



NRL Contacts

**Antimicrobial
Resistance
Zoonoses
(salmonella)**
Dr M Gutierrez

**Listeria
Staphylococci
Milk & Milk Products**
Ms B Hickey

Ecoli (VTEC)
Dr L Scott

Parasites
Dr T Murphy

TSE's
Dr P Collery

**Residues/Chemical
Elements**
Mr P Rafter

Pesticide Residues
Dr D O'Sullivan

Campylobacter
Dr J Egan

Animal Proteins
Mr G Roe

Activities of National Reference Laboratories (NRL's)

Introduction

In 2006 following the designation of a number of additional Community Reference Laboratories (CRL's) by EU, Member States were required under Article 33 of Regulation 882 / 2004 to designate one or more National Reference Laboratory (NRL) for each CRL. The Departments of Health and Children and Agriculture and Food, as the Irish Competent Authorities, assigned these NRL functions to a number of laboratories including those within the Backweston Laboratory Campus. See list of NRL's outlined in Appendix.

Article 33 of Regulation 882 / 2004 outlines functions of NRL's to include

- (a) collaborate with the Community reference laboratory in their area of competence;
- (b) coordinate, for their area of competence, the activities of official laboratories responsible for the analysis of samples in accordance with Article 11;
- (c) where appropriate, organise comparative tests between the official national laboratories and ensure an appropriate follow up of such comparative testing;
- (d) ensure the dissemination to the competent authority and official national laboratories of information that the Community reference laboratory supplies;
- (e) provide scientific and technical assistance to the competent authority for the implementation of coordinated control plans adopted in accordance with Article 53;

As part of the process of communication the Daff Laboratories, Backweston will issue quarterly an electronic newsletter outlining relevant activities undertaken by NRL's under its remit.

Report

NRL Salmonella

Foodmicro Database

Data on pathogens recovered from food or the food processing environment is collated at the CVRL. Laboratories providing microbiological testing for the food industry regulated by DAFF (listed below) submit all Salmonella isolates to the NRL for typing. These laboratories also provide monthly updates on testing and results are recorded in the Foodmicro Database; a database set up with the support of Safefood in recent years.

The following table contains details of the number of food samples tested for Salmonella in 2007 by sample category and the types and frequency of Salmonella strains isolated.

Food Category		Total Samples Tested	No. Positive	Strains breakdown
Cooked Meats and Cooked Meat Products	<i>Bovine</i>	1371	3	S. Kentucky (2); S. Trphimurium PT U311 (1)
	<i>Chicken</i>	3335	1	S. Agona (1)
	<i>Cooked Meat (Not Specified)</i>	3246	2	S. Give (1); S. Typhimurium DT 104 (1)
	<i>Duck</i>	2		
	<i>Meat Combo eg. Turkey & Ham</i>	1		
	<i>Miscellaneous</i>	36		
	<i>Ovine</i>	90		
	<i>Porcine</i>	4114	5	S. Derby (2); S. Poona (1); S. Reading (1); S. Typhimurium DT104 (1)
	<i>Turkey</i>	575		
Dairy Products	<i>Dairy Products (Not Specified)</i>	5896	1	S. Agona (1)
	<i>Milk Powder</i>	5814		
	<i>Pasteurised Milk</i>	110		
	<i>Raw Milk</i>	2	1	S. Dublin (1)
Eggs and Egg Products	<i>Egg Products (Raw to be cooked)</i>	81		
	<i>Egg Products (Ready to eat)</i>	233		
	<i>Egg Products (Raw to be cooked)</i>	874		
	<i>Table Eggs (Raw)</i>	88	1	S. Agona (1)
Other Food Products	<i>Food Grade Water</i>	375	3	S. Dublin (2); S. Typhimurium RDNC (1)
	<i>Foods (Not Specified)</i>	2469	5	S. Infantis (1); S. Mbandaka (1); S. Rideau (1); S Typhimurium DT104 (2)
	<i>Miscellaneous</i>	343	1	S. Typhimurium DT104b (1)
	<i>Mushrooms</i>	86		

Food Category		Total Samples Tested	No. Positive	Strains breakdown
Other Food Products	Prepared Foods (to be cooked)	8455		
	Ready to Eat Foods	8120	2	S. Havana (1); S. Mbandaka (1)
	Vegetables and Fruit	3477	1	S. Agona (1)
	Water	2		
	Water - Bottled/Well	4		
Raw Meat	Bovine	22905	27	S. Agona (1); S. Altona (1); S. Derby (3); S. Dublin (7); S. Enteritidis PT8 (1); S. Kentucky (1); S. Ohio (1); S. Poona (1); S. Reading (1); S. Rissen (1); S. Typhimurium 120 (1); 193 (2); DT104b (3); DT193 (3)
	Chicken	4932	269	S. Agona (26); S. Bareilly (2); S. Derby (1); S. Enteritidis PT4 (6); S. Indiana (1); S. Infantis (2); S. Kentucky (219); S. Livingstone (1); S. Mbandaka (2); S. Newport (1); S. Orion (1); S. Paratyphi B (3); S. Typhimurium DT104 (1); DT132 (1); S. Unnamed (1); S. Virchow (1)
	Duck	129	2	S. Agona (2)
	Duck (carcase)	13		
	Edible Fat/Dripping	623	1	S. Typhimurium DT104b (1)
	Liver	15		
	Miscellaneous	308		
	Ovine	1508	2	S. Livingstone (1); S. Typhimurium DT104b (1)
	Porcine	1992	58	S. Agona (1); S. Altona (1); S. Brandenburg (1); S. Bredeney(3); S. Derby (7); S. Enteritidis PT8 (1); S. Heidelberg (1); S. Infantis (1); S. Kentucky (2); S. London (4); S. Panama (2); S. Poona (1); S. Typhimurium 193 (1); DT104 (1); DT104b (17); DT12 (2); DT193 (1); U311 (1); RDNC (1); U288 (3); Untypable (1); DT208 (1); pending (1); U314 (1); 120 (1); S. Unnamed (1)
	Raw Meat (Not Specified)	2552	12	S. Derby (1); S. Poona (2); S. Rissen (7); S. Typhimurium DT104b (1); S. Unnamed (1)
Turkey	475	4	S. Brandenburg (1); S. Kentucky (1); S. Kottbus (2)	
Raw Meat Products	Bovine	12123	5	S. Brandenburg (2); S. Rissen (1); S. Typhimurium DT104b (2)
	Chicken	1081	18	S. Agona (4); S. Corvallis (1); S. Enteritidis PT6 (6); S. Kentucky (3); S. Mbandaka (1); S. Paratyphi B (2); S. Virchow (1)
	Greaves	24		
	Miscellaneous	175	2	S. Rissen (2)
	Ovine	675		

Food Category		Total Samples Tested	No. Positive	Strains breakdown
Raw Meat Products	Porcine	4705	47	S. Brandenburg (3); S. Bredeney (9); S. Butantan (1); S. Derby (12); S. Livingstone (1); S. London (1); S. Manhattan (1); S. Mbandaka (1); S. Reading (1); S. Typhimurium 193 (2); DT104b (7); DT193 (2); pending (2); RDNC (1); U288 (1); U302 (2)
	Porcine carcase swabs	7		
	Raw Meat Product (Not Specified)	1552	27	S. Derby (1); S. Dublin (1); S. Typhimurium DT104b (2); S. Unnamed (1)
	Turkey	181	1	S. Anatum (1)
Total		105144	477	

Private Laboratories contributing to National Zoonoses Monitoring

Advanced Micro Services, Cork
 Anser Laboratories Ltd, Moy, Co. Tyrone
 Aqua Lab Ltd, Killybegs, Co. Donegal
 Biosearch Ltd., Belfast
 Bodycote Consult-us, Glanmire, Co. Cork
 City Analyst, Limerick
 Complete Laboratory Solutions, Connemara, Co. Galway
 Enfer Micro Laboratory, Clonmel, Co. Tipperary
 Enva Ireland Ltd., Raffeen Ind. Est., Ringaskiddy Rd., Co. Cork
 Envirolab, Waterford
 Eurofins Scientific Ireland, Dundalk, Co. Louth
 Independent Micro Lab Ltd., Portlaoise, Co. Laois
 Irish Equine Centre, Johnstown, Co. Kildare
 Liffey Meats Ltd, Ballyjamesduff, Co. Cavan
 Microchem Laboratories, Dungarvan, Co. Waterford
 Microlab Ltd, Castleblayney, Co. Monaghan
 Mid-Antrim Laboratory Services, Ballymena, Co. Antrim
 Monaghan Veterinary Laboratory, Monaghan
 Oldcastle Laboratories Ltd., Oldcastle, Co. Meath
 Q-Lab Ltd., Drinagh, Co. Wexford
 Slaney Foods Int'l Ltd., Enniscorthy, Co. Wexford
 Southern Scientific Services Ltd., Kilarney, Co. Kerry
 Veterinary Food Safety Lab, Cork Co. Council

More detailed information can be obtained from Dr Montserrat Gutierrez:
 Email: mm.gutierrez@agriculture.gov.ie or Dr John Egan: Email: john.egan@agriculture.gov.ie

Community Reference Laboratory (CRL) Salmonella Workshop

The Workshop was held 26 and 27th May 2008 in Bilthoven, The Netherlands.

All Member States (MS) participated. Frank Boelaert EFSA gave

two presentations, one covering the 2006 zoonoses report and one covering the baseline studies undertaken in 2007. One of his observations on the 2006 zoonoses report was the affirmation that data was not always comparable between MS but it is often comparable within one MS between the years. The incidence of *Listeria monocytogenes* is increasing over the last 5 years.

Kris de Smet (SANCO) presented an overview of Salmonella controls in the different animal categories and flagged a possible EU wide survey next year on Salmonella in broiler meat at retail level. There are also discussions about a possible study on *L. monocytogenes*, but no firm details on this at this stage. He also described the alternative sampling at farm level for hens and turkeys that is being discussed at EU level following on from some UK research.

Petra Berk (CRL Salmonella) presented the results of the analysis of duplicate meat juice samples collected during the slaughter pig baseline study and the interlaboratory comparison study on serological detection of Salmonella. The duplicate meat juice samples, 60 per country with 10 MS participating including Ireland, were tested by the Animal Health Services (AHS) laboratory using the Herdcheck Swine Salmonella kit. Results were compared with those submitted by the participating MS. The average OD% obtained by each MS and by the AHS were tabulated and the differences observed were significant for 8 of the countries (not for Ireland) indicating ELISA results for the baseline studies were not harmonised and therefore could not be compared.

The inter-laboratory comparison study on serological detection of Salmonella on the other hand showed that the ELISA methods (4) were comparable between different MS and that all the NRL's performed very well.

Results were presented on the inter-laboratory (NRL) collaborative studies on isolation of Salmonella in minced beef and

poultry faeces that had taken place since the 2007 workshop. Vials containing *Salmonella* Enteritidis (10 and 100 cfu's), *Salmonella* Typhimurium (5 and 50 cfu's) or *Salmonella* Panama (5 cfu) were supplied for inoculating into a mince or faeces matrix for the trials. A number of different media were evaluated during the trials.

- Mince beef study: There were 5 laboratories that only detected 1/5 SE10 artificially contaminated samples. Three of these laboratories failed to meet the minimum performance required and were reviewed by CRL along with other 3 laboratories showing a poor performance in examining control samples. Results from NRL, Ireland were satisfactory. There were no significant differences observed in the performance of RVS and MSRV but MKTTn was found to be less sensitive.
- Poultry faeces: The overall performance for this trial was better than for the mince beef study. NRL's in 4 MS were contacted by the CRL due to poor performance in the ring trial.

The CRL is planning one inter-laboratory detection study in feedingstuff in 2008, possibly using raw ingredients to include the effect of interfering flora, and one in 2009 using a veterinary matrix (maybe dust). The levels of cfu/capsule for the low level SE will be increased to 20 instead of 10. Satisfactory performance will require the detection of at least 2 of the 5 capsules at the low level.

Rob Davies NRL, UK presented the results of a study evaluating the sensitivity of different sampling methods for monitoring turkey farms for the presence of *Salmonella*. These results are being considered by SANCO as part of a review of sampling methodologies for the *Salmonella* control programmes in poultry. Results of the study show that a combination of one dust sample and one pair of boot swabs from the whole house was the most sensitive sampling regime.

There were two presentations on *Salmonella* Java, one from E. de Pinna, HPA, and one from I. Szabo, BfR Berlin. Several MS, i.e. the Netherlands, Belgium, Germany and to a less extent France, have experienced an epidemic of a particular clone of *Salmonella* Java in their poultry flocks. This clone has a common PFGE pattern and phage type (HPA has been successful developing a new phage to enable recognition of this new type, which has been named phage type Colindale). It is also characterised by being multi-drug resistant, in some cases showing even resistance to fluoroquinolones and last generation cephalosporins. Until now human infections are only sporadic, although an outbreak has been reported in Scotland.

Cyprus, Denmark, Finland, Estonia and Hungary gave individual presentations, the main topic of which was the organisation of NRL duties in their respective countries. Some discussion took place regarding the organisation of proficiency tests for super-

vised laboratories.

Regarding ISO and CEN activities, the CRL is looking at the enumeration method for *Salmonella* based in the mini-MSRV as part of a mandate from the Commission to CEN. Other activities include a review of ISO 6579, an enquiry on the need for a standard or guide for serotyping, a working group on the review of ISO 16140, a working group on proficiency testing in microbiology, a group on QA of media and a task group on primary production specifically looking into sampling regimes.

More detailed information can be obtained from Dr Montserrat Gutierrez: mm.gutierrez@agriculture.gov.ie

Report

NRL *Listeria Monocytogenes*

The 2nd Workshop of the CRL for *L. monocytogenes* was held in April 2008 in the Community Reference Laboratory, AFSSA, Maisons-Alfort, Paris.

A statistically significant increase in human listeriosis was observed in the EU over the last 5 years. Most cases are sporadic and only a few epidemics have been reported. At risk groups are still infants, pregnant and immunocompromised personnel but most cases are reported in the age group 65 years and older. The overall incidence is 0.3 cases / 100,000 population.

A new dose response model is required with focus on pregnant women and on the aged with underlying disease.

The results of 40,000 tests undertaken (25g samples) as part of official EU control in 2006 showed that the highest % of positive samples were found in fishery products (4.4% positive; 1.4% > 100cfu/g), followed by ready to eat foods (RTE) meat products (1.7 - 3.5% positive depending on product), other RTE foods (3.5% positive in sandwiches, vegetables), and dairy products (0.7 - 1.7% positive depending on product type).

The food safety criteria for *L. monocytogenes* are specified in EC No 2073/2005, Chapter 1, 1.1- 1.3. However clarification is required on one food category; RTE foods able to support the growth of *L. monocytogenes* other than those intended for infants and special medical purposes (1.2). MS's are interpreting criteria specified for this food category differently resulting in differences in criteria used to decide on alerts and trade restrictions.

A working group is currently examining options.

CRL Activities

The CRL presented the outcome of work carried out since 1st workshop. Results of a survey on the incidence of non-haemolytic *L. monocytogenes* were presented. It was difficult to assess if these organisms were implicated in listeriosis as

haemolysis on blood agar is used to select colonies for confirming *L. monocytogenes* in medical laboratories.

AFSSA has developed a more sensitive method for the enumeration of *Listeria* in 5g cold smoked salmon using membrane filtration and selective agar. During 2007 they continued working on membrane filtration to test its applicability to other food matrices including vegetables, salads, fish, ground beef meat, cooked meats, sausages and dairy products. They examined parameters such as filterability, linearity, accuracy and precision. The method was found unsuitable for some food matrices due to inability to filter and the presence of background flora (dairy products). This leads to difficulty to having a harmonised protocol for preparing all foods matrices.

The Guidance Document for conducting shelf-life studies to determine compliance with microbiological criteria for *L. monocytogenes* in ready to eat foods was published by AFSSA in January 2008. As a result of comments from MS's the document will be divided into two parts, one for FBO's and one for laboratory's undertaking the challenge or durability tests.

AFSSA are continuing to work on characterisation methods for *L. monocytogenes* strains. They outlined some of the advantages and disadvantages of the methods in current use.

(a) PFGE – Typing- "Gold Bar Reference"

Standardised protocol and international Pulsenet network. It is the key method of characterisation used for outbreaks.

Advantage	Disadvantage
Protocols standardized	Labour intensive
With 2 restriction enzymes it is highly discriminatory	Time consuming
PulseNet harmonisation and exchange of patterns or analyses files	Interpretation of band patterns subjective. Some manual interpretation by trained personnel Presence of mobile genetic elements

(b) MLST : Multilocus sequence typing

MLST- MVLST

Advantage	Disadvantage
Relevant data without subjectivity	Technically demanding
Discriminatory Power MLST= PFGE	Expensive sequencing
Data easily exchanged and compared via worldwide web databases	Limited sequence variation in housekeeping and therefore in virulence genes
MLST useful for studying population structure at phylogenetic level	
MVLST efficient for outbreak investigation and epidemic clone designation	

(c) MLVA: Multi locus variable number tandem repeat analysis.

Advantage	Disadvantage
Fast- in less than 6h following DNA extraction	No standardisation and consensus on protocols
Suitable for inter laboratory comparisons	Discriminatory power MLVA< PFGE
Potential for high throughput and automation	
Interpretation of results less subjective than PFGE patterns	

(d) Automated Repetitive PCR

PCR followed by microfluid electrophoresis. (Biomérieux manufacture Diversilab system).

Advantage	Disadvantage
Relevant data without subjectivity	Expensive reagent and material
Automated	No current database
Easy to perform and very fast (4h)	

The CRL outlined its 2008-2009 work programme to includes the following tasks; developing a more sensitive enumeration method, evaluating the enrichment step in the detection method, carrying out stability studies on matrices prior to conducting proficiency testing, continuing to develop the guidance document for challenge and durability studies for RTE products to ensure compliance with Regulation EC No. 2073/2005, participating in the working group on changes to EN ISO 11290-1,2 and taking part in the organisation of an inter-laboratory trial to evaluate changes to methods, evaluating alternative methods to PFGE and organising various training.

Items to note for laboratories enumerating *L. monocytogenes*. A new version of ISO 7218 "Microbiology of food and animal feeding stuffs - General requirements and guidance for microbiological examinations" was published in 2007 and this supersedes the calculation in ISO 11290- 2 on how to enumerate *L. monocytogenes*.

More detailed information can be obtained from Bernadette.Hickey;

Email: bernadette.hickey@agriculture.gov.ie

Report

NRL-Animal Protein

The Plant Health Laboratory at Backweston undertakes NRL functions for Animal Protein (AP) in Ireland. Animal protein

notes

testing involves the detection of animal by-products using light microscopy. It is necessary because some animal by-products are believed to harbour the prions responsible for BSE and occasionally these products are found as contaminants in animal feedingstuffs. The laboratory has been involved in feedingstuff analysis since the mid-1990's.

The NRL has participated in one CRL ring tests in the last six months dealing with the detection of proscribed material in animal feed samples and also an inter-laboratory study on the development of new microscopic methods for AP detection and quantification. In addition, the NRL has participated in a ring-test organised by the International Association of Feedstuffs Analysis (IAG). As with the previous ring-test organised by the CRL, the NRL performed well in the quantification and identification of AP from different sources (e.g. fish and bovine). The study concluded that it was necessary to count a minimum number of particles in a sample before such a sample could be considered positive. The inter-laboratory study, which was organised by the CRL late in 2007, was designed to evaluate an enhanced method for the quantification of AP in feedingstuffs. This enhanced method involved the staining of bone material using alizarin red and the quantification of the stained particles using a counting grid. The results of this study were reported in April 2008. Ireland's NRL was amongst the most accurate laboratories. The study revealed that the enhanced quantification procedure allowed for greater standardisation of the quantification method. However it was also noted that generally laboratories over-estimated the amount of AP present. Additionally the study demonstrated the importance of analyst experience. Of the five laboratories that reported results least accurately, three had not participated in previous CRL studies.

The results of the IAG ring-test have not yet been reported, however it is anticipated that they will be discussed at the June meeting of the IAG in Budapest.

More detailed information can be obtained from Dr James Choiseul;
Email: james.choiseul@agriculture.gov.ie

Report

NRL Parasites and Residues

The Central Meat Control Laboratory undertakes functions of NRL parasites and residues (Appendix 1). Outlined below are summary details of some official testing conducted in 2007.

Trichinella: A total of 3,375 samples of pork and 61 horsemeat samples were examined in 2007 as part of the official monitoring programme. There were no positive results.

Residue Analysis:

Over 6,000 routine screening analyses for Trenbolone, Nortestosterone, Zeranol, b -Agonists, and Chloramphenicol were undertaken as part of the national residue control plan. Of these, 9 samples screened positive for Zeranol and 6 samples screened positive for Nortestosterone. In addition 650 tests for were undertaken for Ractopamine, b -Agonists, Sulphonamides and Streptomycin as part of the national residue control plan.

Using chromatography over 330 tests were undertaken for group A 2 substances (Thyrostats), 350 tests for group B2d (Sedatives), and 75 tests for group B 2f (Carbadox).

Inhibitory Substances:

A total of 3,013 analyses were undertaken on samples collected as part of the National Plan for monitoring inhibitory substances. A further 3,288 analyses were carried out on suspect samples. Of these 26 samples screened positive and 6 of these were subsequently confirmed non-compliant after confirmatory analysis. Confirmatory tests have been developed for Penicillins, Tetracyclines, and Sulphonamides.

Chemistry - Heavy Metals:

A total of 300 samples were examined for Lead, Mercury, Arsenic and Cadmium using Atomic

notes

Absorption Spectrum analysis. One sample was tested above the limit for Lead. This sample was taken from a wild deer shot in Co. Wicklow.

Chemistry - Nitrite/Nitrate:

A total of 150 official samples of bacon were tested for Nitrite/Nitrate levels using Dionex Ion Exchange Chromatography.

More detailed information can be obtained from Paul Rafter;

Email: paul.rafter@agriculture.gov.ie

Report**NRL TSE**

The Workshop was held on 11 and 12th June in London. The meeting was attended by staff from the CRL (VLA, Weybridge) and one or two delegates from each of the European NRL's. A representative of the European Commission attended the first day.

Main topics presented and discussed:

1. Marion Simmons and Yvonne Spencer (CRL) spoke about histopathology, immunohistochemistry (IHC) and the results of the recent QA rounds. Overall, results were better than those of the previous year. Dr Spencer emphasised the problems with each NRL having a slightly different IHC protocol in terms of quality control. The CRL would like all NRL's to use the same standardised protocol eventually, although it was acknowledged there might be difficulties with this. Dr Spencer urged that NRL's not change IHC protocols without first notifying the CRL, as the QA rounds were only valid for the protocol used to carry out the tests; modifying the protocols after passing a QA round would invalidate the assurance of quality.
2. Kath Webster (CRL) announced proposals to allow the use of a rapid test by a NRL to confirm an initial BSE rapid test positive, provided one of these tests used was a western blot. This did not apply to ovine samples.
3. Torsten Seuberlich (NRL Switzerland) outlined how control charts could be used to monitor rapid test performance; this could potentially be useful to the Irish NRL to monitor RTL positive controls.
4. The development of new IT systems to allow online QA reporting, a web-based chat forum for TSE NRL's (TSE-LAB-NET) and the use of web-based digitalised "Slidepath" slides for QA purposes were discussed. Delegates were uncertain about the usefulness of a web-based chat forum for discussing problems.
5. A group discussion was held on the topic of confirmatory testing of samples that are rapid-test positive. The use of the terms "unconfirmed", "inconclusive" and "unconfirmable" were debated. The CRL agreed to put their definitions of these terms on their website so NRL's can refer to them if necessary, although several NRL's felt that declaring a rapid-test positive, confirmatory negative, sample "unconfirmed" would be unhelpful. The issue of RTL inconclusive samples, which are not confirmed by the NRL, was discussed. There was no clear answer and the CRL acknowledged it was a complicated issue.
6. Short presentations were given on the subjects of TSE's in deer in Finland, H and L type BSE in France, the infectivity of milk from scrapie sheep, mouse bioassays for strain typing and the pathology of atypical scrapie. Dr Eoin Ryan (NRL Ireland) gave a presentation on H type BSE in Ireland and the Enfer version 3 test.

More detailed information can be obtained from Dr Eoin Ryan;

Email: eoin.ryan@agriculture.gov.ie

Matrix/ Parameter	CRL	Head of NRL	Contact person (if different to Head NRL)
Milk and milk products	AFSSA - Laboratoire d'études et de recherches sur la qualité des aliments et sur les procédés agroalimentaires (LERQAP) F-94700 Maisons-Alfort, France	Bernadette Hickey Tel: +353 6157452 Fax: +353 6157454 Email: Bernadette.hickey@agriculture.gov.ie	
Zoonoses (salmonella)	Rijksinstituut voor Volksgezondheid en Milieu (RIVM) 3720 BA Bilthoven The Netherlands	Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie	Dr Montserrat Gutierrez Tel: +353 6157222 Fax: +353 6157116 Email: mm.gutierrez@agriculture.gov.ie
Listeria monocytogenes	AFSSA - Laboratoire d'études et de recherches sur la qualité des aliments et sur les procédés agroalimentaires (LERQAP) F-94700 Maisons-Alfort France	Bernadette Hickey Tel: +353 6157452 Fax: +353 6157454 Email: Bernadette.hickey@agriculture.gov.ie	
Coagulase positive <i>Staphylococci</i> , including <i>Staphylococcus aureus</i>	AFSSA - Laboratoire d'études et de recherches sur la qualité des aliments et sur les procédés agroalimentaires (LERQAP) F-94700 Maisons-Alfort France	Bernadette Hickey Tel: +353 6157452 Fax: +353 6157454 Email: Bernadette.hickey@agriculture.gov.ie	
<i>Escherichia coli</i> , including Verotoxigenic E. Coli (VTEC)	Istituto Superiore di Sanità (ISS) I-00161 Roma Italy	Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie	Dr Montserrat Gutierrez Tel: +353 6157222 Fax: +353 6157116 Email: mm.gutierrez@agriculture.gov.ie
Campylobacter	Statens Veterinärmedicinska Anstalt (SVA) S-751 89 Uppsala Sweden	Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie	Dr John Egan Tel: +353 6157138 Fax: +353 6157116 Email: john.egan@agriculture.gov.ie
Parasites (in particular <i>Trichinella</i> , <i>Echinococcus</i> and <i>Anisakis</i>)	Istituto Superiore di Sanità (ISS) I-00161 Roma Italy	Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie	Paul Rafter/Dr Tom Murphy Tel: +353 6157350 Fax: +353 6157361 Email: paul.rafter@agriculture.gov.ie
Antimicrobial resistance	Danmarks Fødevareinstituttet DK-1790 København V Denmark	Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie	Dr Montserrat Gutierrez Tel: +353 6157222 Fax: +353 6157116 Email: mm.gutierrez@agriculture.gov.ie
Animal proteins in feedingstuffs	Centre Wallon de recherches agronomiques (CRA-W) B-5030 Gembloux, Belgium	Gabriel Roe Tel: +353 6302902 Fax: +353 6280634 Email: Gabriel.roe@agriculture.gov.ie	
Transmissible spongiform encephalopathies (TSEs)	The Veterinary Laboratories Agency Surrey KT15 3NB United Kingdom	Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie	Dr Paul Collery Tel: +353 6157203 Fax: +353 6157199 Email: paul.collery@agriculture.gov.ie
Chemical elements in food of animal origin	Istituto Superiore di Sanità Viale Regina Elena 299 00161 Rome, Italy.	Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie	Paul Rafter Tel: +353 6157350 Fax: +353 6157361 Email: paul.rafter@agriculture.gov.ie

Matrix/ Parameter	CRL	Head of NRL	Contact person (if different to Head NRL)
Residues in food of animal origin <i>Beta-agonists</i> <i>Anthelmintics</i> <i>Anticoccidials including Nitroimidazoles</i> <i>Non-steroidal anti-inflammatory drugs (NSAID's)</i>	Bundesamt für Verbraucherschutz und Lebensmittelsicherheit (BVL) D-10562 Berlin GERMANY	(1) Dr John Ferris Tel: +353 6157101 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie (2) Michael O'Keeffe Tel: +353 8059500 Fax: +353 8059550 Email: michael.okeeffe@teagasc.ie (3) Dermot Hayes Tel: +353 505 7000 Fax: +353 505 7070 Email: dermot.hayes@statelab.ie	(1) Paul Rafter Tel: +353 6757350 Fax: +353 6157361 Email: paul.rafter@agriculture.gov.ie (2) Liam Regan Tel: +353 5057062 Fax: +353 505 7070 Email: liam.regan@statelab.ie
Residues of animal origin <i>Stilbenes, stilbene derivatives, salts and esters</i> <i>Antithyroid agents</i> <i>Steroids</i> <i>Resorcylic Acid Lactones (RAL's) incl. zeranol</i> <i>Sedatives</i> <i>Mycotoxins</i>	Rijksinstituut voor Volksgezondheid en Milieu (RIVM) 3720 BA Bilthoven The Netherlands	(1) Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie (2) Dermot Hayes Tel: +353 505 7000 Fax: +353 505 7070 Email: dermot.hayes@statelab.ie	(1) Paul Rafter Tel: +353 6757350 Fax: +353 6157361 Email: paul.rafter@agriculture.gov.ie (2) Liam Regan Tel: +353 5057062 Fax: +353 505 7070 Email: liam.regan@statelab.ie
Residues of animal origin Antibacterial substances, including <i>sulphonamides and quinolones</i> <i>Dyes</i> <i>Carbadox and olaquinox</i> <i>Chloramphenicol</i> <i>Dapsone</i> <i>Nitrofuranes</i>	Laboratoire d'études et de recherches sur les médicaments vétérinaires et les désinfectants AFSSA- F-35302 Fougères France	(1) Dr John Ferris Tel: +353 6157106 Fax: +353 6157197 Email: john.ferris@agriculture.gov.ie (2) Michael O'Keeffe Tel: +353 8059500 Fax: +353 8059550 Email: michael.okeeffe@teagasc.ie	Paul Rafter Tel: +353 6157350 Fax: +353 6157361 Email: paul.rafter@agriculture.gov.ie
Residues of pesticides in cereals	Danish Institute for Food and Veterinary Research (DFVF) DK 2860 Søborg Denmark	Dan O'Sullivan Tel: + 353 6157610 Fax: + 353 6157575 Email: dan.osullivan@agriculture.gov.ie	
Residues of pesticides in food of animal origin	Chemisches und Veterinäruntersuchungsamt (CVUA) Postfach 100462 D-79123 Freiburg Germany	Dan O'Sullivan Tel: + 353 6157610 Fax: + 353 6157575 Email: dan.osullivan@agriculture.gov.ie	
Residues of pesticides in fruits and vegetables	Pesticide Residue Research group Universidad de Almería (PRRG) Laboratorio Agrario de la generalitat valenciana (LAGV) Spain	Dan O'Sullivan Tel: + 353 6157610 Fax: + 353 6157575 Email: dan.osullivan@agriculture.gov.ie	
Pesticides: single residue methods	Chemisches und Veterinäruntersuchungsamt (CVUA) Stuttgart Postfach 1206 D-70702 Fellbach Germany	Dan O'Sullivan Tel: + 353 6157610 Fax: + 353 6157575 Email: dan.osullivan@agriculture.gov.ie	