	0	1	199	1.51%
7 Cereals and Bakery Products	105	81	0	17	7	532	19.74%
8 Fruit and Vegetables	11	11	0	0	0	156	7.05%
9 Herbs and Spices	9	3	0	6	0	164	5.49%
10 Non-Alcoholic Beverages	12	8	2	0	2	213	5.63%
11 Wine	1	0	1	0	0	36	2.78%
12 Alcoholic Beverages (other than wine)	3	1	2	0	0	119	2.52%
13 Ices and Desserts	2	0	0	0	2	5	40.00%
14 Cocoa and Cocoa Preparations, Coffee and Tea	1	1	0	0	0	42	2.38%
15 Confectionery	10	9	0	1	0	90	11.11%
16 Nuts and Nut Products, Snacks	6	5	1	0	0	187	3.21%
17 Prepared Dishes	17	13	0	4	0	59	28.81%
18 Foodstuffs Intended For Special Nutritional Uses	10	10	0	0	0	237	4.22%
19 Additives	0	0	0	0	0	19	0.00%
20 Materials and Articles Intended to come into contact with Foodstuffs	1	1	0	0	0	3	33.33%
21 Others	12	12	0	0	0	56	21.43%
Totals	298	219	17	48	14	3539	8.42%

(1) This refers to labelling requirements under Health legislation only.

Appendix 2(ii) Laboratory Results which revealed infringements 2003

ROUTINE SAMPLES FROM ENVIRONMENTAL HEALTH OFFICERS

Food Category	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling (1) and presentation	Others	Total No. of samples received	% of Samples with Infringements
1 Dairy Products	7	3	0	4	0	120	5.83%
2 Egg and Egg Products	0	0	0	0	0	3	0.00%
3 Meat and Meat Products, Game and Poultry	17	0	5	12	0	419	4.06%
4 Fish, Shellfish and Molluscs	4	4	0	0	0	416	0.96%
5 Fats and Oils	16	14	1	1	0	148	10.81%
6 Soups, Broths and Sauces	2	1	1	0	0	188	1.06%
7 Cereals and Bakery Products	46	29	0	17	0	226	20.35%
8 Fruit and Vegetables	1	1	0	0	0	130	0.77%
9 Herbs and Spices	6	1	0	5	0	129	4.65%
10 Non-Alcoholic Beverages	1	0	1	0	0	162	0.62%
11 Wine	1	0	1	0	0	34	2.94%
12 Alcoholic Beverages (other than wine)	1	0	1	0	0	64	1.56%
13 Ices and Desserts	0	0	0	0	0	3	0.00%
14 Cocoa and Cocoa Preparations, Coffee and Tea	0	0	0	0	0	36	0.00%
15 Confectionery	2	2	0	0	0	24	8.33%
16 Nuts and Nut Products, Snacks	3	3	0	0	0	175	1.71%
17 Prepared Dishes	4	0	0	4	0	31	12.90%
18 Foodstuffs Intended For Special Nutritional Uses	4	4	0	0	0	220	1.82%
19 Additives	0	0	0	0	0	0	0.00%
20 Materials and Articles Intended to come into contact with Foodstuffs	0	0	0	0	0	0	0.00%
21 Others	2	2	0	0	0	17	11.76%
Totals	117	64	10	43	0	2545	4.60%

(1) This refers to labelling requirements under Health legislation only.

Appendix 2(iii) Laboratory Results which revealed infringements 2003

COMPLAINT SAMPLES SUBMITTED TO ENVIRONMENTAL HEALTH OFFICERS BY THE PUBLIC

Food Category	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling (1) and presentation	Others	Total No. of samples received	% of Samples with Infringements
1 Dairy Products	21	18	2	0	0	25	84.00%
2 Egg and Egg Products	0	0	0	0	0	0	0.00%
3 Meat and Meat Products, Game and Poultry	15	13	1	0	0	32	46.88%
4 Fish, Shellfish and Molluscs	5	5	0	0	0	11	45.45%
5 Fats and Oils	0	0	0	0	0	2	0.00%
6 Soups, Broths and Sauces	1	0	0	0	0	1	100.00%
7 Cereals and Bakery Products	39	33	0	0	0	54	72.22%
8 Fruit and Vegetables	6	6	0	0	0	10	60.00%
9 Herbs and Spices	2	1	0	1	0	2	100.00%
10 Non-Alcoholic Beverages	11	8	1	0	0	17	64.71%
11 Wine	0	0	0	0	0	0	0.00%
12 Alcoholic Beverages (other than wine)	2	1	1	0	0	4	50.00%
13 Ices and Desserts	2	0	0	0	0	2	100.00%
14 Cocoa and Cocoa Preparations, Coffee and Tea	0	0	0	0	0	1	0.00%
15 Confectionery	7	6	0	1	0	12	58.33%
16 Nuts and Nut Products, Snacks	3	2	1	0	0	3	100.00%
17 Prepared Dishes	10	10	0	0	0	24	41.67%
18 Foodstuffs Intended For Special Nutritional Uses	1	1	0	0	0	1	100.00%
19 Additives	0	0	0	0	0	0	0.00%
20 Materials and Articles Intended to come into contact with Foodstuffs	0	0	0	0	0	2	0.00%
21 Others	3	3	0	0	0	7	42.86%
Totals	128	107	6	2	0	210	60.95%

(1) This refers to labelling requirements under Health legislation only.

Appendix 2(iv) Laboratory Results which revealed infringements 2003

COMPLAINT SAMPLES SUBMITTED TO THE LABORATORY BY THE PUBLIC

Food Category	Number of Samples with Infringements	Chemical/Physical Contamination	Composition	Labelling (1) and presentation	Others	Total No. of samples received	% of Samples with Infringements
1 Dairy Products	3	3	0	0	0	3	100.00%
2 Egg and Egg Products	0	0	0	0	0	0	0.00%
3 Meat and Meat Products, Game and Poultry	1	1	0	0	0	3	33.33%
4 Fish, Shellfish and Molluscs	0	0	0	0	0	0	0.00%
5 Fats and Oils	0	0	0	0	0	0	0.00%
6 Soups, Broths and Sauces	0	0	0	0	0	0	0.00%
7 Cereals and Bakery Products	4	4	0	0	0	7	57.14%
8 Fruit and Vegetables	4	4	0	0	0	4	100.00%
9 Herbs and Spices	0	0	0	0	0	0	0.00%
10 Non-Alcoholic Beverages	0	0	0	0	0	1	0.00%
11 Wine	0	0	0	0	0	1	0.00%
12 Alcoholic Beverages (other than wine)	0	0	0	0	0	0	0.00%
13 Ices and Desserts	0	0	0	0	0	0	0.00%
14 Cocoa and Cocoa Preparations, Coffee and Tea	0	0	0	0	0	0	0.00%
15 Confectionery	0	0	0	0	0	0	0.00%
16 Nuts and Nut Products, Snacks	0	0	0	0	0	0	0.00%
17 Prepared Dishes	3	3	0	0	0	4	75.00%
18 Foodstuffs Intended For Special Nutritional Uses	0	0	0	0	0	0	0.00%
19 Additives	0	0	0	0	0	0	0.00%
20 Materials and Articles Intended to come into contact with Foodstuffs	1	1	0	0	0	1	100.00%
21 Others	7	7	0	0	0	9	77.78%
Totals	23	23	0	0	0	33	69.70%

(1) This refers to labelling requirements under Health legislation only.

Appendix 3

Summary of R.A.S.F.F. Notifications- Alerts and Non-Alerts

				2003		
Contaminant/Hazard	Foodstuff	1997-2001 Total	2002 Total	Alerts	Non-Alerts	Total
Aflatoxins	Pistachio nuts	172	78	10	495	505
	Peanut Butter & others	25	17	2	80	82
	Peanuts	124	40	0	60	60
	Hazelnuts	9	56	1	54	55
	Brazil nuts	29	48	2	18	20
	Dried Figs	46	24	1	16	17
	Spices	19	10	1	14	15
	Almonds	9	6	0	4	4
	Apricot Stones	2	1	0	0	0
	Aflatoxins - Sub-totals	435	280	17	741	758
Ochratoxin A	Coffee, Vine Fruits, Spices etc.	33	13	4	22	26
Fumonisins	Corn and Corn products	-	-	14	1	15
Zearelenone	Babyfood	2	0	0	0	0
	Mycotoxins – Sub totals	**470**	**293**	**35**	**764**	**799**
Antibacterial Substances /Growth Promoters	Meat, crustaceans, fish, poultry etc.	39	413	53	252	**305**
Additives (Sudan Red)	Spices, sauces etc.	-	-	86	39	125
Additives (e.g. preservatives,colours)	Misc. Processed Foods	19	24	15	107	122
	Additives – Sub-totals	**19**	**24**	**101**	**146**	**247**
"Salmonella"	Meats(Bacon/Pork, Lamb, Beef, others)	51	46	47	28	75
	Spices, (incl herbal tea)	14	4	5	29	34
	Poultry	31	38	16	17	33
	Fish, Molluscs, Crustaceans & Cephalopods	149	23	4	25	29
	Miscellaneous	12	5	3	8	11
	Eggs (+ products)	7	6	3	5	8
	Vegetables + products.	9	4	2	2	4
	Cheese	3	3	1	1	2
	Coconut	6	1	0	2	2
	Frog	12	0	0	0	0
	Salmonella – Sub-totals	**294**	**130**	**81**	**117**	**198**
Metals(Hg, Pb, Cd, As, Sn, Cu ,etc)	Various foods	122	50	23	153	**176**
Pesticides	Fruit/Veg, Herbs/Spices, Tea + Others	125	175	13	55	**68**
Other Microbiology "Poisoning" (e.g. Moulds,Aerobic Mesophiles)	Various (fish, spices etc)	64	29	6	57	**63**
Physical/ Miscellaneous (e.g. foreign bodies, parasites)	Miscellaneous	48	73	25	30	**55**
Listeria monocytogenes	Fish + Miscellaneous	79	37	20	18	38
" "	Cheese	56	12	14	3	17
Listeria Welshimer	Miscellaneous	1	1	0	0	0
	Listeria – Sub-totals	**136**	**50**	**34**	**21**	**55**
Inadequate Cooking Instructions/ labelling	Miscellaneous	1	11	2	51	**53**
Vibrio parahaemolyticus	Fish, Molluscs, Crustaceans, Cephalopods	83	28	3	37	40
Vibrio cholera	Fish, Molluscs, Crustaceans, Cephalopods	80	19	2	7	9
Other Vibrio Strains	Miscellaneous	12	3	0	1	14
Vibrio alginolyticus	Shrimp	0	0	0	0	0
	Vibrio – Sub-totals	**179**	**50**	**5**	**45**	**50**
Misc.chemicals (e.g. Benzene)	Miscellaneous	38	14	7	26	**33**

Appendix 3 (Continued)

SUMMARY OF R.A.S.F.F. NOTIFICATIONS- ALERTS AND NON-ALERTS

				2003		
Contaminant/Hazard	Foodstuff	1997-2001 Total	2002 Total	Alerts	Non-Alerts	Total
Dioxins/PCBs	Meat, Poultry, Eggs etc.	3 (2ORevisions)	24	11	16	**27**
"Enterobacteriaceae"/"Coliform"	Fish, Crustaceans + Miscellaneous	65	32	2	25	**27**
Inadequate Transport Temps.	Meat, vegetables, fish etc.	2	2	0	24	**24**
Radioactivity	Blueberry, tea, mushrooms + Others	62	3	0	23	**23**
3-MCPD	Soy sauces largely	19	10	10	10	**20**
Histamine	Various fish	32	6	12	8	**20**
Benzo[a]pyrene/PAHs	Olive/Pomace Oil, Fish in Oil, vitamins + Others	84	34	14	4	**18**
"botulism", Other Clostridia C. botulinum/botulinum toxin	Miscellaneous canned products, Dairy products, meat prods, tofu	16	3	8	9	**17**
SRM and BSE issues	Fresh Meat, Beef and feedstuffs	1	8	3	10	**13**
Contraband/False Docum'n	Miscellaneous	6	0	3	9	**12**
Bacillus cereus	Egg, rice, canned & dried prods.	6	2	3	8	**11**
Marine biotoxins (DSP, ASP,AZP)	Bi-valve molluscs	36	15	3	3	**6**
Staph. Aureus/S. enterotoxin	Misc. Foods e.g. Fish, Shrimps, Cheese	22	6	1	5	**6**
Glass Fragments	Miscellaneous	12	6	3	2	**5**
Inorganics (e.g. Iodine, Fluorine etc)	Seaweeds + Miscellaneous	9	15	1	3	**4**
Inadequate processing	Miscellaneous	5	0	0	3	**3**
Genetically Modified Organisms	Cereals	-	1	0	2	**2**
Allergens/Allergic Rxns.	Miscellaneous	10	0	2	0	**2**
Caliciviruses,Echoviruses, Hepatitis A virus, NLV	Raspberrys, Oysters, Clams, + "Foodstuffs"	7	4	0	1	**1**
Shigella sonnei	Maize, cheese	1	1	0	0	**0**
E. Coli 0157	Meat + Cheese	4	0	0	0	**0**
"Poison"/Extortion	Miscellaneous	3	0	0	0	**0**
SUMMARY ACCORDING TO CONTAMINANT/HAZARD						
Sub-total Chemical+physical/others	All Foods as above	1146	1177	321	1594	**1915**
Sub-total 'Microbial'	All Foods as above	794	307	140	288	**428**
	(Total)	**1940***	**1484***	**461***	**1882***	**2343***
SUMMARY ACCORDING TO MAIN FOODSTUFF/FEEDSTUFF TYPE						
All Contaminants Hazards	Nuts & nut products	-	245	13	702	**715**
" "	Fish, shellfish etc.	-	471	98	453	**551**
" "	Miscellaneous foods (Dairy, eggs etc.)	-	230	171	294	**465**
" "	Meats & meat products	-	228	101	156	**257**
" "	Fruit & Vegetables	-	216	55	195	**250**
" "	Feedstuffs	-	61	15	54	**69**
	(Total)	**-**	**1451***	**453***	**1854***	**2307***

Note: Above data summarise notifications received by Public Analyst's Laboratory, Galway.
Above data excludes additional information notifications/revisions received
* These totals differ as some notifications related to more than one hazard.

Appendix 4

Fluoridation of Water Supplies – Western Health Board for 2003

FLUORIDATION OF WATER SUPPLIES :- GALWAY			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Athenry	9	711-856	776
Ballinasloe	9	<100-999	480
Carna	11	796-997	899
Clarinbridge/Kilcolgan	11	726-1178	889
Clifden	12	712-1245	862
Dunmore/Glenamaddy	13	812-901	857
Galway City	93	756-1022	888
Kinvara	12	<100-1072	825
Mid-Galway Regional	12	450-879	771
Mountbellew	12	831-919	871
Oughterard	12	718-1000	893
Portumna	16	560-5320	1158
Spiddal	12	804-987	898
Tuam	14	680-882	756

FLUORIDATION OF WATER SUPPLIES :- MAYO			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Achill	11	455-920	751
Ballina/Wherrew	12	680-952	852
Ballyhaunis	12	438-1100	832
Belmullet	11	647-941	774
Kiltimagh	10	566-959	767
Lough Mask Regional	12	443-880	661
Shrule	12	642-880	747
Swinford	12	404-1030	697
Westport	11	312-750	597
Ballina/Lisglennon	12	720-999	855

FLUORIDATION OF WATER SUPPLIES :- ROSCOMMON			
Location	**Number of Samples**	**Range (µg/L)**	**Mean (µg/L)**
Ballinlough	11	808-926	856
Boyle/Ardcarne	12	712-1009	831
Castlerea Regional	9	419-907	801
Castlerea Urban	12	877-1085	957
Cortober	10	776-1029	904
Four Roads/Mt. Talbot	12	753-935	809
Grangemore	9	<100	<100
North East Regional	11	921-1085	991
North Roscommon Regional	11	664-1015	744
Roscommon Town (Central)	12	768-1039	906
South Roscommon Regional	12	<100-949	559

Appendix 4

Fluoridation of Water Supplies North Western Health Board for 2003

FLUORIDATION OF WATER SUPPLIES :- DONEGAL			
Location	**Number of Samples**	**Range (µg/L)**	**Mean (µg/L)**
Buncrana	18	590-942	865
Bundoran	42	780-924	869
Carndonagh	13	<100	<100
Ballyshannon	24	<100-730	126
Cranford	20	420-1435	737
Donegal/Eske	30	680-960	846
Dunfanaghy/Creeslough	9	677-870	792
East Inishowen	13	<100-927	815
Frosses/Inver	19	620-973	792
Glenties/Ardara	11	<100	<100
Falcarragh	8	477-932	677
Letterkenny	44	642-776	700
Lettermacward	11	593-910	790
Lough Mourne	42	626-861	708
Milford	22	359-1030	655
Rosses Regional	9	563-840	678
Inishowen West	17	<100	<100
Pollan Dam	32	<100	<100
Rathmullan	7	<100	<100

FLUORIDATION OF WATER SUPPLIES :- SLIGO/LEITRIM			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Ballymote	9	<100-883	539
Kinsellagh	12	<100-1001	425
Lough Gill	21	<100-799	214
Lough Easkey	13	595-1290	906
Lough Talt	11	149-961	512
Manorhamilton	9	616-1054	819
North Regional Supply	11	<100	<100
Sligo South Regional	7	534-861	674
South Leitrim Regional	10	747-1160	908

Appendix 4

Fluoridation of Water Supplies Mid Western Health Board for 2003

FLUORIDATION OF WATER SUPPLIES :- LIMERICK			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Abbeyfeale	9	305-1083	850
Adare	9	901-1117	1030
Ballyagran	11	722-900	813
Clooncagh	12	820-1160	983
Kilmallock	11	760-973	860
Limerick City	30	<100-870	708
Newcastle West	11	670-951	822
Rathkeale	8	830-976	928
South West Regional	21	700-1021	826

FLUORIDATION OF WATER SUPPLIES :- CLARE			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Clarecastle	10	694-960	819
Ennis	15	700-966	808
Ennistymon	11	139-889	739
Kildysart	11	380-1098	742
Kilkee	11	740-1198	906
Lisdoonvarna	9	713-844	783
Rockmount	9	793-998	887
Shannon	12	770-1039	894
West Clare New Doolough	11	804-923	870
West Clare Old Doolough	10	880-991	943

FLUORIDATION OF WATER SUPPLIES :- NORTH TIPPERARY			
Location	**Number of samples**	**Range (µg/L)**	**Mean (µg/L)**
Borrisokane	10	900-1144	982
Castleconnell	12	150-810	666
Murroe	11	395-918	679
Nenagh	10	<100-1319	350
Newport	9	<100-819	658
Thurles	20	<100-950	708
Roscrea	15	<100	<100
Templemore	9	136-163	146

Appendix 5 (i)

AIR POLLUTION DATA

Concentration of Smoke & Sulphur Dioxide in the atmosphere at Galway Waterworks for 2003 Micrograms per cubic metre.

	Smoke			Sulphur Dioxide		
	Average Reading	Highest Reading	Lowest Reading	Average Reading	Highest Reading	Lowest Reading
JANUARY	5	42	1	10	39	4
FEBRUARY	5	23	1	9	22	4
MARCH	4	12	1	10	15	5
APRIL	4	10	1	10	17	2
MAY	1	4	1	9	13	5
JUNE	1	2	1	9	12	3
JULY	1	3	1	9	12	3
AUGUST	2	6	1	12	25	7
SEPTEMBER	2	7	1	9	12	5
OCTOBER	3	17	1	8	22	3
NOVEMBER	4	23	1	9	24	5
DECEMBER	5	19	1	10	24	5
AVERAGE	**3**	**14**	**1**	**9**	**20**	**4**

Appendix 5 (ii)

AIR POLLUTION DATA

Concentration of Smoke & Sulphur Dioxide in the atmosphere at Sandy Road for 2003. Micrograms per cubic metre

	Smoke			Sulphur Dioxide		
	Average Reading	Highest Reading	Lowest Reading	Average Reading	Highest Reading	Lowest Reading
January	8	48	1	7	17	4
February	7	27	1	7	14	3
March	5	15	1	11	20	4
April	4	10	1	17	31	5
May	2	6	1	21	37	4
June	2	9	1	27	51	8
July	3	6	1	23	36	6
August	4	13	1	32	60	9
September	6	13	1	21	37	8
October	8	25	1	16	24	4
November	8	36	2	12	19	6
December	9	23	1	9	16	4
Average	**5**	**19**	**1**	**17**	**30**	**5**

R + P PARTISOL PLUS MODEL 2025 SEQUENTIAL AIR SAMPLER for 2003
Appendix 5 (iii). PM10 RESULTS MASS CONCENTRATION (M.C.) µg/m³

STATION: BARRY MOTORS YEAR 2003 | **GALWAY CITY COUNCIL** | **24 Hour M.C. µg/m³**

Day	Jan	Feb	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
01	14	17	28	30	-	11	20	22	20	34	27	24
02	17	11	21	27	-	16	25	23	16	43	17	24
03	37	20	14	30	-	14	21	9	23	32	25	31
04	37	18	19	55	-	18	24	9	37	22	21	39
05	17	18	35	24	-	16	18	25	18	14	-	28
06-	20	26	30	-	28	10	24	16	36	-	20	
07	19	20	20	32	27	21	24	14	11	25	36	30
08	38	15	33	33	28	12	27	27	20	32	26	46
09	30	-	29	55	24	9	14	17	20	23	16	24
10	78	-	38	43	18	19	31	11	20	48	17	14
11	61	60	32	43	14	24	41	16	23	12	9	65
12	19	38	52	37	20	23	-	26	23	13	20	11
13	27	26	36	26	22	29	-	19	17	23	14	16
14	29	63	41	-	27	19	-	15	16	38	13	33
15	31	56	39	19	9	15	-	21	27	40	36	28
16	23	41	45	24	18	18	26	16	27	38	20	23
17	30	37	45	40	19	24	14	15	34	36	9	29
18	23	33	75	70	23	17	11	22	19	30	19	36
19	16	63	61	33	22	18	14	19	32	21	19	21
20	23	88	32	38	30	27	9	18	19	35	48	13
21	62	36	34	50	19	20	21	17	13	33	23	15
22	96	43	44	58	22	20	22	12	15	27	47	19
23	21	22	78	46	21	20	18	14	36	46	-	12
24	13	-	69	28	16	-	11	12	23	36	-	14
25	66	46	54	13	10	22	15	21	26	22	22	15
26	6	26	65	17	10	-	14	20	21	27	40	9
27	14	16	70	22	18	19	12	32	27	23	46	-
28	36	22	107	22	16	13	13	20	16	5	13	-
29	33	-	-	16	18	16	10	17	26	63	19	-
30	34		-	13	36	15	13	13	31	11	22	-
31	-		-		16		11	9		28		-
Monthly Mean	33	34	44	34	20	19	18	18	22	29	24	25
No. of Days exceeding 50µg/m³	5	5	9	4	0	0	0	0	0	1	0	1

No. of Days exceeding 50µg/m³ YEAR 2003: 25 ANNUAL MONTHLY MEAN = 27

APPENDIX 6

STAFF 2003

Public Analyst (Temp)	Mr. P. Canavan
Deputy Public Analyst (Temp)/Quality Manager	Dr. A. Bruzzi
Executive Analytical Chemists	Dr. P. Burke
	Mr. R. Mannion
	Ms. C. Mulhern (Part-time)
	Dr. H. McGrath
	Ms. S. Crowe
	Dr. M. Cuffe
	Dr. C. Lardner
	Dr. B. Clarke
	Dr. C. Laffey
	Dr. A. Flanagan
	Dr. L. Wallace
Chief Lab. Technician	Mr. P. Hehir
Senior Lab. Technicians	Mr. J. Creaven
	Mr. M. O'Flaherty

Appendix 6

	Mr. M. Patten
	Ms. M. Finan
	Ms. P. Thornton
Laboratory Technicians	Ms. E. Clasby
	Ms. E. Goldrick (Job-sharing)
	Ms. C. Greaney (Job-sharing)
	Ms. C. Gilmore (Job-sharing)
	Ms. S. Davoren
	Mr. M. Gilligan
	Ms. N. Brennan
	Mr. T. Fogarty
	Ms. S. O'Flynn
	Ms. N. Madden
	Ms. A. McCarron
	Mr. E. Costello
	Ms. D. Muldoon
	Ms. A. Maughan
	Mr. T. Heneghan
	Ms. M. Finn
	Ms. L. Mannion
	Ms. C. Lupton
Asst. Staff Officer	Ms. M. Mulvaney
Clerical Officers	Ms. E. Mannion
	Ms. M. MacDermot
	Ms. M. Merritt
	Ms. S. Hoban
Housekeeper	Ms. T. Busch.

LABORATORY MATTERS AND ACKNOWLEDGEMENTS.

There was a Strategic Development Review of Health Board Food Control Laboratories carried out during 2003 and the final report was published in July 2004. There were many laboratory issues covered within the Terms of Reference and dealt with in the 16 Recommendations of the Review Body, and this is a welcome step. This is the first time in the history of the laboratory service that the Chemical and Microbiological aspects of Food Control have been examined together and this Laboratory was represented on one Sub-Committee.

I now look forward to the implementation of the Report's recommendations as there are serious implications for the future working mechanism and management of the Service as a whole.

There are exciting times ahead and the Laboratory Staff as a whole will face new challenges that will arise from the contents of this Review. Naturally, there will be a need to re-structure and increase the resources available at present in order to carry out the necessary changes.

Another Body that has implications for the Laboratory Service is the new Drinking Water Monitoring Committee which has been formed due to the new Drinking Water Regulations which come into effect in January 2004. This Committee, through it's consultants, has inspected the analytical resources within the State, including the Public Analyst's Lab., and the options available have been published and await implementation. This will also present a challenge for the Water Laboratory, as it is predicted that the work-load will increase when the necessary decisions are made on implementation.

The Service Contract with the F.S.A.I. is proceeding apace and the programmes are monitored closely each year with a continuing review in order to keep abreast of emerging issues and reduce risks to the consumer due to food contamination.

'Safefood' also continues to handle food safety issues, training seminars, and publication of laboratory information in the newsletter, 'Lablinks'. There are Cross-border interactions with the Belfast Public Analysts Lab. and the R & D projects which were, and continue to be, funded by 'Safefood'. One such project is being completed at present.

The Laboratory is continuing its contract with the Irish Medicines Board to carry out Surveillance and Enforcement work on Pharmaceutical Products and medicinal Substances.

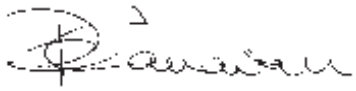
The Air Monitoring Stations in Galway are also supported by laboratory staff for the City Council and Department of the Environment and it is desirable that we should expand the number of test parameters in this area as Galway is continuing to expand in population and traffic density.

The reader can determine from the above activities and from the contents of this Annual Report that there is a lot of planning, initiative, work and flexibility required in order to keep this laboratory in the front line of Scientific Data production for the Stakeholders.

Appendix 6

It is imperative to be cost-effective in the fields of expertise in which we endeavour to excel as a fully Accredited Laboratory while keeping our eyes fixed on developments abroad in order to maintain our reputation within the constraints of resources available.

All of this initiative becomes a reality when the Laboratory Team achieves the goals set by Laboratory Staff, Agencies and Authorities. This Team works in close harmony with our colleagues the Environmental Health Officers in the three Health Boards, thus ensuring that the service to the public is of the highest standard. It is in this context that I thank everyone of the Staff for their diligence to duty, enthusiasm for work carried out, and for enhancing the reputation of the Public Analyst's Laboratory through their combined effort throughout the year.



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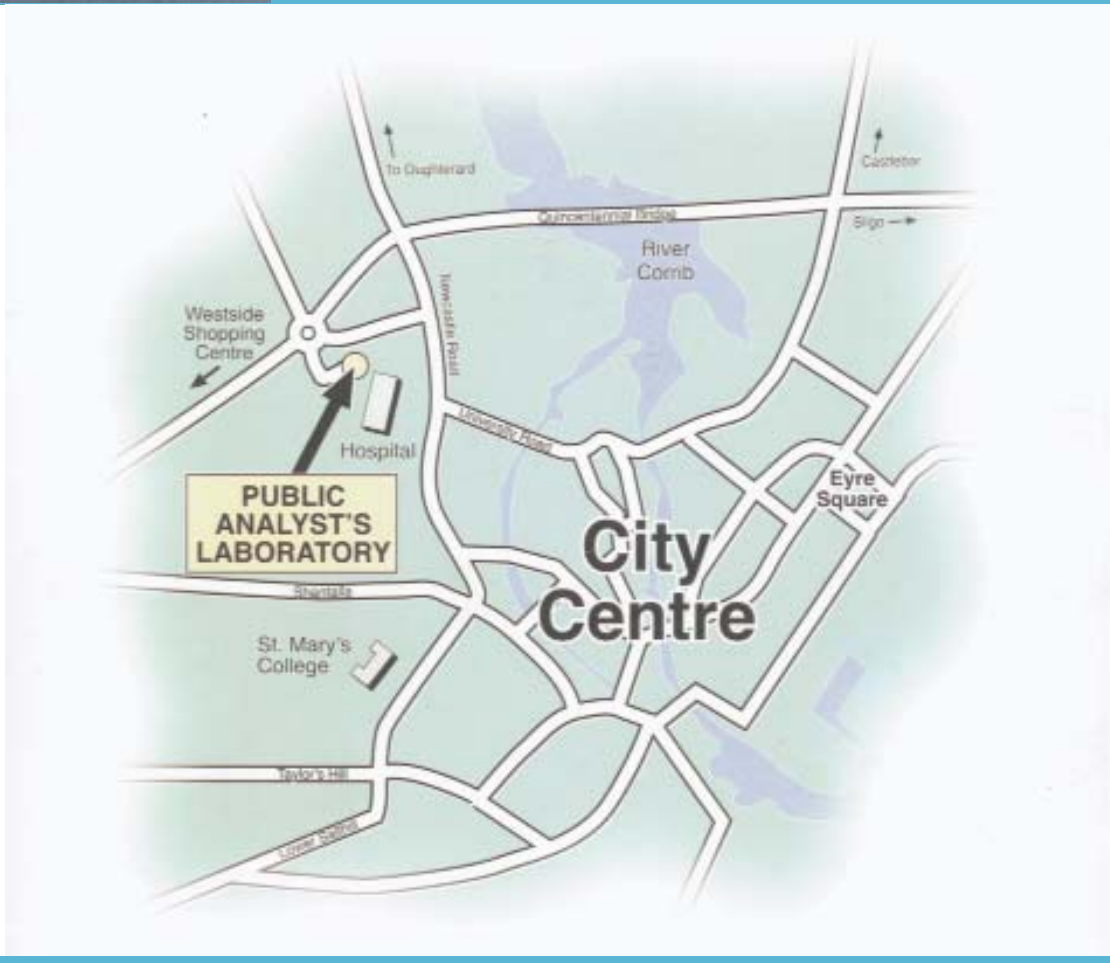
Peadar Canavan, Public Analyst.

October 2004.



Saotharlann an Anailisí Phoiblí

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Public Analyst's Laboratory

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