Fera NRL Annual Report
2023 to 2024

Report to the Food Standards Agency




1. Annual Report

Annual Report on Operation of National Reference Laboratories

(Chemical Safety in Food and Feed)

Fera Science Ltd.

April 2023 – March 2024

Title	National Reference Laboratory for Food Contaminants
Competent Authority	Food Standards Agency
FSA Project Officer	Rashmi Seneviratne
Specification References	FS616030 to FS616034
Report Number	Fera/NRL/2023/2024
Fera Project Number	FR/002464
Project Manager	Susan MacDonald
Principal Workers	Susan MacDonald, Mike Walls, Frankie Smith, Sean Panton, Anthony Oxley, Antony Lloyd, Emma Bradley, Claire McKillen, Zoe Steel, Victoria Bailey-Horne, Ben Watkin and Sam Kam.
Compiled by	Emma Bradley, Susan MacDonald, and Zoe Steel
Authorised by	Susan MacDonald

Note: Whilst care has been taken to ensure that the web links contained in this report are correct at the time of issue, changes may occur.

2. Fera Science Ltd. (Fera)

Fera is a national and international centre of excellence for interdisciplinary investigation and problem solving across plant and bee health, crop protection, sustainable agriculture, food and feed quality and chemical safety in the environment.

Fera Science Ltd. (Fera)

York Biotech Campus,

Sand Hutton,

York,

YO41 1LZ,

United Kingdom.

+44 (0)300 100 0321

https://www.fera.co.uk/

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4. Executive summary

Fera Science Ltd (Fera) acts as National Reference Laboratory (NRL) under Retained Regulation (EU) 2017/625[(1)] on official controls and was appointed by the Food Standards Agency (FSA) and Food Standards Scotland (FSS) to provide five Chemical Safety in Food and Feed UK NRLs:

NRL-MP NRL Mycotoxins and Plant Toxins in Feed and Food

NRL-MN NRL Metals and Nitrogenous Compounds in Feed and Food

NRL-PC NRL Processing Contaminants

NRL-POPs NRL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food

NRL-FCM NRL Materials and Articles in Contact with Food.

This Annual Report summarises the activities of the NRLs from 1st April 2023 to 31st March 2024.

The NRLs provided impartial advice to the Competent Authorities (CAs), FSA and Food Standards Scotland (FSS), Official Laboratories (OLs) and other NRLs throughout the period. Updates were provided to the FSA and FSS on NRL activities on at least a monthly basis. The NRL provided an open website for OLs and a dedicated NRL email address that was regularly monitored. An up-to-date list of OLs and contact details was maintained. Where provided by the European Union Reference Laboratory (EURL), information from EURL Workshops and Core Working Groups, Task Forces and Ad Hoc committees was forwarded to the FSA and FSS.

The NRLs provided Work Plans outlining activities for the year, such as planned proficiency test (PT) participation. In addition, a combined list of suggested topics for practical work, identifying where there are gaps in availability of suitable analytical methods was produced and sent to the FSA and FSS. From this a priority list was agreed and practical work has started on method development and validation for those methods. This activity will be built on during the subsequent year of the project.

NRL staff participated in a number of international scientific conferences as speakers and delegates.

The NRL-MP, NRL-MN and NRL-PC are involved with European Committee for Standardization (CEN) activities. NRL-MP is a member of CEN/TC 275 WG 5 and CEN/TC 327 WG 5 although no meetings were held in this reporting period. NRL-MN participated in the 24th meeting of CEN/TC 275 WG 10 that was held on-line. NRL-PC is a member of CEN/TC 275 WG 13 which did not meet in the time period.

Advice and methodology were provided to OLs where requested.

Following UK exit from the EU on 31st January 2020, there has been limited participation in EURL PTs, and it varied across the 5 different NRL functions. During 2023-2024, the NRLs

were involved in several Proficiency Tests (PTs) run by the EURLs (for Plant Toxins, POPs and metals) and other providers (including Fapas®). Most PT results were satisfactory, a very small number of individual results were not. In all cases any issues were investigated in accordance with ISO17025 quality procedures and follow up action completed. Where applicable, OLs were invited to participate in EURL PTs.

NRL Meetings were held on 9th June, 22nd September and 8th December 2023 and 7th March 2024. The meetings were held on-line between FSA, FSS, and the NRLs. Information on developments in sampling and testing was exchanged and information from the respective EURLs on methodology and PTs was shared where it was available. A Network Meeting was held with OLs on 20th October 2023.

NRL Annual Reports are published annually on the NRL website. The NRLs provided the FSA and FSS with monthly NRL Activity Logs which are a timely summary of ongoing activities. These are shared via a Teams channel, other information such as monthly literature reviews, and other scientific information, such as reports and publications are also shared this way. This allows the information to be saved in a central location that is accessible by colleagues in FSA, FSS and Fera.

5. List of abbreviations

APA	-	Association of Public Analysts
CA	-	Competent Authority
CEN	-	European Committee for Standardization
dSPE	-	Dispersive solid phase extraction
EC	-	European Commission
EFSA	-	European Food Safety Authority
EU	-	European Union
EURL	-	European Union Reference Laboratory
EURL-FCM	-	EURL Food Contact Materials
EURL-MN	-	EURL Metals and Nitrogenous Compounds
EURL-MP	-	EURL Mycotoxins and Plant Toxins
EURL-PC	-	EURL Processing Contaminants
EURL-POPs	-	EURL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food
Fapas®	-	Food Analysis Performance Assessment Scheme
FCM	-	Food Contact Materials
Fera	-	Fera Science Ltd.
FSA	-	Food Standards Agency
FSS	-	Food Standards Scotland
GC-MS	-	Gas Chromatography – Mass Spectrometry
HBCDDs	-	Hexabromocyclododecanes
HPLC-ICP-MS	-	High Performance Liquid Chromatography Inductively Coupled Plasma Mass Spectrometry
ICP-MS	-	Inductively Coupled Plasma Mass Spectrometry
ILC	-	Interlaboratory comparison exercise
LC-MS/MS	-	Liquid Chromatography Tandem Mass Spectrometry
MANCP	-	Multi Annual National Control Plan
MOAH	-	Mineral Oil Aromatic Hydrocarbons
MOSH	-	Mineral Oil Saturated Hydrocarbons

MPL	-	Maximum Permitted Level
MU	-	Measurement Uncertainty
MVS	-	Method validation study
NEN	-	Royal Netherlands Standardization Institute
NRL	-	National Reference Laboratory
NRL-FCM	-	NRL for Materials and Articles in Contact with Food
NRL-MN	-	NRL Metals and Nitrogenous Compounds in Feed and Food
NRL-MP	-	NRL Mycotoxins and Plant Toxins in Feed and Food
NRL-PC	-	NRL Processing Contaminants
NRL-POPs	-	NRL for Halogenated Persistent Organic Pollutants (POPs) in Feed and Food
OL	-	Official Laboratory
OCR	-	Retained Regulation (EU) 2017/625[(1)]
PAHs	-	Polycyclic Aromatic Hydrocarbons
PBDEs	-	Polybrominated diphenyl ethers
PC	-	Processing Contaminants
PCBs	-	Polychlorinated biphenyls
PCDDs	-	Polychlorinated dibenzo-p-dioxins
PCDFs	-	Polychlorinated dibenzofurans
PCDD/Fs	-	Polychlorinated dibenzo-p-dioxins/dibenzofurans
PFAS	-	Per- and Polyfluoroalkyl Substances
PFOA	-	Perfluorooctanoic acid
PFOS	-	Perfluorooctanesulfonic acid
POPs	-	Persistent organic pollutants
PT(s)	-	Proficiency test(s)
RASFF	-	Rapid Alert System for Food and Feed
SOPs	-	Standard Operating Procedures
TC	-	Technical Committee
WG	-	Working Group

6. Introduction

Retained (EU) Regulation 2017/625[(1)] requires National Reference Laboratories (NRLs) for food and feed to be designated. The NRLs provide support and advice to the CAs, improve the quality, accuracy, and comparability of analytical methods to support Official Laboratories (OLs) in their role of carrying out official controls to protect consumers.

The NRL areas designated to Fera by FSA/FSS are:

- NRL Mycotoxins and Plant Toxins in Feed and Food (NRL-MP)
- NRL Heavy Metals and Nitrogenous Compounds in Feed and Food (NRL-MN)
- NRL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food (NRL-POPs)
- NRL Processing Contaminants (NRL-PC)
- NRL Materials and Articles in Contact with Food (NRL-FCM)

Since the UK left the EU on 31st January 2020 there has been limited contact with the European Reference Laboratories (EURLs). Fera NRLs have participated in some EURL proficiency tests (PTs) as third-country fee-paying participants.

This Annual Report covers NRL activities from 1st April 2023 to 31st March 2024.

The following sections describe the activities of the NRLs to achieve six main Objectives that are outlined in the contract. These Objectives are split into a series of tasks. In many cases the same Tasks are carried out by all five NRLs. In these instances, these activities are described first, followed by the activities of the individual NRLs. Information is also given about an additional Objective that is specific to NRL-FCM only.

7. Role and scope of the NRL

The basic duties of the NRLs are based on Retained Regulation (EU) 625/2017[(1)], Article 101. The scope of services each NRL in its area of competence provide are outlined as follows:

a) cooperate internationally (and where possible with the relevant EURL).

b) collaborate with international laboratories (where possible with the relevant EURL) and participate in training courses and inter-laboratory comparative tests organised by these laboratories.

c) coordinate the activities of official laboratories responsible for the analysis of samples (in accordance with Article 34 and 37 of Retained Regulation (EU) 2017/625 on official controls) to ensure the verification of compliance with feed and food law.

d) where appropriate, organise inter-laboratory comparative tests between the official laboratories and ensure an appropriate follow-up of such comparative testing.

e) ensure the dissemination of any information required by the competent authority.

f) provide scientific and technical assistance to the competent authority for the implementation of MANCPs referred to in Article 109 and of coordinated control programmes adopted in accordance with Article 112 of Retained Regulation (EU) 2017/625.

g) where necessary, conduct training courses for the staff of official laboratories.

h) upon request by the competent authority, actively assist in relevant emergency situations and in cases of non-compliance of consignments, by carrying out confirmatory analysis.

i) be responsible for carrying out other specific duties as required by the competent authority, where appropriate and by prior agreement.

8. Objective 1 – Secretariat Services

8.1. Task 01/01. Disseminate relevant information/advice to the CA, when required, OLs and other relevant laboratories in a timely and effective manner.

The NRL provides the CA with documents received from EURLs within two weeks of receipt. Publicly available documents or links are added to the Fera NRL website or shared with the FSA via a Teams channel.

A detailed workplan that included all planned PT participation (EURL and Fapas®), and dates for planned EURL training events, workshops and working groups was produced for all five Fera NRLs and sent to the CA at the start of the reporting period.

Where available, EURL Work Programmes 2023-24 were downloaded from the EURL website and sent to the CA.

8.1.1. Quarterly Fera NRL Meetings

NRL-CA Meetings were held between Fera and the CAs online via Microsoft Teams to share information between all five NRLs and the FSA and FSS. The meetings were attended by representatives of all Fera NRLs, FSA Scientific Sampling and Laboratory Policy Team and Contaminants Policy Teams, and FSS.

Representatives for each of the NRLs attended and presented information at the meetings held on 9th June, 22nd September and 8th December 2023 and 7th March 2024.

8.1.2. NRL Network Meeting

The Network meeting was held with the OLs on 20th October 2023. The meeting was attended by Fera, FSA, FSS and the UK OLs. Updates were provided by FSA and FSS, and the Fera-NRLs gave an update on activities from the individual NRLs and reaffirmed the NRLs availability regarding subsidised and novel testing. Updates were also given by the NRLs on the contract variations taken on this year, which will be discussed within this report.

8.1.3. Novel testing scheme

The novel testing scheme provides access to subsidised testing for novel or emerging issues that OLs may not be currently set up to carry out. This additional testing capability is funded by FSA. A plan was presented to the OLs who provided feedback on how the scheme would work and some of the practical issues of how it would be used. This information was used to inform how the programme was developed and rolled out.

A list of tests to be offered under the scheme was prepared and shared with OLs. The tests offered were all within one of the five contaminants NRLs remits and included analyses that were understood to not be available among the OL network. Feedback was provided by the

OLs and several tests were removed as they are available at one or more OL. The terms of the scheme were agreed, and a finalised list shared with the OLs and CAs. It was also agreed that other tests may be provided that are not on the list if new or emerging topics arose. No analyses were carried out under the scheme in the reporting period.

8.1.4. Incident response

A facility to allow the NRLs to support the FSA was set up in the previous reporting period. The Poole Harbour incident reported in the last reporting period continued and was finalised (see 9.1.3). No further incidents that required use of the scheme occurred in this reporting period.

8.1.5. All NRLs

- Monthly meetings were held with the Head of FSA Contaminants branch from January 2023 onwards. Topics discussed during these regular meetings included changes to EU Regulations and results from work carried out as part of the NRL contract as well as other Fera projects funded by the FSA.

8.1.6. NRL-POPs

- EURL PT reports were shared with the CAs via Teams as they were received.
- EURL published Guidance Document on the Determination of Organobromine Contaminants v1.2 on 10th May 2023. This document was uploaded to the FSA teams shared area.
- EURL published "EURL POPs Priority List of PCN Congeners _ Version 1.1 _ 05 June 2023", which was uploaded to the FSA teams shared area.
- NRL-POPs shared the WHO re-evaluation of Dioxin/PCB TEFs, publishing ‘The 2022 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Polychlorinated Dioxins, Dibenzofurans and Biphenyls'. This was shared with the CAs via the Teams shared area.

8.1.7. NRL-FCM

- Regular update meetings were held between Fera and FSA FCM policy team.

8.2. Task 01/02. Co-ordinate the activities of OLs and other relevant laboratories in food in relation to the core functions.

The NRL Network Meeting is used as one way to manage the operation of the NRLs.

A meeting took place on 20th October 2023 as mentioned previously in *8.1.2*.

The next meeting will be held in summer 2024 and will be an online meeting. It will be used to define the training activities required for the next period as well as offer visits and other support required and to disseminate information.

- Internal FERA NRL meetings were held to plan for quarterly meetings with the FSA and to monitor activities that are ongoing in the project.

8.3. Task 01/03. Create and maintain an efficient two-way channel of communication with OLs and relevant laboratories and international organisations, including information on analytical methods and relevant legislation.

Fera experts regularly scan different scientific literature (peer reviewed and grey literature) relevant to each area for emerging food and feed safety topics, this includes ResearchGate, HorizonScan and Rapid Alert System for Food and Feed (RASFF). Relevant information on current and new methods and legislation is highlighted on the Fera NRL website.

- An up to date list of OLs and contact details was maintained.
- A dedicated NRL email address is regularly monitored: nrl@fera.co.uk
- The CA, and OLs are able to individually email the named lead person for each NRL.
- Working relationships are well established with the other laboratories (including some EURLs) and laboratories from industry and the private sector so this ensures efficient communication.
- PT reports from NRLs and EURLs and other information were shared with CAs.
- Internal discussions within Fera to investigate possible set up of information-based system to monitor and capture changes in Regulations pertinent to food and feed.
- Fera NRL staff are Associate Members of the Association of Public Analysts (APA).
- The lead for the NRL-MP is a member of CEN/TC 275 WG 5 and CEN/TC 327 WG 5.
- The lead for the NRL-MN is a member of CEN/TC 275 WG 10 and CEN/TC 327 WG 4.
- The lead for the NRL-PC is a member of CEN/TC 275 WG 13.

8.4. Task 01/04. Provide regular updates to the CA on NRL activities, and up-to-date information on UK OLs and other relevant laboratories to the CA as requested.

A monthly NRL Activity Log was prepared and submitted to the CA. All work carried out during the year is summarised in an Annual Report. Specific topics, or items arising, are dealt with individually in a timely manner.

Meetings were held between FERA, FSA and FSS on 5th May, 30th June, 7th August and 12th October 2023 which all the NRLs attended. Further specific meetings took place between Fera, FSA and FSS throughout the year to discuss other items such as FCMs, PFAS and other topics.

NRL representatives attended a meeting with the FSA to discuss various topics including the novel testing programme, incident preparedness and planning for network meetings in August 2023.

8.5. Task 01/05. Create and maintain a dedicated website for communication of the work of the NRL including provision of advice and support to OLs, information on methods of analyses, Standard Operating Procedures (SOPs), latest developments and other background information.

The NRL has a long standing fully accessible dedicated NRL website. This provides information on legislation, analysis, and resources. The content of the website was reviewed this year and updated in all areas, except POPs.

- The current NRL website has a landing page:
  https://www.fera.co.uk/national-reference-laboratory

- Individual webpages are maintained for each of the NRLs:

  NRL-MP

  https://www.fera.co.uk/about-us/national-reference-laboratory/mycotoxins

  NRL-MN

  https://www.fera.co.uk/about-us/national-reference-laboratory/heavy-metals

  NRL-POPs

  https://www.fera.co.uk/about-us/national-reference-laboratory/dioxins-pcbs

  NRL-PC

  https://www.fera.co.uk/about-us/national-reference-laboratory/pahs

  NRL-FCM

  https://www.fera.co.uk/about-us/national-reference-laboratory/food-contact

- All Fera Contaminants NRLs Annual reports from 2013 onwards are available in a designated area of the website:

  https://www.fera.co.uk/about-us/national-reference-laboratory

9. Objective 2 - Advice and representation within the UK and internationally

9.1. Task 02/01. Provide impartial expert advice as requested to the CA, OLs and other relevant laboratories on analytical methodology in the context of official controls and risk assessment.

All advice provided by Fera staff is impartial, Fera scientists have maintained their experience in evaluation of analytical methods when considering the suitability of data for inclusion in risk assessments, e.g., via participation in FSA Joint Expert Groups.

Fera staff are experienced in method development and validation and have developed methods that are used in Official Controls in the UK. This is complemented by in-depth knowledge of the performance requirements of sampling and analytical methods used in Official Controls.

To fulfil this role Fera provided expert advice and support to the CA in response to requests for information on a variety of topics throughout the year.

- An enquiry was received from an OL about analysis of mineral oil in honey. The OL had previously analysed the sample and were requesting additional support or help with the analysis. This was referred to the FSA to decide if this request fell under the Novel Testing or general support. No further support was requested.
- An enquiry was received from the FSA regarding the analysis of metanil yellow in turmeric, thus providing support to an OL. A meeting was held to discuss this directly with the OL in February 2024. Following on from this, NRL-PC analysed the samples and standards they were given from the OL on an LC-TOF-MS, alongside standards Fera also purchased.

9.1.1. NRL-MP

- An NRL member hosted a representative from APHA regarding testing honey from Ghana. Advice was given on possible natural contaminants that can occur in honey and made some recommendations for testing requirements.
- NRL-MP responded to a query from the FSA regarding the stability of mycotoxins in frozen samples. The request came via the Regulated Products Risk Assessment team and follow up information was supplied.
- An enquiry was received about aflatoxin analysis regarding the best options of automating the clean-up and analysis. Fera offered to host a visit to see the laboratory set up at Fera, as well as supplying links to different vendors for manual and automated systems.

- An enquiry was received from an OL regarding the analysis of Ochratoxin A; advice was given regarding the method using at Fera, alongside other potential methods. An offer was made to review data, calculations or results and provide further follow up advice where necessary.

9.1.2. NRL-MN

- The NRL was contacted by an OL requesting assistance with the setup of an HPLC inorganic arsenic method; the NRL gave answers to their initial questions, recommended standard materials and where to obtain them, and gave advice about the columns listed in EN 16802. The NRL offered to keep the OL updated with progress, sharing any further helpful information as it was available. The NRL contacted them again for a follow up later in the year, to discuss progress and offer further help where required. This resulted in an informal collaboration between the NRL-MN and the OL whilst developing their methods.
- An enquiry was received from an OL in February 2024 asking for help with an iAs method. Their method was producing higher results than anticipated, and the NRL was contacted to provide trouble-shooting points. The UK NRL supplied details of the current HPLC procedure, which is awaiting UKAS accreditation, of which the extraction stage is very similar to that being used by the OL. The OL was also supplied with the paper used as the basis for our accredited solvent extraction procedure for study and potential method development. The UK NRL also offered to analyse the problem sample, which was completed using the accredited solvent method and it confirmed the high result. The sample was also analysed by HPLC ICP-MS at Fera to get a better idea of the arsenic species present.
- The NRL responded to the FSA regarding the Poole Harbour incident, providing information on analytical methods, accreditation status for methods for mercury and other heavy metals in Shellfish.
- The NRL replied to the CA regarding a method for methyl mercury in fish and seaweed, and the potential to adapt the method to encompass other analytes, such as inorganic arsenic and iodine.
- The NRL received an enquiry from an OL asking for advice regarding iAs and meHg standards when analysing using ICP-MS. A reply was sent, listing standard materials, suppliers, typical standard ranges, and an open offer of support as required.

9.1.3. NRL-PC

- The NRL responded to an incident in Poole Harbour by attending several meetings and analysing Shellfish samples for PAHs. This incident occurred in the reporting year 2022-2023 but the work continued into 2023-2024. Twenty samples were analysed for regulated PAHs and results sent to the FSA. No samples contained

concentrations above maximum permittable limits, so no further action was required. A de-brief meeting was also attended by NRL-PC discussing technical and logistical issues and providing suggestions for future incidents.

9.1.4. NRL-FCM

- At the request of the CA, the NRL carried out specific migration testing for formaldehyde, melamine and metals on the items in a used bamboo dining set. This request was the result of an EHO enquiry to the CA regarding the possible deterioration of the items in question.
- The NRL responded to an enquiry from an OL regarding compliance testing for a silicon air fryer liner. Advice was given on the applicable regulations / guidelines and testing proposed in support of compliance with these regulations / guidelines.
- The NRL responded to an enquiry from the CA regarding whether a generic calibration curve could be used for more than one simulant for individual analytes of interest. The NRL advised that if it could be demonstrated that there was no impact of the simulant on the calibration of the analyte of interest and there was validation data to support this then it would acceptable, but it should not be assumed to be acceptable without the data to prove it.
- The NRL responded to an enquiry from the CA requesting their views on the methodology for the use of alternative conditions / simulants to D2. The NRL advised that the alternative conditions were derived from migration modelling, and it was demonstrated that these conditions covered the worst case, however, they should only be used ‘when testing in food simulant D2 is technically not feasible’.
- Regular update meetings were held between the NRL and the CA FCM policy team to update on current activities (from both sides).

9.2. Task 02/02. Represent the UK at relevant international meetings, and working groups, consulting the CA on objectives and requirements before each meeting and providing the CA with an internal report of the meeting within 10 working days of each meeting.

Meetings continued to be held on-line in 2023-2024. Where information was received from the EURLs, e.g., EURL work plans, this was forwarded to the CA. This information is not consistently available - some EURLs make it publicly available on their websites, while others treat it as confidential and do not share it. Where attendance at events was possible, a meeting note was provided to the CA.

9.3. Task 02/03. Participate in activities organised by international organisations and contribute to the scientific input at international meetings and in manner which supports UK policy based on best available scientific knowledge.

9.3.1. NRL-PC

A request came from EFSA about the publication of redacted acrylamide results; this request was forwarded to policy leads at the FSA to confirm the proposed release and format. The request was approved.

9.4. Task 02/04. Advise the CA, OLs and other relevant laboratories on best scientific practice in testing for official controls purposes and undertake activities in consultation with the CA that facilitate and promote their application in the UK within the policy aims of the CA.

Maintaining an up-to-date website, providing feedback from network meetings in a timely manner and offering practical advice and training to OLs, ensure that this task is met.

An NRL representative completed feedback for the Post Implementation Review of the S&Q Regulations (England) 2013 and submitted this to the FSA.

A new approach to calculating measurement uncertainty was developed by a Fera statistician for the Contaminants teams to use for flexible scope applications for methods validated through the NRL contract.

Fera hosted a visit of the FSA imports market assurance team in December 2023.

9.4.1. NRL-MP

- A meeting took place with the UK research laboratory (university) to give advice on the process of applying for a Home Office Drug Precursor licence to allow them to start working on ergot alkaloids. Follow up information was also sent.
- NRL-MP was granted a Home Office Precursor Chemical License to allow them to retain the capability of testing for ergot alkaloids.
- A representative attended the World Mycotoxin Forum in Antwerp, on 9-11th October 2023. They presented on the topic of ‘AHDB Contaminants Monitoring programme on ergot Alkaloids’ and also had a poster presentation on ‘Cat food survey for mycotoxins’.
- A representative gave a presentation on the topic of ‘Developments in Mycotoxins Analysis’ at the Mycotoxin Management Workshop organised by Romer Labs and Cranfield University on 11th July 2023. The workshop was attended by delegates from OLs, businesses, universities, and FSA.

9.4.2. NRL-FCM

A representative attended and presented at the following events:

- Packaging Safety Symposium in January 2024.
- EC Webinar on BPA and engaged in a Q&A with the FSA, in July 2023.
- UK Circular Plastics Packaging / Biodegradable & Compostable Plastics conference in March 2023.

9.4.3. MChemA

The Mastership in Chemical Analysis (MChemA) is the statutory qualification for practice as a Public Analyst and Agriculture Analyst in the UK.

- A representative gave an overview of FCMs in February 2024.

9.5. Task 02/05. Keep abreast of and advise the CA, OLs and other relevant laboratories of developments and research for the sampling, testing and detection of food contaminants, including horizon scanning for future developments in this space.

Information was shared with CAs at various times during the year, either in response to specific questions, during meetings or when information was obtained from other sources (e.g. conferences, webinars or other events). NRLs have set up monthly literature searches and these are shared with the CAs.

- A representative attended the 'Food you can trust – who do the public trust to regulate risk?' Webinar hosted by Leeds University.

For information the following events were attended although not specifically under the NRL remit:

- The Fera Science Symposium November 2023.
- The FSA Science Council workshop March 2024.

9.5.1. NRL-MP

- Literature reviews are carried out throughout the year and relevant or important articles are shared with the CAs.
- A representative attended the Target Operating Model Stakeholder meeting organised by Defra.
- A representative attended the webinar 'Mycotoxins risk, an update' on 25th May 2023, where EU regulations and topics of current interest were discussed.
- NRL-MP attended several on-line conferences and events through-out the year to keep abreast of scientific developments as described in 9.3.1.
- A meeting was held with the FSA in June 2023 to discuss the plans for a literature review on the bioavailability of cyanogenic glycosides. This work commenced in

September 2023, reviewing multiple databases under specific search terms. This literature review was completed and submitted to the FSA in March 2024.

9.5.2. NRL-POPs

- A representative attended the Dairy UK Webinar in November 2023.

9.5.3. NRL-FCM

A representative attended the following events and shared any relevant slides with the FSA:

- Food Contact Regulations Europe conference on 17th and 18th April 2023.
- ERMA webinar – 'FCM Regulations Updates for Key Global Markets'.
- Fresenius Conference – 'Residues of FCMs in Food' virtually in October 2023.
- Packaging compliance Declaration of Compliance global challenges & solutions webinar in December 2023. Information was also shared with the FSA FCM policy team from this event.

9.6. Task 02/06. Identify and inform the CA, OLs and other relevant laboratories of emerging analytical issues or developments at a national or international level and recommending action to address them.

The NRL website is updated to contain this information. Specific emergent issues were communicated directly if relevant and a list of contacts for OLs is maintained to ensure that this can be achieved promptly. Information from the EURL-NRL network is used as a useful means of information exchange on this topic.

9.6.1. Forward work plan on method development

All Fera NRLs prepared proposals for future method development projects that could be carried out under the NRL contract. The lists were reviewed by the CAs and following discussion and prioritisation it was agreed that the following studies will be completed:

NRL-PC will develop and validate in-house methods for existing and emerging risks for the effective provision of official controls:

- Method development for Polycyclic Aromatic Hydrocarbons
- Continuation of method development for Glycidol Esters
- Continuation of method development for Nitrosamines

NRL-MP will develop and validate in-house methods for existing and emerging risks for the effective provision of official controls:

- Method development for Pyrrolizidine Alkaloids

NRL-MN will develop and validate in-house methods for existing and emerging risks for the effective provision of official controls:

- Continuation of method development for Methyl Mercury by HPLC/ICP-MS

NRL-FCM will develop and validate in-house methods for existing and emerging risks for the effective provision of official controls:

- Method development for styrene monomer
- Method development for Bisphenols in food contact materials
- Continuation of method development for MOSH MOAH
- Allergenic material from a cup or utensil made of wheat or chitin based packaging.

9.7. Task 02/07. Where appropriate, partake and/or keep abreast of standardisation activities (e.g. CEN, ISO, etc.) relevant to the work area.

9.7.1. Membership of CEN TC Working groups

BSI was contacted regarding Fera NRLs participation in CEN/TC 275 and CEN/TC 327 working groups and attendance at plenary meetings. NRL-MN membership in CEN/TC 327 WG 4 and the BSI mirror group were confirmed. There were very few meetings held in the reporting period.

- Susan MacDonald and Mike Walls attended a meeting of AW/10 ‘Animal feeding stuffs – Methods of sampling and analysis’ hosted by BSI in September 2023. As there were insufficient attendees to constitute a formal meeting, time was spent with an overview of the BSI website relating to committee members.
- The Secretariat of CEN/TC 327 (NEN) informed members in April 2023 that the Standardisation Request on Feed had not been allocated sufficient budget to develop the 17 standards for Animal feeding stuffs and that further discussions between CEN Management Centre, the EC and NEN were underway and the outcome would be reported to members. No further updates were received during the reporting period.

9.7.2. NRL-MP

Fera NRL-MP participates in CEN/TC 275 WG 5 and CEN/TC 327 WG 5.

9.7.2.1. CEN/TC 275 WG 5 – Horizontal methods of analysis in food - Biotoxins

Fera NRL-MP participates in meetings when they are held, and also reviews and votes on documents via the BSI Standards Portal.

No meetings of CEN/TC 275 WG 5 were held in the reporting period.

9.7.2.2. CEN/TC 327 WG 5 – Horizontal methods of analysis in feed – Natural toxins

Fera NRL-MP participates in meetings when they are held, and also reviews and votes on documents via the BSI Standards Portal.

No meetings of CEN/TC 327 WG 5 were held in the reporting period.

9.7.3. NRL-MN

- NRL-MN was added to the membership of CEN/TC 327 WG 4.
- The NRL-MN voted their approval for the final draft of FprEN 17851 – Foodstuffs – Determination of elements and their chemical species – Determination of Ag, As, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Tl, U and Zn in foodstuffs by inductively coupled plasma mass spectrometry (ICP-MS) after pressure digestion.
- The UK NRL-MN reviewed and voted on a number of standards as a member of CEN/TC 327 via BSI. The standards included were EN 16277, EN 16278, EN 15111, EN 17053 and EN 16279.

10. Objective 3 - Production of standard operating procedures, codes of practice and guidance documents

10.1. Task 03/01. Contribute to the development of standardised operating procedures, relevant codes of practice and guidance documents for use by OLs and other relevant laboratories, as requested by the CA.

The NRL continues to share appropriately, SOPs generated by Fera when requested by OLs. Any new (non-confidential) SOPs, codes of practice and guidance obtained from the relevant EURL are shared.

10.1.1. NRL-MP

10.1.1.1. Tropane Alkaloids

- The aim of this project was to expand the matrix capability and achieve accreditation with the current method by NRL-MP. The expanded list of matrices included maize (popcorn), other cereals and herbal teas.
- The SOP was drafted in May 2023 to encompass the new matrices. Delays in the delivery of consumables hindered progress, but validation batches were completed in the new matrices by August 2023.
- The initial data was submitted for a flexible scope application ahead of a UKAS visit to Fera. Following this, all data was collated and given as a complete submission to UKAS. A final SOP and validation summary was also prepared, and NRL-MP is still awaiting feedback from UKAS.

10.1.1.2. Cyanogenic Glycosides

- The aim was to develop a method for Cyanogenic Glycosides in a range of matrices including cassava, almonds, apricot kernels, and linseed.
- Validation batches for Cassava were completed in April 2023, using surrogate matrices for spiking as outlined in a method obtained from WFSR. By May 2023, all other batches were completed, and the flexible scope application was completed in October 2023 for assessment at the UKAS surveillance visit in July 2024.
- A literature review on the bioavailability of cyanogenic glycosides was also requested by the FSA. This began in June 2023, with initial searches amassed lots of hits across multiple databases.
- The search parameters were refined in collaboration with the FSA, producing 413 hits that were then categorised into Occurrence, Methods, and Bioavailability up to 2017.

It was noted that most papers discussed symptoms or reduction of cyanogenic glycosides in cassava.

- A draft report was completed in February 2024 and was internally reviewed. The literature review was completed and submitted to FSA in March 2024.

10.1.1.3. Pyrrolizidine Alkaloids

- NRL-MPs current method was developed to cover an expanded suite of PAs across matrices. Initially, there were issues with obtaining standards and consumables that slowed progress. Standards and consumables, including a column and QuEChERs salts, were received in December 2023, and initial work to assess LC-MS/MS conditions began.
- Stock solutions were prepared from the standards, which were then used to establish retention times and transitions for newer compounds. Further LC-MS/MS work was carried out to assess the possibility of separating some of the analytes.
- Initial analysis was completed using dispersive SPE and QuEChERs in different matrices including cumin, oregano, and marjoram. The current method employed by NRL-MP using SPE with no further clean-up was also used to compare the two methods. The dispersive SPE produced reasonable results, but there were issues due to a lack of a true blank and chromatography interferences. This work continues into the next reporting period 2024-25.

10.1.2. NRL-MN

10.1.2.1. Inorganic Arsenic in foods of marine origin by HPLC/ICP-MS

- This project continued from the previous reporting period 2022-23. A HPLC/ICP-MS method was developed to quantify arsenic species as part of the FSA Wild Caught Fish project. Following on from this, further validation data was accumulated, and documentation was prepared to submit for UKAS accreditation.
- The UKAS accreditation submission was completed in November 2023, and was passed to the internal quality team for initial assessment with the aim to obtain accreditation in 2024.

10.1.2.2. Methyl Mercury by HPLC/ICP-MS in Seaweed

- A workplan was given to the CA outlining the development of an HPLC/ICP-MS method for extracting meHg and quantifying it in seaweed. Methodology was adapted from the Inorganic Arsenic in HPL/ICP-MS SOP and applied to meHg. In comparison to the previous method, solvent volumes were significantly reduced, it was less labour intensive and speciation was possible.

- A HPLC column was obtained, and work commenced October 2023. The initial batch was promising, followed by successful batches all accumulating data towards UKAS accreditation. Progress was hindered with varying instrumentation issues, but the process of accumulating data towards the accreditation bid continues into 2024-25.

10.1.3. Method development PFAS

10.1.3.1. NRL-POPs

- The method development work for PFAS began in January 2023. The aim was to improve Fera's existing method to give more robust and automated quantification and reduce interferences.
- A PFAS Masslynx processing method was created for more automated quantification and the internal standard concentrations were changed allowing for more robust quantification. Then the LC-MS conditions were assessed to improve the chromatography, including changes to columns and the gradient which shifted interfering peaks, giving better resolution and quantification of the peaks of interest.
- This allowed a full list of FSA priority PFAS to be quantified in Fish, fresh/freeze-dried milk, and fresh/freeze-dried egg. The next steps were to validate the method in new matrices including Bovine muscle and milk, Hen egg, honey, Porcine liver, beef, lamb, and fishmeal.
- There were issues seen with fatty samples (liver and feed), where the retention times shifted for PFOA and PFBA, and a wide range of recoveries was seen across analytes and matrices. Different phase SPE cartridges were trialled that are recommended for fatty sample analysis, alongside a different phase LC-MS column that can separate PFBA from other matrix interferences. These were included in the final optimised method.
- Work was also started with our internal statistics team on new software to plot all validation data to output the required statistics for UKAS paperwork and support calculation of measurement uncertainty (MU); this continues into 2024-25. The validation of additional matrices will also continue into 2024-25.

10.1.3.2. NRL-FCM

- PFAS IN FCM discussions started in October 2023.
- A final report was sent in July 2023 detailing the outcome of the first stage of PFAS in FCM. This report described that a database of 331 compounds (320 compounds of interest and 11 stable isotope-labelled internal standards) had been prepared using relevant information such as acronyms, chemical names, formulae, accurate masses, chemical structures, possible m/zs and CAS numbers (where available).

- Samples (33) of paper and board-based food packaging were purchased including: fast food, pastries, and pizza packaging. A generic extraction protocol using organic solvent was developed to extract PFAS from the samples. The extracts were screened using the developed HRMS database. The three samples with the highest and lowest number of hits on the PFAS database were used to test the FIDRA oil droplet test. The FIDRA oil droplet test was inconclusive. There seemed to be some correlation between the two tests at higher possible levels of PFAS but reducing at lower levels.

- The second stage of the PFAS in FCM was the PFAS targeted migration work of seven PFAS compounds in bagasse/moulded fibre or similar paper and board FCM. Articles of takeaway boxes, plates, bakery bags, pizza boxes and popcorn bags/cartons were analysed by the generic extraction protocol using methanol, as a worst-case scenario (i.e 100% migration), for PFOS, PFHxSH, PFOA, PFNA, PFBA, HFPO-DA and NaDONA. Low levels of all seven PFAS were determined from each of the FCM analysed and therefore it was determined that it was unlikely that the levels would be of concern in packaging simulants. Therefore, no further work on the migration of PFAS from these types of FCM was required at this stage. Migration calculations for 100% migration were still to be completed at the time of reporting.

10.1.4. NRL-FCM

10.1.4.1. MOSH MOAH

- The aim of the project was to develop and validate a method for MOSH MOAH in edible oils and infant formula. Pre-used instrumentation was purchased with the support of a grant from BEIS, alongside on-site training organised with the University of Liege, prior to the relocation of the instrument. Two virtual training sessions were completed in May 2023, followed by onsite training in the week commencing 12th June 2023. The instrumentation was then relocated to Fera in September 2023 and the additional epoxidation sample handling kit was installed in November 2023.
- In this time, familiarisation with the instrumentation and software were ongoing, and a workplan was devised in collaboration with the FSA and shared in subsequent NRL meetings. Due to ongoing instrumentation issues, this work will continue into 2024-25.

10.1.5. NRL-PC

10.1.5.1. Glycidol Esters

- A workplan was generated in June 2023, which outlined the scope of the validation and work to be completed. This included a literature review, sourcing standards and

reference materials, and optimising and validating a method for infant formula and edible oils.

- The literature review was completed soon after, highlighting an SOP from the EURL-PC and AOCS (Method Cd 29b-13). Initial work following the SOP gave promising z-scores for Oil PT materials but required optimisation of solvent mixes and volumes for the best fat extraction.
- Finding a suitable blank for infant formula proved difficult due to the inherent 3-MCPD levels in samples purchased for validation analyses, which slowed progress. Preparation has been made to start 3 validation batches across 3 spiking levels in infant formula. This work continues into 2024-25.

10.1.5.2. Nitrosamines

- A workplan was generated for this project in June 2023, outlining work to be completed, including a literature review, and validating the chosen method for a range of matrices. Matrices included cured meats, processed fish, cocoa, beer/alcoholic beverages, and fermented/pickled vegetables. The literature review was completed, identifying several methods that could be optimised for the required matrices.
- All standards were obtained by December 2023, followed by the division of work into non-volatile and volatile nitrosamines. Ongoing issues with instrumentation hindered progress and the work continues into 2024-25.

11. Objective 4 - Compliance assessment via audits and ring trials

11.1. Task 04/01. Ensure consistency and quality of testing approaches applied by UK OLs and other relevant laboratories, including advising on corrective action following adverse reports on OLs from UKAS.

This is addressed by providing support and advice to OLs to advise on best practices and provide methodology support, any known difficulties in application are explained. Training is offered to OLs that have little experience in a method.

With the agreement of the FSA, Fera continued to participate in the EURL organised inter-laboratory comparison exercises and method development/ method evaluation/ method validation studies where permitted and where possible invited the OLs to participate.

11.2. Task 04/02. Plan and co-ordinate proficiency tests for UK OLs and other relevant laboratories as appropriate (taking into account the number of relevant laboratories), analysing and evaluating the outcome, informing the CA and OLs of the results and advising on further action.

Fera NRLs have supported OL participation in EURL PTs historically and where a need has been identified, participation in other PTs has also been encouraged. It was not possible for the NRL-FCM to participate in EURL PTs in 2023-24.

The NRL follows up on OL performance at the request of the competent authority.

11.3. Task 04/03. Co-ordinate the participation of UK OLs and other relevant laboratories in international method validation studies and other initiatives, informing the CA and OLs of the results and advising on further action.

Some EURLs had no opportunity for OLs to participate in PTs in this reporting period.

The EURL-MP have agreed UK laboratories can participate as fee paying participants in 2023-24, details of PTs were shared with OLs.

NRL-POPs invited UK OLs to participate in EURL-POPs PTs but there was no uptake from the invitation.

11.4. Task 04/04. Where relevant, participate in proficiency tests and method validation studies organised by international organisations, informing the CA of the results and implementing any corrective measures required.

Fera participates in EURL organised ILCs/PTs where possible. Fera has procedures to investigate and to rectify unsatisfactory performance in PT schemes as part of its ISO 17025

accreditation, these include ‘root cause analysis’ and improvement plans. Trend analysis of all z-scores to look for systematic bias or drift is also performed.

11.4.1. NRL-MP

Fera NRL-MP registered for participation in the EURL-PTs ‘HCN in food and feed’ and ‘Ochratoxin A in dry-cured ham and raw kidney’.

Fera NRL-MP also participates in other schemes such as Fapas®. Fera NRL-MP regularly participates in method validation studies through participation in CEN working groups.

Some Fapas® PTs included ‘Cereal for tropane alkaloids’, ‘Flour for mycotoxin contamination’, ‘Peanut slurry for aflatoxins’, ‘multi-mycotoxins in pet dog food’, ‘Alternaria toxins in tomato juice’ and ‘Grape juice for ochratoxin A’ among others.

11.4.2. NRL-MN

NRL-MN participated in the EURL-MN PT-2023-03: Mineral feed; they received a certificate of excellent performance from the EURL-MN, being among the top three laboratories with the lowest average z-score for this PT.

NRL-MN participated in and submitted results for the interlaboratory trial on inorganic arsenic in algae, organised by Wageningen Food Safety Research on behalf of CEN/TC 454 on algae and algae products.

NRL-MN also participates in schemes such as Fapas®. Some Fapas® PTs included ‘nitrate and nitrite in meat’, ‘selection of metals at high levels in tomato paste’ and ‘nitrate and nitrate in milk powder’.

11.4.3. NRL-POPs

EURL PT Rounds

- EURL PT on PCDD/Fs, PCBs, PBDEs, HBCDDs and PFASs in Compound Feed 2023
- EURL PT on PCDD/Fs, PCBs, PBDEs, HBCDDs and PFAS in Bovine Meat 2024

Fera NRL-POPs participates in other schemes such as Fapas®. Some Fapas® PTs included ‘Dioxins and PCBs in Milk Powder’, ‘PCBs and Dioxins in Pork’, ‘Dioxins in Infant Formula’ ‘PFAS in Egg’, and ‘Dioxins in Cod Liver Oil’.

11.4.4. NRL-PC

EURL PT Rounds

- EURL-PC PT-2023-13: Furan and alkylated furans in a salty baked cereal product.

Fera NRL-PC participates in schemes such as Fapas®. Some Fapas® PTs included ‘Processing contaminants in Soy sauce’, ‘Acrylamide in Potato Crisps’, ‘PAHs in Olive Oil’, ‘PAHs in Cocoa Butter’ and ‘3-MCPD esters, glycidol esters and 2-MCPD esters in infant formula’.

NRL-PC also participated in the WEPAL BT4 ‘PAHs in biota’ round.

11.4.5. NRL-FCM

Fera NRL-FCM participates in schemes such as Fapas®. Some Fapas® PTs included ‘Phthalates in Oil’, ‘OM into Ethanol’, ‘Formaldehyde in 3% acetic acid’, ‘BPA in 50% ethanol’, ‘PAAs in 3% acetic acid’, and ‘Melamine in 3% AA’.

NRL-FCM also submitted results for ILC on NIAS screening.

11.5. Task 04/05. Co-ordinate training exercises to promote best laboratory practice in respect of analysis.

Training is offered to be carried out on request, either at Fera or in the individual OLs. This offer was verbally given at the NRL-OL Network meeting on 20th October 2023.

Fera NRLs were not able to participate in training provided by the EURLs.

12. Objective 5 - Co-ordination within the UK of international initiatives

12.1. Task 05/01. Co-ordinate the recommendations of international organisations related to the standardisation of testing methods.

Information and documentation received from the EURL was provided to the CA, to the OLs and where appropriate other relevant laboratories. Any EURL recommendations were fed back promptly to the CA, OLs and other relevant laboratories and any specific issues would be disseminated by e-mail to the OL distribution list. This has been limited this year due to reduced communications from some EURLs.

12.1.1. NRL Participation in international organisations

Fera NRLs are members of four CEN Working groups, the activity on the groups has been on-line this year. The groups have been less active this year as their Mandates or work programmes are near completion or have been completed. In many areas new standardisation requests are under discussion and it is anticipated activity will increase.

NRL staff are on the mailing list to receive updates from Defra about Codex activities, NRL leads keep abreast of development in their areas.

Fera NRL participation in international organisations is summarised below in Table 1.

Table 1. Fera membership of international organisations related to standardisation of testing methods.

NRL Function	International Group	Activity
NRL-MP	CEN/TC 275 WG 5	Member of working group on analytical methods for natural toxins in food
NRL-MP	CEN/TC 327 WG 5	Member of working group on analytical methods for natural toxins in feed
NRL-MP	AOAC CASP	Registered member of working groups for analytical methods and method criteria for mycotoxins and cannabinoids.
NRL-MN	CEN/TC 275 WG 10	Member of working group on analytical methods for elemental species in food
NRL-MN	CEN/TC 275 WG 7	Member of working group on analytical methods for Nitrates and nitrites in food
NRL-POPs	CEN/TC 327 WG 1	Member of working group organic contaminants in feed.
NRL-PC	CEN/TC 275 WG 13	Member of working group on analytical method for processing contaminants

13. Objective 6 – Role in Regulation of Food Contact Materials

This Objective applies to NRL-FCM only.

The FSA in its food contact materials authorisation guidance:

https://www.food.gov.uk/business-guidance/regulated-products/food-contact-materials-guidance

requires applicants submitting substances for authorisation for use in an FCM, namely:

- additives and starting monomers in plastic food contact materials
- additives in active and intelligent food contact materials (AIMs)
- additives in regenerated cellulose film (RCF)

to provide:

- a physical sample of the substance (250g)
- the relevant product safety sheet and spectroscopic data (if applicable)
- the analytical method(s) including performance parameters (as set out in the EFSA note for guidance: https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2008.21r).

As such three tasks were agreed for the NRL-FCM:

13.1. Task 06/01. Receipt and secure storage of substances and method information submitted to the FSA for approval for use in FCMs.

5 samples had been received by March 2024. Samples were stored securely, along with all associated paperwork received. Sample details and paperwork were added to the NRL/CA Teams site.

13.2. Task 06/02. Verification of the applicability and performance of the analytical methods provided by the applicants.

Clarification discussions were on-going with the NRL and the CA FCM policy team.

13.3. Task 06/03. Provide analytical data to support risk assessment of emerging issues/contaminants arising from food contact materials.

Project agreed for 2024/25 to look at ‘Release of potential allergenic material from a cup or utensil made of wheat- or chitin-based packaging’.

14. Objective 7 - Communication of results and data use

This Objective was delivered by all five NRLs in the reporting period:

14.1. Task 7 (a), (j)

NRL Activity Logs were sent monthly to the FSA providing updates relating to developments in core functions. Timely emails were sent to the relevant FSA contact in each policy area and the FSA manager for Contaminants NRLs as items arose in the intervening periods.

14.2. Task 7 (b)

Costs, specifications and timings were tracked and the FSA was kept updated. No deviations were encountered.

14.3. Task 7 (c)

No unusual occurrences were encountered.

14.4. Task 7 (d)

No additional interim reports were requested.

14.4. Task 7 (e and f)

Fera NRLs uphold confidentiality with work for all customers including the FSA. No results or reports were communicated, and no data was presented without permission of the FSA.

14.5. Task 7 (g, h, i and j)

Fera has systems in place to maintain records for the required period. Reports and information were sent regularly to the FSA, to agreed deadlines for core functions. If required, all information can be transferred as necessary at the end of a contract period.

15. Summary

Under Retained Regulation (EU) 2017/625[1] on official controls Fera Science Ltd. (Fera) is designated by FSA as UK NRL for the following areas:

NRL-MP NRL Mycotoxins and Plant Toxins in Feed and Food

NRL-MN NRL Metals and Nitrogenous Compounds in Feed and Food

NRL-PC NRL Processing Contaminants

NRL-POPs NRL Halogenated Persistent Organic Pollutants (POPs) in Feed and Food

NRL-FCM NRL Materials and Articles in Contact with Food.

This Annual Report describes the activities of these NRLs from 1st April 2023 to 31st March 2024 and demonstrates how the requirements of Retained Regulation (EU) No 625/2017[1] (Article 101) have been met.

To assist with communication, a dedicated fully accessible website (https://www.fera.co.uk/national-reference-laboratory) and a shared NRL email address that is regularly monitored (nrl@fera.co.uk) are available. This Annual Report is published on the Fera NRL website and is available to all, thereby meeting the FSA openness and transparency commitments.

All five NRLs provided the FSA with monthly NRL Activity Logs. Impartial advice was provided to the FSA, FSS, UK OLs and other NRLs throughout the period. EURL information was disseminated to the CA. NRL Meetings were held on 9th June, 22nd September and 8th December 2023 and 7th March 2024. The meetings were held on-line between FSA, Food Standards Scotland (FSS), and the NRLs. A network meeting was held with OLs on 20th October 2023. Advice and methodology were provided to OLs where requested.

Where provided by the EURL, Work Programmes were forwarded to the CA. The NRLs also planned Work Programmes, and these were sent to the FSA. A priority list of methods was agreed, and practical work has started on method development and validation for those methods.

Fera NRLs were not able to participate in EURL training this year, however future participation in EURL activities may be possible in some areas. For the EURL Workshops and Core Working Groups etc. that NRLs attended, Meeting Notes, official reports, and documents and where available, presentations were sent to the CA. Where attendance had not been possible, documents from these meetings were requested by the respective NRL, and if provided, sent to the CA.

The NRLs participated in several Proficiency Tests (PTs); EURL PTs and PTs from other providers, and a large number of Fapas® PT rounds covering a broad range of analyses across all NRLs for a wide range of contaminants. Most PT results were satisfactory, a very small number of individual results were not. In all cases any issues were investigated in accordance with ISO17025 quality procedures and follow up action completed.

Appendix 1: References

(1) Retained Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products, amending Regulations (EC) No 999/2001, (EC) No 396/2005, (EC) No 1069/2009, (EC) No 1107/2009, (EU) No 1151/2012, (EU) No 652/2014, (EU) 2016/429 and (EU) 2016/2031 of the European Parliament and of the Council, Council Regulations (EC) No 1/2005 and (EC) No 1099/2009 and Council Directives 98/58/EC, 1999/74/EC, 2007/43/EC, 2008/119/EC and 2008/120/EC, and repealing Regulations (EC) No 854/2004 and (EC) No 882/2004 of the European Parliament and of the Council, Council Directives 89/608/EEC, 89/662/EEC, 90/425/EEC, 91/496/EEC, 96/23/EC, 96/93/EC and 97/78/EC and Council Decision 92/438/EEC (Official Controls Regulation)Text with EEA relevance. OJ L 95, 7.4.2017, p. 1–142. ELI: https://www.legislation.gov.uk/eur/2017/625/contents

Appendix 2: Fera NRLs

Area	Name and Contact Details
General enquiries and information	Fera Science Ltd (Fera) York Biotech Campus, Sand Hutton, York, YO41 1LZ. nrl@fera.co.uk +44 (0)1904 462000 https://www.fera.co.uk/national-reference-laboratory Head of NRL Chemical Safety in Food and Feed Susan MacDonald susan.macdonald@fera.co.uk +44 (0)1904 462558
NRL Mycotoxins and Plant Toxins in Feed and Food	Susan MacDonald susan.macdonald@fera.co.uk +44 (0)1904 462558 https://www.fera.co.uk/about-us/national-reference-laboratory/mycotoxins
NRL Heavy Metals and Nitrogenous Compounds in Feed and Food	Mike Walls michael.walls@fera.co.uk +44 (0)1904 462150 https://www.fera.co.uk/about-us/national-reference-laboratory/heavy-metals
NRL Halogenated POPs in Feed and Food	Frankie Smith frankie.smith@fera.co.uk +44 (0)1904 462525 https://www.fera.co.uk/about-us/national-reference-laboratory/dioxins-pcbs
NRL Processing Contaminants	Sean Panton sean.panton@fera.co.uk +44 (0)1904 462098 Sam Kam sam.kam@fera.co.uk +44 (0)1904 462000 https://www.fera.co.uk/about-us/national-reference-laboratory/pahs

NRL Materials and Articles in Contact with Food	Claire McKillen claire.mckillen@fera.co.uk +44 (0)1904 462609 https://www.fera.co.uk/about-us/national-reference-laboratory/food-contact