NRL News

Summer 2016

Reference Laboratories for Food and Feed Control

Regulation (EC) No 882/2004 on official controls... 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 co-ordinate activities within their own member state and contribute to the European wide activities and 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, across the EU member states.

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

This newsletter gives an update of activities performed for the following NRL functions:

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

1. Feed additives in animal feed

Regulation (EC) No 1831/2003 describes feed additives as substances, micro-organisms or preparations, other than feed material and premixtures, which are intentionally added to feed or water in order to perform, in particular, one or more of the following functions:

- favourably affect the characteristics of feed,
- favourably affect the characteristics of animal products,
- favourably affect the colour of ornamental fish and birds,
- satisfy the nutritional needs of animals,
- favourably affect the environmental consequences of animal production,
- favourably affect animal production, performance or welfare, particularly by affecting the gastro-intestinal flora or digestibility of feedingstuffs, or
- have a coccidiostatic or histomonostatic effect.

A feed additive shall not:

- have an adverse effect on animal health, human health or the environment,
- be presented in a manner which may mislead the user,
- harm the consumer by impairing the distinctive features of animal products or mislead the consumer with regard to the distinctive features of animal products.

Antibiotics, other than coccidiostats or histomonostats, are not authorised as feed additives.

Legislation update

The following amendments and updates were made recently to legislation relating to feed additives. 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/food-and-feed-law-legislation-review-october-to-december-2015

Commission Regulation 2015/2294 amended Regulation (EC) No 1831/2003 of the European Parliament and of the Council as regards the establishment of a new functional group of feed additives, “hygiene condition enhancers” which are substances or, when applicable, microorganisms, which favourably affect the hygienic characteristics of feed by reducing a specific microbiological contamination.

Commission Implementing Regulation 2015/1747 corrected the Annex to Regulation (EU) No 26/2011 concerning the authorisation of vitamin E as a feed additive for all animal species. Regulation (EC) No 1831/2003 provides for the authorisation of additives for use in animal nutrition and for the grounds and procedures for granting such authorisation. Although Article 1 of Regulation (EU) No 26/2011 refers to the preparations of vitamin E that are authorised as feed additives subject to the conditions laid down in the Annex thereto, there is no reference to preparations in that Annex. This inconsistency led the control authorities of some Member States to consider that preparations containing vitamin E are not authorised.

Commission Implementing Regulation 2015/2304 authorised a preparation of endo-1,4-beta-xylanase and endo-1,3(4)-beta-glucanase produced by Talaromyces versatilis sp. nov. IMI CC 378536 and Talaromyces versatilis sp. nov DSM 26702 as a feed additive for turkeys for fattening and for breeding (holder of the authorisation Adisseo France S.A.S.).

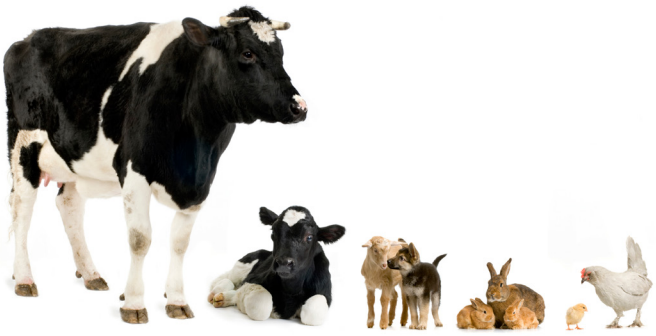
Commission Implementing Regulation 2015/2305 authorised a preparation of endo-1,4-beta-glucanase (EC 3.2.1.4) produced by Trichoderma citrinoviride Bisset (IM SD142) as a feed additive for chickens for fattening, minor poultry species for fattening and weaned piglets, and amending Regulations (EC) No 2148/2004 and (EC) No 1520/2007 (holder of authorisation Huvepharma NV).

Commission Implementing Regulation 2015/2306 authorised L-cysteine hydrochloride monohydrate as a feed additive for cats and dogs.

Commission Implementing Regulation 2015/2307 authorised menadione sodium bisulphite and menadione nicotinamide bisulphite as feed additives for all animal species.

Commission Implementing Regulation 2015/2382 authorised the preparation of alpha-galactosidase (EC 3.2.1.22) produced by Saccharomyces cerevisiae (CBS 615.94) and endo-1,4-beta-glucanase (EC 3.2.1.4) produced by Aspergillus niger (CBS 120604) as a feed additive for laying hens and minor poultry species for laying (holder of the authorisation Kerry Ingredients and Flavours).

Regulation (EC) No 1831/2003 deals with application for, and authorisation of, feed additives in animal nutrition with detailed rules in Regulation (EC) No 1831/2003 including the duties and tasks of the Community Reference Laboratory. In October 2015



Commission Implementing Regulation 2015/1761 amended Regulation 378/2005 as regards the Community Reference Laboratory reports, fees and the feed additive national reference laboratories, including LGC, listed in Annex II thereto.

Recalls

There were only two recalls in the EU Rapid Alert System for Food and Feed (RASFF) database involving feed additives, from 1 January to 1 June 2016, (Table 1).

Month	Country of Origin	Reason for recall
January 2016	The Netherlands	Rabbits fed with feed containing narasin (36 mg/kg)
May 2016	Bulgaria, via Belgium	Tylosin (2.7 mg/kg) unauthorised in anticoccidials

Table 1: Feed additive recalls from 1 January to 1 June 2016

Feed additive authorisations

Feed additives play an important role in animal nutrition, addressing various aspects such as feed safety, reduction of environmental emissions and sustainability in livestock farming. Before placing feed additives 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. Edition 231 which was released on 6 June 2016 can be found at:

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

Further information on 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:

http://ec.europa.eu/food/food/animalnutrition/feedadditives/index_en.htm

In May 2016 the EFSA Panel on Additives and Products or Substances used in Animal Feed, FEEDAP, reviewed a series of guidance documents intended to help applicants in their preparation of technical dossiers, listed those that remain relevant and identified those that will need to be revised.

http://www.efsa.europa.eu/en/efsajournal/pub/4473

A paper was recently published by the EURL for feed additives describing the authorisation process for feed additives and provides a useful overview of the process. The paper, titled, 'The work of the European Union Reference Laboratory for Food Additives (EURL) and its support for the authorisation process of feed additives in the European Union: a review' was published in Food Additives & Contaminants: Part A, 33:1, 66-77 and can be found:

http://dx.doi.org/10.1080/19440049.2015.1116127

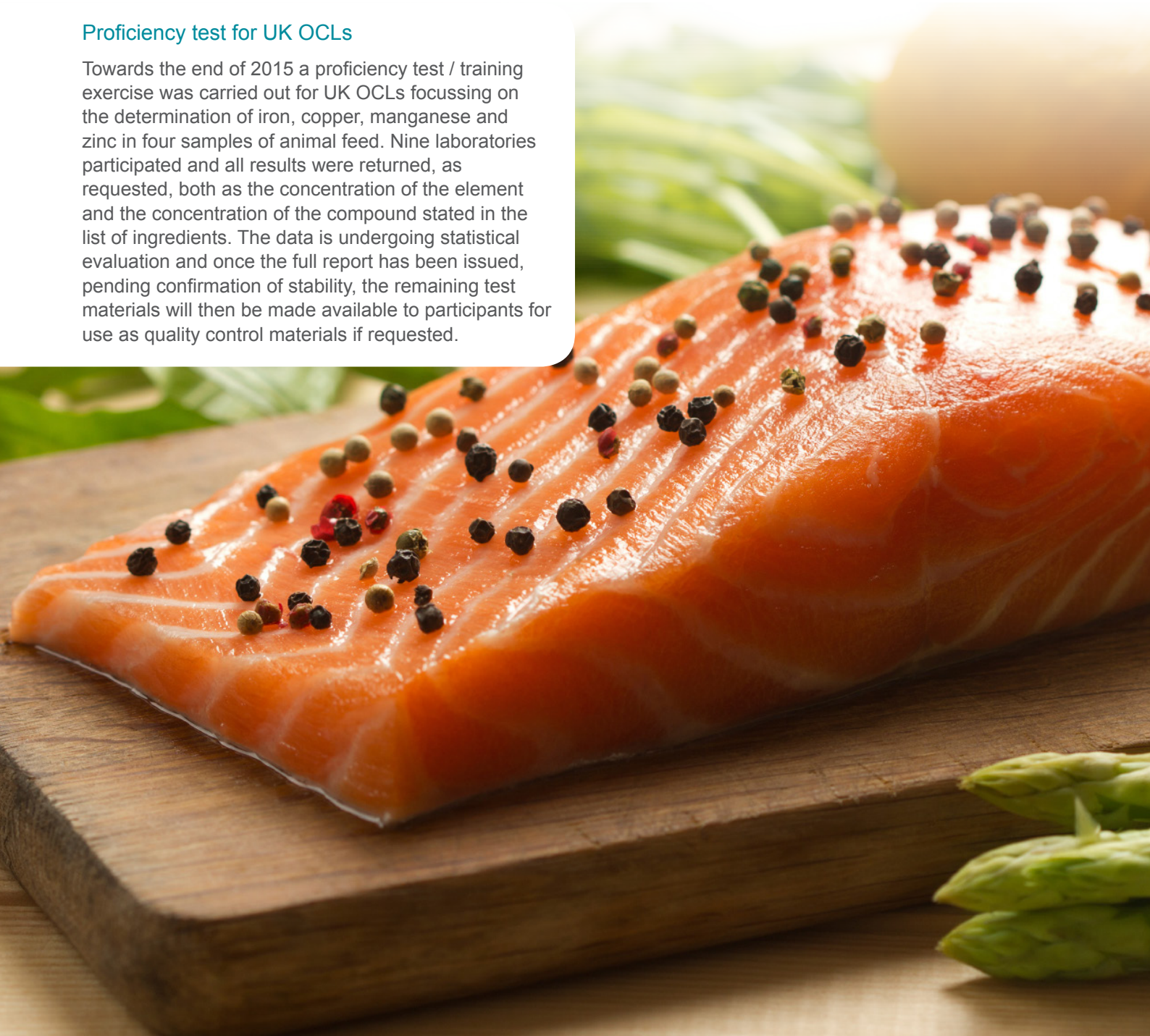
EURL Proficiency Test 2015

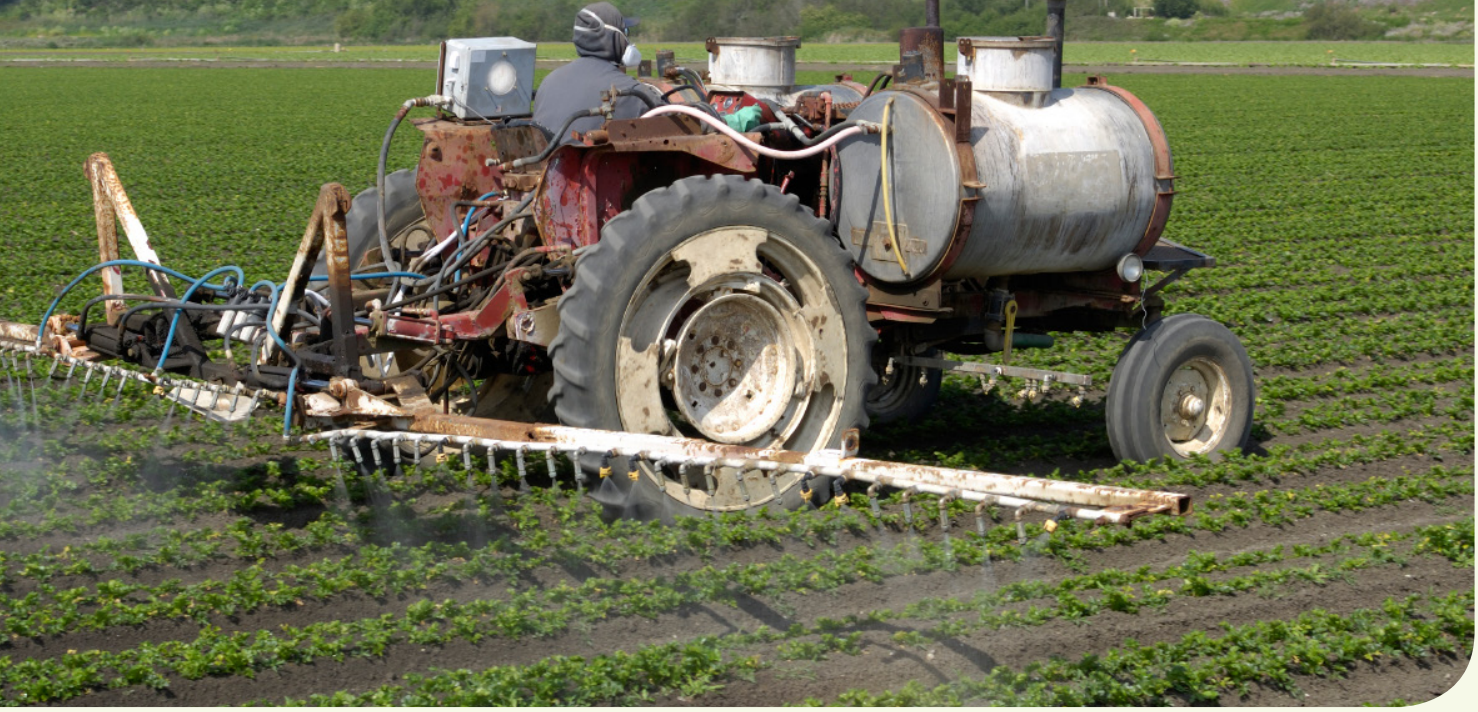
The 2015 EURL inter-comparison study focussed on the determination of authorised carotenoids in feed at authorised levels. Carotenoids as feed additives are classified in the category “sensory additives” and functional group “colourants: substances which, when fed to animals, add colours to food of animal origin”. For example, astaxanthin and canthaxanthin are added to salmon and trout feed for flesh colouration and lutein is used in poultry farming for egg yolk coloration.

The EURL summarised the outcomes of the inter-comparison study as follows: ‘On the whole the proficiency of laboratories was not satisfactory; only 7 laboratories participated in the study and between 0% and 43% of the laboratories reported satisfactory results, expressed as z-scores, depending on the target carotenoid and its concentration in one or the other feed material. The variability of the results obtained for a target carotenoid in two similar materials was high. The laboratories also reported qualitative results as regards the presence of one or more of other authorised carotenoids. The rate of false positive results was 20% for astaxanthin dimethyl succinate and beta-carotene, 40% for lutein and 50% for adonirubin. It should be noted that these percentages have to be considered with caution since they are calculated on a very low number of laboratories/results for a given measurand. Carotenoids’ analysis is a challenge due to the nature of the analytes and specifically to the process of their production as well as to the presence of the cis- and trans- forms while the trans- form is the one mainly used in the standards used for quantification.’

Proficiency test for UK OCLs

Towards the end of 2015 a proficiency test / training exercise was carried out for UK OCLs focussing on the determination of iron, copper, manganese and zinc in four samples of animal feed. Nine laboratories participated and all results were returned, as requested, both as the concentration of the element and the concentration of the compound stated in the list of ingredients. The data is undergoing statistical evaluation and once the full report has been issued, pending confirmation of stability, the remaining test materials will then be made available to participants for use as quality control materials if requested.





2. GMO

Legislation update

The following changes were made recently to feed and food law relating to genetic modification. A full report can be found on the Government Chemist website at the following web address:

https://www.gov.uk/government/publications/food-and-feed-law-legislation-review-october-to-december-2015

Regulation (EC) No 1829/2003 of the European Parliament and of the Council provides for the authorisation, labelling and supervision of genetically modified food and feed. The Regulation was recently amended.

Commission Implementing Decision 2015/2279 authorised the placing on the market of products containing, consisting of, or produced from genetically modified maize NK603 × T25 (MON-ØØ6Ø3-6 × ACS-ZMØØ3-2) and Commission Implementing Decision 2015/2281 authorised the placing on the market of products containing, consisting of, or produced from genetically modified maize MON 87427 (MON-87427-7).

In November 2015 the European Commission's Joint Research Centre, JRC, published a new database, which contains more than 240 000 DNA sequences appearing in genetically modified organisms. It will help to verify the presence of GMOs in food, feed and the environment. To date, this new database is the largest and most comprehensive in this area.

Commission Directive 2015/412 amends Directive 2001/18/EC as regards the possibility for the Member States to restrict or prohibit the cultivation of genetically modified organisms (GMOs) in their territory. This devolves responsibility in this matter to Member States.

An interesting review paper was published on genetically modified animals. The past two decades have witnessed the rise of commercial crops that have been genetically modified for an increased suitability in extensive cultivation. Currently, a substantial body of research is being carried out in order to produce genetically modified animals that may similarly yield improvements in animal breeding, genetics and reproduction. The authors attempt a comprehensive review of the existing trials at animal modification with commercial applications and aimed at a deliberate release onto the market. In addition, they investigate detection and quantification options within the frame of food/feed control and traceability on the European market. The paper by A. Lievens, M. Petrillo, M. Querci, A. Patak, and titled 'Genetically modified animals: Options and issues for traceability and enforcement' was published in Trends in Food Science & Technology, Volume 44, Issue 2, August 2015, Pages 159-176, (http://www.sciencedirect.com/science/article/pii/S0924224415001223).

Recalls

A summary of the recalls from the EU Rapid Alert System for Food and Feed (RASFF) involving GMO between 1 January and 1 June 2016 is given in Table 2.

Month	Country of Origin	Reason for recall
March 2016	Lithuania, with raw material from Myanmar, Cambodia, Thailand and Pakistan	Unauthorised genetically modified (cry1Ab, crylAc) long grain rice
January 2016	India	Unauthorised genetically modified (nptII-Gen) chilled papaya
May 2016	Thailand	Unauthorised genetically modified papaya
May 2016	Belgium	Unauthorised genetically modified papaya in frozen fruits smoothies
January 2016	Vietnam, with raw material from Thailand	Unauthorised genetically modified rice in spicy sauce shrimps

Table 2: GMO recalls from 1 January to 1 June 2016

NRL activities

The NRL attended the 25th European Network of GMO Laboratories (ENGL) Plenary meeting (13th/14th April 2016) and the 31st ENGL Steering Committee meeting (21st/22nd June 2016) which were held at the EU Joint Research Centre in Ispra, Italy. A summary report of the ENGL Plenary meeting was provided to UK Public Analysts.

The NRL also participated in and submitted results for the 13th EURL Comparative Test on international proficiency tests for GMO analysis, in line with EU Regulation 882/2004 for NRLs.

EURL Activity

The EU Joint Research Centre is currently undergoing some structural reorganisation. As a result of this a new ENGL Chair will be appointed for the forthcoming ENGL meetings. At the current stage, it is foreseen that the activities of the EURL will remain at the JRC in Ispra (Italy) and not be moved to a more central location in Brussels.

A report is now available from the Scientific Committees of the European Commission's Directorate-General (EC Scientific Committee's final opinion on Synthetic Biology III "Risks to the environment and biodiversity related to synthetic biology and research priorities in the field of synthetic biology") which recommends that the products of synthetic biology should fall under the legal mandate of pre-existing GMO risk assessment, including labelling and testing. It is anticipated that it will be an analytical challenge to provide methods for detection of these new products of synthetic biology that are fit for purpose.

Training

The NRL is part of an ENGL Working Group on using digital PCR for GMO analysis. The aim of this Working Group is to provide a guidance document that identifies future needs of using dPCR for GMO analysis and potential approaches to address these. The document will summarise relevant existing experience with dPCR and also act as an aid in helping laboratories to decide if dPCR will meet their specific needs. It is anticipated that the guidance document should be published in the Autumn/Winter period of 2016.

The NRL has also been active in providing advice to UK Official Control Laboratories on best practice for GMO screening, as well as being consulted by the EURL for GMOs to help provide advice on DNA extraction methods.

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

www.lgcgroup.com

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