

NRL News

April to September 2013



Reference laboratories for food and feed control

Regulation (EC) No 882/2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules establishes a network of European and National Reference laboratories. In each area of food and feed control, a European Reference laboratory (EURL) is identified to coordinate activities in this area. They are supported by a network of National Reference laboratories (NRL) who coordinate activities within their own member state and contribute to the European wide activities.

The duties of these laboratories are set out in the legislation but their 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, across the EU member states.

The EURL's are listed in Regulation (EC) 882/2004 and amending legislation. The EU Commission Joint Research Centre (JRC) acts as the EURL for many aspects of food and feed control including the following:

- EU-RL for GMOs in food and feed
- EU-RL for feed additives
- EU-RL for food contact materials
- EU-RL for heavy metals in feed and food
- EU-RL for mycotoxins in food and feed
- EU-RL for polycyclic aromatic hydrocarbons

National Reference laboratories are nominated by the Competent Authorities in each Member state. In the UK, these are the Food Standards Agency (FSA) and the Department for Environment, Food and Rural Affairs (DEFRA). A list of current UK National Reference laboratories is published by the Food Standards Agency and can be found here:

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

LGC is currently the UK National Reference laboratory for the following areas:

- Genetically Modified Organisms (GMO's)
- Additives for use in Animal Feed – Authorisations
- Additives for use in Animal Feed – Feed Control
- Pesticides in foods of animal origin and commodities with high fat content
- Veterinary medicines residues and contaminants in food of animal origin – Specified residues according to Directive 96/23/EC
- Added water in poultry meat.

This newsletter gives an update of activities performed during April to September 2013 for the following NRL functions:

- Genetically modified organisms (GMOs) in food and feed
- Feed additives in animal feed

1. NRL for GMOs in food and feed

Legislation update

Commission Implementing Decision of 13 June 2013 that amended Implementing Decision 2011/884/EU on emergency measures regarding unauthorised genetically modified rice in rice products originating from China . The main changes made by Commission Implementing Decision of 13 June 2013 were:

1. A reduction in the numbers of sub-samples to be taken from four sub-samples to one sub-sample for processed food products.
2. An extension of the existing scope to also include certain products that originate from China and have rice present as an ingredient (as opposed to the previous wording which covers consignments of rice or rice products originating from China).
3. Administrative changes on prior notification of consignments.

No other substantive changes were made and all rice consignments imported into the EU from China remain subject to testing for the presence of molecular markers and elements often associated with genetic modification. The opportunity entirely to replace the SYBR Green method in Commission Decision 2013/287/EU was not taken as currently no other approach is technically capable of addressing the problems extant.

The Specified Products from China (Restriction on First Placing on the Market) (England) (Amendment) Regulations 2012 (SI 47) were amended by the Specified Products from China (Restriction on First Placing on the Market) (England) Amendment Regulations 2013 (SI 1683), which takes into account the above changes implemented by Commission Implementing Decision 2013/287/EU. Similar changes were made in the devolved countries.

Recalls

The following notifications were recorded between April and September 2013 on the EU Rapid Alert System for Food and Feed (RASFF).

Month	Country of origin	Reason for recall
Cereals and bakery products		
June	from China	unauthorised genetically modified (Bt63: 80.000 units) rice sticks from China, via Hong Kong
July	from China	unauthorised genetically modified rice cakes from China
July	from China	unauthorised genetically modified (presence CryIAb) white rice cakes from China
August	from China	unauthorised genetically modified frozen chocolate cake from China
August	dispatched from United States	unauthorised genetically modified organic rice protein powder from China, dispatched from the United States
August	from Hong Kong	unauthorised genetically modified (Bt63) rice macaroni from China, via Hong Kong
August	from China	unauthorised genetically modified (Bt63) rice sticks from China, via Hong Kong
September	from China	unauthorised genetically modified rice vermicelli from China, via Hong Kong
September	from China	unauthorised genetically modified rice stick from China, via Hong Kong
September	from China	unauthorised genetically modified (CryIAb/Ac detected) rice stick from China, via the Czech Republic
Feed materials		
April	from Pakistan	unauthorised genetically modified (BT63 %) rice from Pakistan
Fruits and vegetables		
April	from Thailand	unauthorised genetically modified (p35S; tNos) papayas from Thailand
April	from Thailand	unauthorised genetically modified (NPTII) green papaya from Thailand
April	from Thailand	unauthorised genetically modified (Detection of 35S promoter) dehydrated papaya from Thailand
April	from Thailand	unauthorised genetically modified (35S promotor in nptII-gen in 1 out of 11 fruits) green papaya (<i>Carica papaya</i>) from Thailand
May	from Thailand	unauthorised genetically modified green papaya from Thailand
May	from Thailand	unauthorised genetically modified green papaya from Thailand
May	from Thailand	unauthorised genetically modified papayas from Thailand
June	from Thailand	unauthorised genetically modified green papaya from Thailand
June	from Thailand	unauthorised genetically modified papayas from Thailand
June	from Thailand	unauthorised genetically modified chilled papaya from Thailand
June	from Thailand	unauthorised genetically modified dried papaya from Thailand
July	from Vietnam	unauthorised genetically modified frozen papaya strips from Vietnam
July	from Thailand	unauthorised genetically modified fresh papaya from Thailand
July	from Thailand	unauthorised genetically modified fresh papaya from Thailand
July	from Thailand	unauthorised genetically modified (positive for p35S and tNos) papaya from Thailand
July	from Thailand	unauthorised genetically modified papaya from Thailand
July	from Thailand	unauthorised genetically modified papayas from Thailand
July	from Thailand	unauthorised genetically modified green papaya from Thailand
July	from Thailand	unauthorised genetically modified (positive for p35S and tNos) papaya from Thailand
July	from Thailand	unauthorised genetically modified fresh papayas from Thailand
July	from Thailand	unauthorised genetically modified fresh green papaya from Thailand
July	from Thailand	unauthorised genetically modified fresh green papaya from Thailand
August	from Thailand	unauthorised genetically modified fresh papaya from Thailand
August	from Thailand	unauthorised genetically modified papayas from Thailand
August	from Thailand	unauthorised genetically modified green papaya from Thailand
Other food product / mixed		
April	from China	unauthorised genetically modified (CryIAb/CryIAc detected) rice and peanuts crackers from China
Prepared dishes and snacks		
August	from Argentina	unauthorised genetically modified (bt 176) popcorn maize from Argentina, packaged in the United Kingdom

Emerging Issues

GM glyphosate resistant wheat (MON 71800) had been found on one farm in Oregon, US. The EURL are currently addressing optimisation and validation of an event specific method for the detection of MON 71800 for a range of real-time PCR machines. In the interim period, the EURL have advocated the use of a SYBR Green screening assay that can be used if testing is required. EU-RL GMFF guidance on testing for GM glyphosate-resistant wheat (MON71800) in wheat grain or in food/feed products containing wheat flour originating or consigned from the US: can be found at http://gmo-crl.jrc.ec.europa.eu/GM_wheat.htm. The EURL stated that MON 71800 had been found in a field of soft white wheat, and as such its importation into the EU was very limited, and therefore routine testing was currently not advocated.

EURL Activity

For the revision of Regulation (EC) 882/2004, governance aspects such as nomination of EURLs has been simplified, some EURLs would be merged, and there would also be the establishment of “European Reference Centres” for some of the more minor subject areas. Whilst a lot more emphasis had been placed on quality, it was announced that it was not envisaged that the role or responsibilities of the EURL for GMFF and its associated NRLs would be significantly affected.

The ENGL pre-spotted 96-well plates for detection of GM varieties are currently under review and will be updated. Options to screen for important crop species, GM elements and the feasibility of providing the assays as eppendorf strips instead of plates are being considered. The pre-spotted plates were originally piloted as a tool to facilitate rapid screening and detection of 39 approved and unapproved GM varieties, across 7 taxonomic groups in 2009. ENGL members were subsequently asked to help validate the plates using commercial samples. The future aim of the EURL is to introduce the pre-spotted plates as a tool for routine analysis. A survey of ENGL labs was conducted in order to try to adapt and update the plates for current needs.

Priorities being considered are to:

- focus on the important crop varieties of soya, maize and rice,
- consider producing plates specific to the Low Level Presence (LLP) regulation (Regulation (EC) 619/2011), element screening (P-35S, TNOS, cry1Ab/Ac, Pat, Bar, cpt2-cp4epsps)
- consider using tube-strips instead of plates to make them more adaptable to other real-time PCR systems.

The “Technical guidance on flexible accreditation” has been published on the JRC-IRMM website and has also been submitted to the European Accreditation body for further approval: <http://publications.jrc.ec.europa.eu/repository/handle/111111111/28611>.

Publications

In combination with funding from the UK Government Chemist Programme 2011-2014, the UK NRL have published a paper in the Journal of the Association of Public Analysts regarding use of a positive control for detection of Chinese GM rice varieties (http://www.apajournal.org.uk/html/japa_vol_41_pg45-52.html). The paper describes the synthesis, development and validation of a CaMV plasmid control material. This was validated in the context of Commission Implementing Decision 2011/884 and the EU Guidance Document. The CaMV plasmid control material is detectable using the Cankar et al., 2005 protocol, as advocated for use in the EU Guidance Document. The CaMV plasmid control material represents a suitable quality control material to use for the detection of false positives when using the P-35S test for Chinese GM rice.

2. Feed additives in animal feed

Emerging legislation

Commission proposes revisions to food and feed regulations

The European Commission has published proposals to change the current legislation governing all official controls in the food and agriculture industries (Regulation (EC) 882/2004). The proposed plans will potentially affect all organisations involved in the production, manufacture, supply and regulation of food, feed, live animals, plants and plant reproductive material. The proposals seek to address the additional areas of plant health and plant reproductive material but many existing pieces (70+) of food and feed legislation will be consolidated into around five new documents.

The Food Standards Agency has implemented a formal consultation on the proposals with a response deadline of January 2014. Details can be found here: [FSA Consultation on new feed control proposals](#).

Improvements to local authority delivery of official animal feed controls

In November 2012, the FSA Board agreed to the recommendation that the FSA should make improvements to the current local authority delivery system. To implement the improvements, the Feed Review Implementation Programme was created. The review is ongoing, and outcomes are due for delivery by April 2014. Details of progress can be found at the following link: [Official animal feed controls review](#).

Recalls

The following notifications were recorded between April and September 2013 on the EU Rapid Alert System for Food and Feed (RASFF).

Month	Country of origin	Reason for recall
April	from Spain	dioxins (2 pg WHO TEQ/g) in premixture with carotinoides of <i>Targetes erecta</i> from Spain and China, via Belgium
June	from Turkey	cadmium (52 mg/kg - ppm) in zinc oxide from Turkey, via Denmark
July	from Belgium	prohibited substance chloramphenicol (0.13; 9.07; 1.35; 672.07 µg/kg - ppb) in enzyme preparations for feed and food use from Belgium, with raw material from Denmark, France, India and Japan
August	from France	prohibited substance chloramphenicol (>0.3 µg/kg - ppb) in enzyme mixes for feed and food from France, with raw material from India
August	from China	dioxins (7.7 ng/kg - ppt) in natural mixed tocopherols 50% from China
September	from France	non-dioxin-like polychlorobifenyls (9.24; 10.47; 11.18; 10.2 µg/kg - ppb) in iron carbonate from France





Feed additive authorisations

Feed additives are products used in animal nutrition for purposes of improving the quality of feed and the quality of food from animal origin, or to improve the animals' performance and health, e.g. providing enhanced digestibility of the feed materials. Feed additives may not be put on the market unless authorisation has been given following a scientific evaluation demonstrating that the additive has no harmful effects, on human and animal health and on the environment.

The procedures for authorising feed additives are laid down in EU Regulation 1831/2003 and its amending legislation. Essentially, new feed additives can only be granted an authorisation following a scientific evaluation by the European Food Safety Authority (EFSA). Additives may be put on the market and used only for the specific purposes provided for by the authorisation.

The Regulation covers the following feed additive categories:

- technological additives e.g. preservatives
- sensory additives e.g. flavourings and colourings
- nutritional additives e.g. vitamins and minerals
- zootechnical additives (additives used to affect favourably the performance of animals in good health, e.g. enzymes and micro-organisms)
- coccidiostats and histomonostats

Approved feed additives are entered into the European Register of feed additives. This register is available for the EU Commission and is updated periodically. At the time of writing, the latest edition is no. 170, published on the 3rd September 2013: [EU Feed Additives register ; 170th Ed.](#)

The following feed additive authorisations were agreed by the Animal Nutrition Section of the Standing Committee on the Food Chain and Animal Health (SCoFCAH) between April and September 2013:

Month	Additive	Additive type	Proposal number	Authorisation type
April	Orthophosphoric acid	Preservative	SANCO/10145/2013	Reauthorisation
April	Bifidobacterium animalis ssp. animalis (DSM16284), Lactobacillus salivarius spp. salivarius (DSM16351), Enterococcus faecium (DSM 21913)	Silage agent	SANCO/10145/2013	Reauthorisation
April	Cobalt (II) acetate tetrahydrate, cobalt (II) carbonate, cobalt (II) carbonate hydroxide (2:3), cobalt (II) sulphate heptahydrate, and coated cobalt (II) carbonate hydroxide (2:3)	Trace element	SANCO/10036/2013	Reauthorisation
June	Zinc chelate of methionine	Trace element	SANCO/11015/2013	New
June	Nicotinic acid; nicotinamide	Nutritional	SANCO/11019/2013	Reauthorisation
June	Patent Blue V	Sensory	SANCO/11020/2013	Reauthorisation
June	Clinoptilolite	Technological	SANCO/13000/2012	Reauthorisation
June	Ammonium chloride	Zootechnical	SANCO/12887/2012	Reauthorisation
June	Diclazuril	Coccidiostats	SANCO/10360/2013	Reauthorisation
July	Choline chloride	Vitamin	SANCO/11018/2013	Reauthorisation
July	Folic acid	Vitamin	SANCO/11017/2013	Reauthorisation

Month	Additive	Additive type	Proposal number	Authorisation type
July	3-acetyl-2,5-dimethylthiophene	Flavouring	SANCO/11394/2013	Withdrawal
July	Enterococcus faecium NCIMB 11181	Zootechnical	SANCO/11422/2012	Reauthorisation
July	Enterococcus faecium DSM 7134	Zootechnical	SANCO/10836/2012	New
July	Lactobacillus kefir DSM 19455	Technological	SANCO/10837/2013	Reauthorisation
July	Bacillus subtilis (ATCC PTS-6737)	Zootechnical	SANCO/10839/2013	New
September	L-cystine	Amino acid	SANCO/11300/2013	New
September	endo-1,4-beta-xylanase produced by Trichoderma reesei (MUCL 49755) and endo-1,3(4)-beta-glucanase produced by Trichoderma reesei (MUCL 49754)	Digestibility enhancer	SANCO/10844/2013	New use
September	Enterococcus faecium NBIMCC 8270, Lactobacillus acidophilus NBIMCC 8242, Lactobacillus helveticus NBIMCC 8269, Lactobacillus delbrueckii ssp. lactis NBIMCC 8250, Lactobacillus delbrueckii ssp. bulgaricus NBIMCC 8244, and Streptococcus thermophilus NBIMCC 8253	Gut flora stabiliser	SANCO/11787/2013	New
September	propionic acid, sodium propionate and ammonium propionate	Silage additive	SANCO/12885/2011	New
September	Enterococcus faecium NCIMB 10415	Gut flora stabiliser	SANCO/10240/2013	Re-authorisation
September	Coriobacteriaceae family DSM 11798	Reduction of mycotoxin contamination	SANCO/11211/2013	New
September	bentonite	Reduction of mycotoxin contamination; binder; anti-caking agent	SANCO/10446/2011	New / Re-authorisation
September	Lactobacillus plantarum NCIMB 40027, Lactobacillus buchneri CCM1819-DSM22501, Lactobacillus buchneri CNIMB 40788-CNCM I-4323, Lactobacillus buchneri LN 40177 -ATCC PTA-6138, and Lactobacillus buchneri LN 4637 - ATCC PTA-2494	Silage additive	SANCO/10838/2013	Re-authorisation
September	Saccharomyces cerevisiae MUCL 39885	Gut flora stabiliser	SANCO/10840/2013	Re-authorisation
September	Enterococcus faecium DSM 7134 and Lactobacillus rhamnosus DSM 7133	Gut flora stabiliser	SANCO/10835/2013	Re-authorisation
September	fumaric acid	Preservative	SANCO/10241/2013	Re-authorisation
September	certain coccidiostats	Coccidiostat	SANCO/11809/2013	Change of authorisation holder

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

As part of the evaluation, manufacturers must submit analytical methods which can be used for the analysis and official control of the feed additive and of the feedstuffs in which it is used. These methods are compiled in a database by the EURL (JRC). Details of these methods (although not necessarily the full SOP's) may be obtained by contacting LGC or directly from the JRC website.

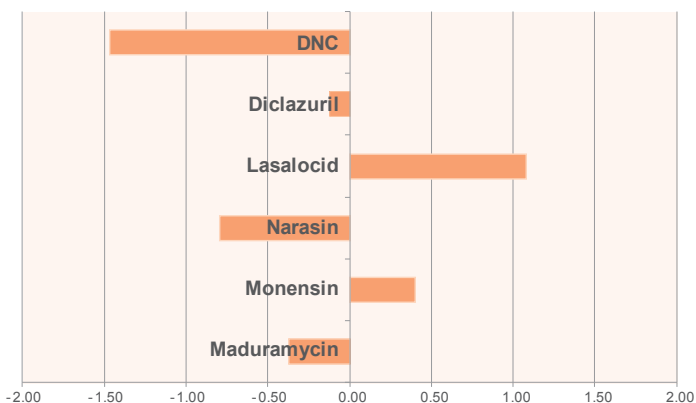
EURL Activity

There has been limited activity in this area to date. Part of the role of the EURL is to organise PT schemes for the national reference laboratories in

areas relevant to official control. To date, two PT rounds for the determination of coccidiostats in feed at carry over levels have been conducted.

The report of the first study held in 2012, can be found here: [Report of 1st EURL PT round for coccidiostats in feed](#). LGC received good z-scores for Salinomycin, Lasalocid and Diclazuril using an LC-MS-MS method. The Z-scores for monensin and narasin were slightly high which was traced to a problem with the matched matrix calibration prepared using a blank feed purchased by LGC in the absence of a blank material, with an identical composition to the PT test samples, being provided by the EURL. This highlights the potential difficulty of analysing unknown samples which may vary in composition.

The second EURL PT round, again for the determination of coccidiostats in feed at carry over levels, has just been completed and a report will be published on the EURL (JRC-IRMM) website in due course. On this occasion, a standard addition approach was used, using the blank material provided by the EURL, to take better account of matrix variability. Good Z-scores were obtained for all samples as shown below:



The EURL PT scheme is for NRL's only but parallel rounds are held in some cases for participation by Official Control Laboratories (OCLs). Although this was not the case for the coccidiostats rounds, there is the possibility for similar studies to be held in the future. For such parallel rounds, LGC will notify OCLs via email.

If there are any areas of feed analysis where you feel that there is a need for future PT rounds, please contact LGC with the information so that we can pass it on to the EU-RL for consideration.

Meetings

The second workshop of the EURL-Feed Additives will be held at JRC in Geel on the 12 & 13 November 2013. LGC will attend this meeting as the UK NRL.

The two day meeting will include a presentation from the European Commission on undesirable substances in feed, and other presentations regarding the determination of contaminant residues in feed. The second day will be devoted to a discussion of the recent coccidiostats PT round followed by discussion of the feed additive control program for 2014 -2015. Details of the meeting will be reported to OCLs in the next quarterly update.

Standardisation Activities within CEN & ISO

Standardisation of methods for the determination of animal feeds is an important part of the EU feed control function. Methods that are formally validated by international collaborative trial conducted by recognised institutions such as CEN are the reference methods of choice where methods are not mandated by legislation.

NRL staff attend meetings of CEN TC 327 – Animal feeds and its working groups which cover all aspects of the analysis of animal feeds. The committee has recently reached the end of the current (second) Commission mandate for its development programme and a list of the standards published is shown below:

WG1 –Organic contaminants

- i. Deoxynivalenol (DON) EN 15791
- ii. Zearalenone (ZON) EN 15792
- iii. Ochratoxin A EN 16007
- iv. Fumonisin EN 16006
- v. Hydrocyanic acid EN 16160
- vi. Dioxins and dioxin-like PCBs EN 16215



WG3-Feed additives & drugs

- i. Maduramicin EN 15781
- ii. Nicarbazin EN 15782
- iii. Monensin, Narasin, Salinomycin EN ISO 14183
- iv. Semduramycin EN 16158
- v. Decoquinone EN 16162
- vi. Bacillus spp. EN 15784
- vii. Bifidobacterium sp. EN 15785
- viii. Pediococcus sp. EN 15786
- ix. Lactobacillus sp. EN 15787
- x. Enterococcus sp. EN 15788
- xi. Yeast probiotics strains EN 15789
- xii. PCR typing of Yeast CEN/TS 15790
- xiii. Phytase EN-ISO 30024

WG4-Inorganic contaminants

- i. 2007/03.17 Arsenic EN 16206
- ii. 2007/03.18 Selenium EN 16159
- iii. 2007/03.19 Inorganic arsenic EN 16278
- iv. 2007/03.20 Mercury EN 16277
- v. 2007/03.21 Fluoride EN 16279

Ad-Hoc WG

- i. Sample preparation EN ISO 6498

(Note: WG2-Composition is currently dormant).

A tender exercise for the items to be developed under the third mandate has just been completed. Items under consideration include further standards for:

- mycotoxins
- alkaloids
- antibiotics
- coccidiostats
- organic acids
- inorganics
- pesticides
- vitamins, and
- other analytes.

The outcome of the selection process is expected soon and will be published on the Commission and other relevant websites shortly.

Details of meetings attended and other information is circulated to members of BSI AW10. Current participation in matters related to animal feed in the UK is poor. In an effort to stimulate increased activity in this area, the Food Standards Agency has proposed to add all of the Agricultural analyst laboratories to the membership of BSI AW10 so that they will have direct access to information from standardisation activities. It is hoped that this will happen shortly. Other interested stakeholders are invited to contact Paul Lawrance at LGC if they are interested in becoming members of this committee.

Official control laboratory visit programme

NRL staff attend meetings with the APA training Committee and the Food Standards Agency which are valuable opportunities to exchange information. In addition, we will be continuing our programme of visits to OCL's. These visits enable us to disseminate information relating to feed additives and GMOs directly to the laboratories and provide a conduit to discuss any analytical, training or other issues that are relevant to the analysis of feed additives or GMOs. The visits also give us an opportunity to gain a better appreciation of the facilities and capabilities of the laboratories in relation to the official control of food and feed.

Two visits are planned before the end of March 2014. We will be contacting individual laboratories directly, but if you think you would benefit from a visit, or have any issues that might be resolved by an on-site visit, please contact Paul Lawrance or Kirstin Gray at LGC.

If you require further information on any aspect of this newsletter please contact:

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For further information and output of the NRL functions, please visit:

<http://www.lgcgroup.com/products-services/regulatory-support/national-reference-laboratories/>

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