

NRL News

Winter 2017/18



Background to NRL roles

Activities in each area of food and feed control are led by a European Reference Laboratory (EURL). The EURLs are supported by a network of National Reference Laboratories (NRL) whose principal role is to provide analytical and scientific support to ensure that food and feed control is carried out effectively and in a harmonised manner.

A list of UK NRLs is published by the Food Standards Agency and can be found here:

[FSA: List of National Reference Laboratories](#)

LGC is currently the UK NRL for the following areas:

- Added water in poultry
- Chemical Elements in Food of Animal Origin
- Feed Additives – Authorisation
- Feed Additives – Control
- Genetically modified organisms (GMOs) in food and feed
- Mycotoxins in Food of Animal Origin

Regulation (EC) No 882/2004 on official controls establishes the network of European and National Reference Laboratories. This Regulation is one that will be repealed with effect from 14 December 2019 and will be replaced by Regulation (EU) 2017/625. Regulation 2017/625 supplements Regulation (EC) No 178/2002 and aims for a high level of:

- protection of human, animal and plant health and of the environment via veterinary and phytosanitary measures;
- consumer protection in the internal market; and
- animal welfare along the agri-food chain.

[This issue of the NRL newsletter for feed additives and GMO includes:](#)

- Legislation update
- Recalls
- NRL and EURL activities

1. GMO Legislation update

A set of 23 genetically modified maize plant products were (re)-authorised, pursuant to Regulation (EC) No 1829/2003 of the European Parliament and of the Council, subject to the conditions specified in the respective regulations in July 2017. The authorisations were for use in food and food ingredients, feed, or any other use with the exception of cultivation.

The Regulations were:

- (a) Commission Implementing Decision (EU) 2017/1207 of 4 July 2017 renewing the authorisation for the placing on the market of genetically modified maize MON 810 (MONØ81Ø-6) products, (notified under document C(2017) 4453)
- (b) Commission Implementing Decision (EU) 2017/1209 of 4 July 2017 authorising the placing on the market of products containing, consisting of, or produced from genetically modified maize Bt11 × 59122 × MIR604 × 1507 × GA21, and genetically modified maize combining two, three or four of the events Bt11, 59122, MIR604, 1507 and GA21 (notified under document C(2017) 4460)

- (c) Commission Implementing Decision (EU) 2017/1212 of 4 July 2017 authorising the placing on the market of products containing, consisting of, or produced from genetically modified maize DAS-40278-9, (notified under document C(2017) 4503)

A full report on changes to food and feed law can be found on the Government Chemist website at the following web address:

<https://www.gov.uk/government/publications?departments%5B%5D=government-chemist>



Recalls

A summary of the recalls from the EU Rapid Alert System for Food and Feed (RASFF) involving GMO from 1 March to 31 December 2017 is given in Table 1.

Month	Country of Origin	Reason for recall
March 2017	China	Unauthorised genetically modified (Cry1Ab-gene SYBR®Green) organic red yeast rice (2 notifications).
March 2017	Thailand	Unauthorised genetically modified green papaya
April 2017	China	Unauthorised genetically modified papaya in fruit cocktail
May 2017	China	Unauthorised genetically modified rice dumplings
June 2017	Hong Kong, via China	Unauthorised genetically modified white rice
June 2017	China	Unauthorised genetically modified (Cry1Ab; Cry1Ab/c) rice noodles
July 2017	China	Unauthorised genetically modified (p35S, tNOS and Cry1Ab/Ac) white rice cakes
July 2017	China	Unauthorised genetically modified (35S promoter rice package) black rice noodles
August 2017	Argentina	Unauthorised genetically modified (MON531; MON1445) cotton seeds
September 2017	Argentina	Unauthorised genetically modified (MON1445 and MON531) cotton seeds
September 2017	France	Unauthorised fermentation by-product from the production of amino acids by culture of genetically modified micro-organism (E. coli K12)
October 2017	China	Unauthorised genetically modified (positive for 35S promoter and NOS terminator sequences) brown rice noodles and chilli miso noodles
October 2017	Argentina	Unauthorised genetically modified (MON531) cotton seeds

Table 1: GMO recalls from 1 March to 31 December 2017



NRL activities

- The UK NRL received Z-scores from EURL Comparative Test ILC_EURL_GMFF_CT_01_17 for Soya 44406 and Maize VC01981 events, which it participated in during May 2017. All Z-scores were satisfactory.
- The UK NRL received Z-scores from EURL Comparative Test ILC_EURL_GMFF_CT_02_17 for Soya 40-3-2 event which it participated in during August 2017. All Z-scores were satisfactory.
- The UK NRL annual report for 2016-2017 was prepared, completed and published.
- Organised, hosted and chaired the NRL Liaison Meeting at LGC in August 2017. Discussions included progress on the NRL Feed Additives and GMO positions; provision of the NRL annual reports; and Regulation (EU) 2017/65 and its impact on official controls.
- Received two new ENGL Control plasmids DP-004114-3 maize and MON-874031 maize.
- At the request of the EURL, provided a list of OCLs to the EURL in accordance with the new Official Control Regulation (EU) No 2017/625.
- The UK NRL is part of the Working Group on the use of digital PCR for GMO analysis, the publication of which is expected shortly.
- The UK NRL position, managed by Malcom Burns, helped develop, organise, co-chair, present and deliver a DNA extraction workshop with the EURL for GMOs in feed and food. This EURL/LGC workshop was held at the Joint Research Centre (JRC) in Ispra (Italy) at the start of June 2017. The three day event was attended by over 37 experts representing 19 EU member states and other countries as far afield as Mexico, Ecuador and Brazil.
- The workshop consisted of a number of seminars and interactive discussion sessions on different approaches and quality control criteria for DNA extracted from food and feed samples. The workshop was designed to capitalise upon the shared knowledge and collective expertise and experiences of scientists working in the topical area of extracting DNA from challenging matrices. As well as co-chairing sessions on the other days, Malcolm chaired the interactive session on the second day. Each of the participants was asked to present their experiences in relation to DNA extraction, promoting further valuable discussions, comments and suggestions from the group. Feedback from the workshop included how positive the interactive session was led by LGC using an innovative new format. The three day event provided a forum to discuss and agree best measurement practice in the area of DNA extraction from food and feed. The workshop has resulted in agreement for a summary document to be produced detailing issues commonly encountered when extracting DNA from food and feed samples, as well as associated potential solutions for these issues. It is hoped that this valuable resource will be made available to all stakeholders in the near future. The UK NRL received a letter of appreciation from Hendrik Emons (EC, Directorate General, JRC, Directorate F - Health, Consumers and Reference Materials, Head of Unit - Food & Feed Compliance) for steering and leading the interactive workshop content. Support was received from the ENGL Steering Group for the establishment of a Working Group on DNA extraction based on using a mandate from the key points discussed at the EURL/LGC workshop.



NRL training, advice and dissemination events

Meetings

- Attended the 27th NRL plenary meeting at the JRC-Ispra (Italy) in April 2017;
- Attended the 33rd ENGL Steering Committee meeting at the JRC-Ispra (Italy) in June 2017;
- Attended the 13th NRL workshop (representing the UK NRL as appointed under 882/2004) and the 28th ENGL plenary meeting at the JRC-Ispra (Italy) in September 2017.

Publications

Published a paper on “*A brief review of current bioinformatics decision support system (DSS) tools for screening for GMOs in the EU using PCR based approaches*” in the Journal of Association of Public Analysts, Volume 45, pages 023-040.

OCL advice

Responded to ten enquiries from UK Official Control Laboratories. Advice included:

- Bioinformatics Decision Support Systems available for interpreting results from GMO screening exercises;
- Methods of analysis for GM Petunia;
- Guidance on interpretation of testing for Chinese GM rice (Commission Implementing Decision 2013/287/EU);
- Reference materials for use in testing for Chinese GM rice;
- Communications on OCL training requirements to raise at the 13th NRL workshop in September 2017 at the JRC-Ispra (Italy).

UK Competent authority advice

Responded to ten enquiries from the UK Competent Authority (FSA). Advice included:

- Currently available guidance documents and databases supplied by the EURL;
- Provision of draft and finalised NRL meeting reports and the EURL official minutes to the 27th ENGL plenary, 13th NRL workshop and 28th ENGL plenary, and 32nd and 33rd ENGL Steering Committee meetings;
- Documentation available on a Decision Support System approach and recommendations on unit of measurement for GM content;

- Available EURL guidance on detection of GM Petunia;
- Advice on sampling and testing for GM seed including Commission Recommendation 2004/787/EC on technical guidance for sampling and detection of GMOs as well as the International Seed Testing Association (ISTA) Handbook on Seed Sampling;
- Access to GMO sequence information for individual GM events submitted by the applicant as part of the GMO authorisation process;
- Provision of information to Defra regarding the GM Petunia issue discussed with the EURL.



ENGL advice

Responded to six enquiries from UK European Network of GMO laboratories (ENGL). Advice included:

- Quality metrics to use for DNA extraction and attendance at the EURL/LGC workshop on DNA extraction in June 2017;
- Dates of forthcoming ENGL meetings;
- Current and new versions of the ENGL Guidance Document on Method Verification.

EURL Activity

- Responded to enquiries from the EURL to help establish, develop, coordinate and present at DNA extraction training course held at the JRC-Ispra site in June 2017
- The 33rd ENGL Steering Committee meeting was held at the JRC-Ispra (Italy) site at the end of June. Topics discussed included: the prevalence of testing for GM Petunia in EU member states; the publication of EU explanatory notes on “New Technologies in Agricultural Biotechnology”; the availability of EURL pre-spotted plates for GM screening; the occurrence of Genetically Modified Micro-organisms (GMM); and the establishment of new Working Groups on DNA extraction, multiplex PCR, and Next Generation Sequencing (NGS). Malcolm Burns (LGC, UK NRL) also gave a presentation to the ENGL Steering Committee, summarising the outcome and discursive action points resulting from the DNA extraction workshop he helped organise and chair in early June, attended by 37 participants from 19 EU member states as well as Mexico, Ecuador and Brazil (photograph, p5). As a result of the workshop, the ENGL Steering Committee approved a draft proposal to establish a new Working Group in this topical area, as well as asking the UK NRL to contribute to the mandate of the Working Group and spearhead any publications from the workshop.

2. Feed additives in animal feed

Feed additives are products used in animal nutrition to improve the characteristics of feed, for instance to enhance flavour or to make feed materials more readily digestible. They play an important role in animal nutrition, addressing various aspects such as feed safety, reduction of environmental emissions and sustainability in livestock farming. A company wishing to put a feed additive on the EU market must obtain prior authorisation as detailed in Regulation (EC) No 1831/2003. As part of this process, EFSA evaluates the safety and efficacy of each additive and checks for adverse effects on human and animal health and on the environment.

Feed additives include:

- Technological additives - e.g. preservatives, antioxidants, emulsifiers, stabilising agents, acidity regulators, silage additives
- Sensory additives - e.g. flavours, colourants
- Nutritional additives - e.g. vitamins, amino acids, trace elements
- Zootechnical additives - e.g. digestibility enhancers, gut flora stabilizers Coccidiostats and histomonostats

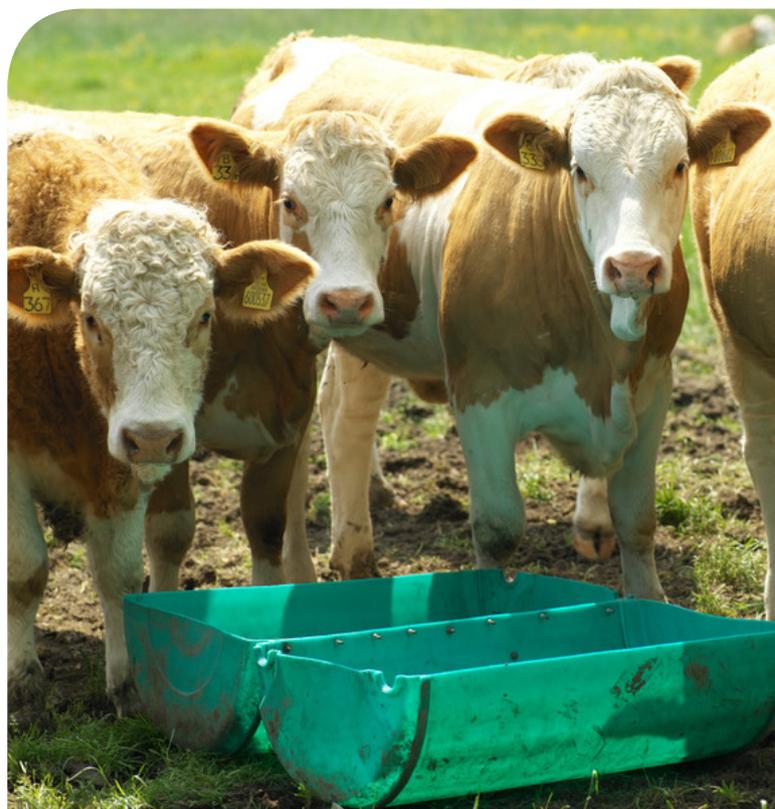
Legislation update

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Commission Implementing Regulation (EU) 2017/1145 of 8 June 2017, pursuant to Article 10(5) of Regulation (EC) No 1831/2003, lists the repeal of obsolete provisions authorising feed additives which were entered in the Community Register of Feed Additives as existing products and for which no applications in accordance with Article 10(2) and (7) of Regulation (EC) No 1831/2003 were submitted before the deadline provided for in those provisions, or for which an application was submitted but subsequently withdrawn. The Annex to Regulation (EU) 2017/1145 lists over 200 such additives.

http://eur-lex.europa.eu/legal-content/EN/TX/T/?uri=uriserv:OJ.L_.2017.166.01.0001.01.ENG&toc=OJ:L:2017:166:TOC



Recalls

A summary of the recalls from the EU Rapid Alert System for Food and Feed (RASFF) involving feed additives from 1 March to 31 December 2017 is provided in Table 2.

Month	Country of Origin	Reason for recall
May 2017	Brazil	Dioxins (2.63 pg WHO TEQ/g) in bentonite
June 2017	Spain	Dioxins (2.76; 8.66; 16; 1.29; 58.8; 29.4 ng/kg - ppt) in zinc oxide
June 2017	China	Dioxins (1.61 ng/kg - ppt) in cobalt carbonate
August 2017	Turkey	Dioxins (2.23 pg WHO TEQ/g) in copper sulfate pentahydrate
October 2017	United States	Arsenic (40 mg/kg - ppm) in dimanganese chloride trihydroxide
October 2017	Argentina	Unauthorised genetically modified (MON531) cotton seeds
November 2017	Egypt	Salmonella enterica ser. Agona (presence /25g) in marigold

Table 2: Feed additive recalls from 1 March to 31 December 2017

Feed additive authorisations

Before feed additives can be placed on the market, authorisation must be obtained as specified in Regulation (EC) No 1831/2003. The authorisation procedure involves a scientific evaluation of data provided by the applicant via a dossier including methods of analysis that allow Member States' official control laboratories to check whether the use of feed additives are in compliance with legal conditions.

Pursuant to Regulation (EC) No 1831/2003, a list of the currently permitted feed additives can be found in the European Union Register of Feed Additives. The latest edition can be found at:

https://ec.europa.eu/food/sites/food/files/safety/docs/animal-feed-eu-reg-comm_register_feed_additives_1831-03.pdf

Further information on the feed additive authorisations can be found at: <http://food.gov.uk/enforcement/regulation/europeleg/euupdates/>

For the various regulations relating to the authorisation of feed additives, see the Commission website:

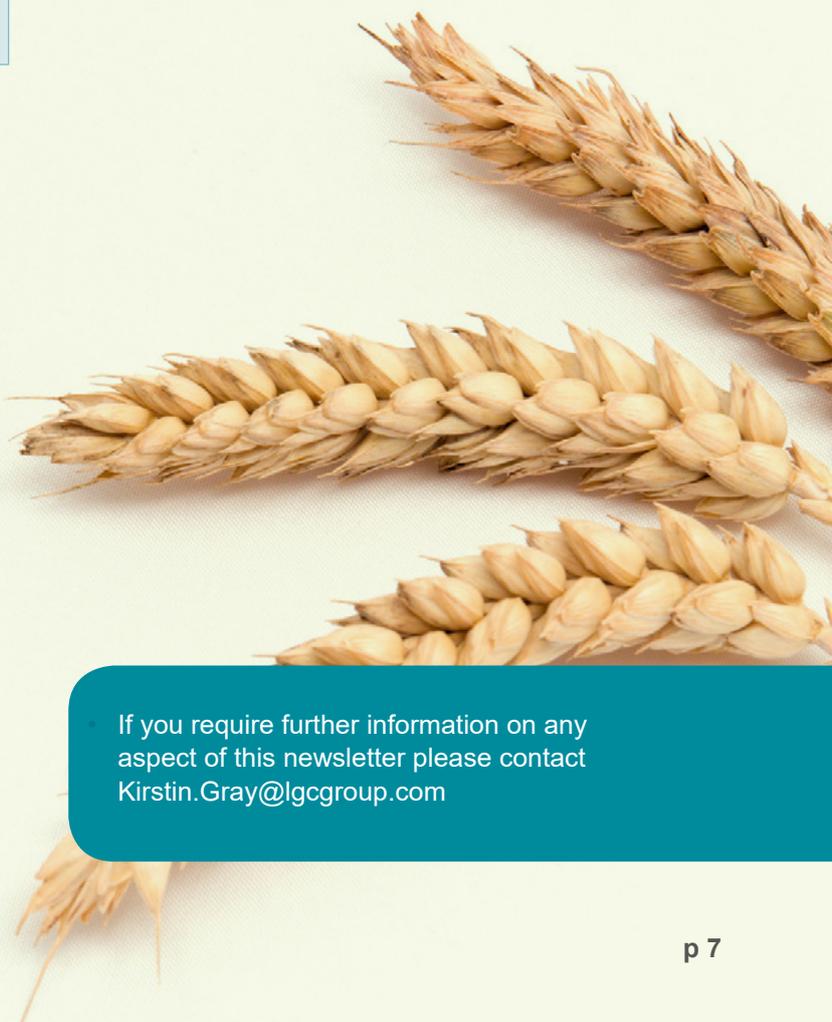
<https://ec.europa.eu/jrc/en/eurl/feed-additives/authorisation>

Proficiency test / training exercise for UK OCLs

The EURL for Feed Additives – Control is running a proficiency test (PT) this year for the determination of total selenium in compound feed. The PT is being run primarily for NRLs but the EURL has agreed that UK OCLs can participate if they are interested.

Discussions are currently being held between the Food Standards Agency and the UK NRL as to the format of an additional PT / training exercise which is being considered for later this year. If you have any needs for a specific proficiency test or training exercise or if you have any suggestions for the next trial, please contact Kirstin Gray (Kirstin.Gray@lgcgroup.com). The exercise will aim to cover an area where:

- An existing PT scheme does not exist
- A measurement issue exists
- An interpretative issue exists
- An emerging issue has arisen.



If you require further information on any aspect of this newsletter please contact Kirstin.Gray@lgcgroup.com



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