WORK PROGRAMME of EURL for

MYCOTOXINS & PLANT TOXINS

PERIOD: 2019/2020

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CONTACT DETAILS
RIKILT Wageningen University & Research
Akkermaalsbos 2
6708 WB Wageningen, the Netherlands

Dr Monique de Nijs
eurl.mycotoxins-planttoxins@wur.nl
Direct number +31(0)317480370
Secretary +31(0)317480307

SUMMARY

INTRODUCTION

Legal functions and duties

The functions and duties of the EU Reference Laboratory are described in Article 94 of Regulation (EC) No 2017/625 of the European Parliament and of the Council of 7 April 2017 (Official Journal of the European Union L 95/I, 7.04.2017, pp 1-141).

The general objective of the Commission for the period 2018-2020 is "to contribute to a high level of protection for consumers and the environment while favouring competiveness and the creation of jobs[1]". This general objective is elaborated in four operation objectives which are the foundation of the EURL work programme for 2019-2020.

The EURL mycotoxins & plant toxins work programme is divided in 4 parts, linked to the five operation objectives (last objective not applicable). For each operational objective individual tasks have been formulated which are described in more detail for the first year, 2019, of the two year period.

Structure work programme EURL mycotoxins & plant toxins based on Regulation (EU) 625/2017 article 94.

[1] Commission implementing decision of 24.7.2015 on the adoption of the work programme of the Commission for the years 2015 and 2016 and on the financing of the Union contribution to the European Union Reference Laboratories

Regulation (EU) 625/2017 Art 94(2):
European Union reference laboratories designated in accordance with Article 93(1) shall be responsible for the following tasks insofar as they are included in the reference laboratories' annual or multiannual work programmes that have been established in conformity with the objectives and priorities of the relevant work programmes adopted by the Commission in accordance with Article 36 of Regulation (EU) No 652/2014:
(taking into account Art 147 of (EU) 625/2017)

1 TO ENSURE AVAILABILITY AND USE OF HIGH QUALITY METHODS AND TO ENSURE HIGH QUALITY PERFORMANCE BY NRLs.

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.a* ***Providing national reference laboratories with details and guidance on the methods of laboratory analysis, testing or diagnosis, including reference methods.***
- *Art. 94.2.b* ***Providing reference materials to national reference laboratories***
- *Art. 94.2.c* ***Coordinating the application by the national reference laboratories and, if necessary, by other official laboratories of the methods referred to in point (a), in particular, by organising regular inter-laboratory comparative testing or proficiency tests and by ensuring appropriate follow-up of such comparative testing or proficiency tests in accordance, where available, with internationally accepted protocols, and informing the Commission and the Member States of the results and follow-up to the inter-laboratory comparative testing or proficiency tests.***
- *Art. 94.2.l* ***Where relevant for their area of competence, cooperate among themselves and with the Commission, as appropriate, to develop methods of analysis, testing or diagnosis of high standards.***

Sub-activity 1.01 ***Providing national reference laboratories with details and guidance on the methods of laboratory analysis, testing or diagnosis, including reference methods (a)***

Sub-activity 1.01.1 *Updating the information on methods for the EURL mycotoxins & plant toxins website*

Objectives:	The EURL website mycotoxins & plant toxins is designed and shaped to accommodate relevant information on analytical methods to the NRLs.
Description:	SOP and validation reports from method development in the EURL program will be made available in in EURL format. An update will be made of the list of available CEN methods on mycotoxins and plant toxins and this will be placed on the website.
Expected Output:	SOP and validation reports of the developed methods in 2018 and during 2019 are online available. An updated list of available CEN methods will be made available through website.
Duration:	2019 & 2020 M1-M12

Sub-activity 1.01.2 Collaboration other EURLs

Objectives:	Investigate the possible collaboration with other EURLs
Description:	To make use of existing experiences and tools as well as exploit synergy potentials. First the four contaminant EURLs will discuss the options and possibilities. Then, other EURLs (e.g. Pesticides – SRM CVUA Stuttgart) may be contacted on experiences of the existing web-based platform for data sharing established in the community of the Pesticide EURLs, to investigate options and possibilities to create a similar infrastructure for contaminants. The work started in 2018 will be continued in 2019.
Expected Output:	Meeting in Denmark on March 12 in Denmark. Plan for further developing a data pool for mycotoxins and plant toxins in collaboration with EURL-SRM.
Duration:	2019 M1-M12

Sub-activity 1.01.3 Working group Quality EURL-NRLs

Objectives:	Review relevant issues to ensure quality of analysis at the NRLs
Description:	Start the working group quality of the EURL mycotoxins & plant toxins. This group consists of maximum 4 representatives from NRLs and will discuss the items related to quality. E.g. performance characteristics, validation, LOQ, LOD etc.
Expected Output:	Meeting in Netherlands. Work plan.
Duration:	2019 M1-M12 2020 M1-M12

Sub-activity 1.02 ***Follow up on requests from NRLs for reference materials (b)***

Sub-activity 1.02.1 *Materials from previous EURL mycotoxins*

Objectives:	Materials from previous EURL on Mycotoxins, JRC Geel, registered and stored at RIKILT.
Description:	Reference and other materials relevant to the EURL mycotoxins & plant toxins were transported from JRC in Geel to the EURL in Wageningen in December 2018. The materials will be registered and stored according to the RIKILT Quality System in a way that the materials can always be traced to the origin. Depending on the information available on the materials, they can be used as reference material for QC purposes, or as source of materials for PTs.
Expected Output:	(Reference) materials from Geel registered in RIKILT quality system.
Duration:	2019 M1

Sub-activity 1.02.2 *Follow up on requests from NRLs for reference materials*

Objectives:	Providing NRLs with reference materials upon request.

Description:	EURL mycotoxins and plant toxins can distribute to NRLs left-over material from PTs or from collaborative testing as long as supply lasts and without a guarantee on the quality and analyte content of the materials. The remaining PT samples or sample material from collaborative trials will be properly registered and stored at the EURL and can be distributed to the NRLs. The material is not monitored for stability of the analyte and will be distributed as long as stock lasts.
Expected Output:	Table with available QC materials present at EURL. If available, provide NRLs with the QC materials.
Duration:	2019 & 2020 M1-M12

Sub-activity 1.03 ***Organisation of proficiency tests and follow-up of the results (c)***

Sub-activity 1.03.1 *Organisation of PTs*

Objectives: Continuation of 1 PT and organisation of 3 PTs for routine methods.

Description:
1. EURLPT-MP02 PLANT: PAs. PT samples were prepared in 2018. NRLs were trained and will implement the method in their laboratory by the end of 2018 or beginning of 2019. PT samples will be shipped in February 2019 and the report will be prepared in 2019 Q2.
2. EURLPT-MP03 MYCO: Proposed: ergot alkaloids in a cereal-based matrix (food and feed). Preferably naturally contaminated.
3. EURLPT-MP04 PLANT: To be determined (Proposed TAs in cereal-based matrix (food and feed).
4. EURLPT-MP05 MYCO: To be determined (Possibly *Alternaria* toxins (food and feed).

Expected Output: Four PT reports

Duration:

2019	M1-M6	EURLPT-MP02	Pyrrolizidine alkaloids
2019	M3-M9	EURLPT-MP03	Ergot alkaloids
2020	M1-M6	EURLPT-MP04	To be determined in agreement with desk officer before starting preparations for PT
2020	M3-M9	EURLPT-MP05	To be determined in agreement with desk officer before starting preparations for PT

Sub-activity 1.03.2 *Follow-up and communication of the PT results*

Objectives: Implementation of the follow-up protocol of the EU DG SANTÉ for proficiency testing[2].

Description: The topic will be discussed during the workshop to create awareness at the partners. The guidance will be verified in 2019.
PTs will be discussed during annual workshop.

Expected Output: Presentation at annual workshop.

Duration: M10

Sub-activity 1.04 Development and validation of analytical methods (l)

Sub-activity 1.04.1 *Method development*

Objectives: To develop and investigate new methods and the scope of the analytical methods. This may involve: new mycotoxins or plant toxins, extension with new matrices or additional compounds, lowering LOQs (triggered by e.g. EFSA opinions), investigate the potential and usefulness of new technologies.

2 https://eurlcefas.org/media/4149/protocol_for_management_of_underperformance_in_comparative_testing_and_or_lack_of_collaboration_of_national_reference_laboratories.pdf

Description: **1.04.1a**. Method development *Alternaria* mycotoxins

Method development (clustering of various matrices) will be carried out to gain insight in the degree of contamination as well as the method performance of *Alternaria* toxins in foods (alternariol (AOH), alternariol monomethyl ether (AME), tenuazonic acid (TEA) and tentoxin (TEN)). The analytical method will be extended and validated for additional matrices.

Matrices under investigation: processed tomato products tomato juice / ready to eat tomato soups / paprika powder / sesame seeds / sunflower seeds / sunflower oil / cereals based foods for infants and young children / millet grains / pistachio / walnut / hazelnut / dried figs / tree nut.

2019 M1-M6 Validation of *Alternaria* toxins in matrix clusters

2019 M9-M10 Survey to test practical use.

1.04.1b. *Cyanogenic glycosides in* processed foods

Cyanogenic glycosides are analysed in food (bitter almonds) and feed using total HCN detection or using analytical standards (LC-MS/MS) of the various CNGs. Also, other foods, such as almonds and cassava can contain high amounts of CNGs. Discrepancies have been identified between the outcome of the two methods when analysing raw materials but also when analysing processed almonds, such as marzipan and milled almonds. Quantification of CNGs will be assessed using both methods. Foods with processed almonds will analysed for intermediate compounds.

2019 M1-M9 Comparison of two analytical methods

1.04.1c. Sample preparation of red yeast rice capsules

Commission Regulation (EU) No 212/2014 states that the whole sample of red yeast rice food supplements must be analysed, including the capsules, to analyse for citrinin contamination. This project will focus on cryogenic milling as method of sample preparation.

2019 M1-M2 Compare results of citrinin analysis of red yeast rice food supplements when sample preparation includes capsules or not.

Suggestions for work in 2020:

Subjects will be added and prioritised during 2019 depending on new insights, publication of EFSA opinions, specific requests from the COM, incidents and developments in food and feed safety. To be determined in agreement with desk officer before starting preparations for research work:

1. There are legal provisions for the presence of a number of weed seeds in feed. The project will focus on gaining insight in control procedures in the member states and on the magnitude of the problem. The project will start with structuring information on the detection of weed seeds as mentioned in Directive 2002/32/EC by a visual method. RASFF indicates that similar problems exist in food too. Work will be carried out in identification of PA containing weeds.

2. Transfer of PAs and TAs from dry tea to infusion

There seems to be a discrepancy regarding the transfer rate of PAs from the dry tea to the tea infusion. In the framework of setting MLs for PAs and TAs in foods, we need a closer look at the transfer of PAs from the dry tea to the infusion and the influence of brewing conditions.

3. Investigation on methods for detection of enniatins

	A PT on enniatins organised by the former EURL on mycotoxins showed a large variation in the results. The PT results will be analysed for analytical methods used. Furthermore, the method will be assessed for performance characteristics and possible causes for discrepancies.

Sub-activity 1.4.2 *Method maintenance*

Objectives:	Analytical methods need re-validation and accreditation when analytical equipment is updated, or when LOQ needs adjustment, or the scope needs extension with new matrices. Also, analytical methods developed by RIKILT must be prepared for use by NRLs and made available.
Description:	Re-validation and preparation of an EURL mycotoxins & plant toxins SOP for two methods for mycotoxins analysis and two methods for plant toxins analysis using LC-MS/MS.
Expected Output:	EURLMP SOPs on internet
Duration:	2019 M1-M12 Two SOPs 2020 M1-M12 Two SOPs

2 TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO NRLs

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.d* ***Coordinating practical arrangements necessary to apply new methods of laboratory analysis, testing or diagnosis, and informing national reference laboratories of advances in this field.***
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- *Art. 94.2.e* ***Conducting training courses for staff from national reference laboratories and, if needed, from other official laboratories, as well as of experts from third countries.***
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- *Art. 94.2.g* ***Providing information on relevant national, Union and international research activities to national reference laboratories.***

Sub-activity 2.01 ***Practical arrangements to apply methods, and inform NRLs (d)***

Sub-activity 2.01.1 *Website development and maintenance*

Objectives:	Provide information to NRLs necessary to apply new methods.
Description:	The EURL mycotoxins & plant toxins website will be designed and maintained with continued efforts to further implement its use within the NRL/OL network. The EURL PT and scientific reports will be published on the website as a source of information for EURLs and NRLs. Content will be developed elsewhere in the programme.
Expected Output:	Website with information available.
Duration:	2019-2020 M1-M12

Sub-activity 2.01.2 *Knowledge development*

Objectives:	Stay up-to-date with legislation and analytical developments in the area of mycotoxins and plant toxins analysis.
Description:	Developments with respect to analytical methodology, (EU) legislation and the results of relevant scientific studies are monitored. In addition, information on prioritised 'new' mycotoxins, plant toxins or their conjugates/metabolites will be collected and used as input for future studies. Communication on issues of interest for NRLs will be through the annual workshop and the EURL website. Literature will be monitored on the latest developments in the area of analytical chemistry on mycotoxins and plant toxins. The results of the review will be presented at the annual workshop.
Expected Output:	Relevant EU legislation on mycotoxins and plant toxins available on website. Presentation on latest developments in analysis of mycotoxins and plant toxins during annual workshop.
Duration:	2019-2020 M9-M10

Sub-activity 2.01.3 *Updating and publication of the list of NRLs*

Objectives:	To have an updated list of NRLs in the competence field of the EURL.

Description: The existing list will be updated, verified and published on the website. Changes in institutes, contact names etc. will be updated.
Expected Output: Up-to-date list of NRLs on mycotoxins and plant toxins in food and feed.
Duration: 2019-2020 M1-M6

Sub-activity 2.01.4 *Providing analytical assistance to NRLs*

Objectives: Assist NRLs with confirmatory analysis in case of technical problems or arbitration.
Description: Analyse samples from NRLs for confirmation when there are technical problems or when there is a dispute for arbitration.
Expected Output: results of analysis.
Duration: 2019-2020 M1-M12

Sub-activity 2.02 ***Training courses for staff (e)***

Objectives: NRL scientists (max. 8) trained at EURL RIKILT (max. 3 times) in an analytical method.
Description: Hands-on training for NRLs on analysis of mycotoxins or plant toxins for 3 days) at RIKILT. This course can be organised for a maximum of 8 persons and with a maximum of 3 trainings.

Expected Output: Two trainings one subject
Duration: 2019 M11 Training
2020 M11 Training
One additional training scheduled if needed.

Sub-activity 2.03 ***Information to relevant national, Union and international research activities to NRLs (g)***

Sub-activity 2.03.1 *Organisation of workshop*

Objectives: To inform NRLs on new methods, new legislation and discuss work programmes and PTs.
Description: One representative of each member state and a selected number of representatives of third countries (one per country) meet at RIKILT for information exchange, discuss new topics in the area of mycotoxins and plant toxins and define the research and PT subjects for next year. Duration is 1 day (noon to noon).
Expected Output: Presentations.
Duration: M10

Sub-activity 2.03.2 *Missions to NRLs*

Objectives: Missions to NRLs in member states on request.
Description: Missions will be undertaken to specific NRLs on the basis of their individual needs, e.g. in order to discuss and evaluate the results of a proficiency test or for analytical support. A visit will only be scheduled after consultation with the Commission.
Expected Output: Visit report.
Duration: Not foreseen.

3 TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO THE EUROPEAN COMMISSION AND OTHER ORGANISATIONS

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.f* ***Providing scientific and technical assistance to the Commission within the scope of their mission.***

- *Art. 94.2.h* ***Collaborating within the scope of their mission with laboratories in third countries and with the European Food Safety Authority (EFSA), the European Medicines Agency (EMA) and the European Centre for Disease Prevention and Control (ECDC).***

- *Art. 94.2.i* ***Assisting actively in the diagnosis of outbreaks in Member States of foodborne, zoonotic or animal diseases, or of pests of plants, by carrying out confirmatory diagnosis, characterisation and taxonomic or epizootic studies on pathogen isolates or pest specimens.***

Sub-activity 3.01 ***Technical and scientific assistance to the Commission (f)***

Sub-activity 3.01.1 *Advise on performance characteristics in Commission Regulation (EC) No 401/2006*

Objectives: Advise on revision of performance characteristics in Commission Regulation (EC) No 401/2006. Description: Evaluate performance requirements (e.g. recovery, precision) for methods for mycotoxins as currently laid down in Commission Regulation (EC) No 401/2006 against actual performance of today's analytical capabilities. Collect raw data from PTs carried out by the EURL mycotoxins over the last 11 years, data from other PTs and collaborative studies (CEN) as far as possible. Use the data to prepare an advice on updating performance criteria for analytical methods for amending Commission Regulation (EC) No 401/2006 of 23 February 2006, laying down the methods of sampling and analysis for the official control of the levels of mycotoxins and plant toxins in foodstuffs. 2019-Q1: Collect performance data from EURL PTs and prepare the data for use. 2019-Q2: One meeting in the Netherlands with 2 experts from NRLs to discuss the data and the use of the data for performance characteristics. Expected Output: Data prepared for use and meeting notes. Duration: M1-M11

Sub-activity 3.01.2 *Technical and scientific support to the Commission*

Objectives: Technical and scientific support to the Commission.

Description: Technical and scientific advice on analytical methods will be given to the Commission when requested. This includes attending 6 meetings of the Commission Working Group on Agricultural Contaminants and one meeting of the EC mycotoxin workshop.
Expected Output: Formal and informal advice upon request, attending the meetings.
Duration: M1-M12

Sub-activity 3.02 ***Collaboration with laboratories in third countries, European and international organisations (h)***

Sub-activity 3.02.1 *Collaboration with third countries, European and international organisations*

Objectives: Collaboration with European and international organisations.
Description: In 2019 contact will be sought with European Directorate for the Quality of Medicines in Strasbourg - EDQM – to discuss the methods and approaches for herbs (http://pharmeuropa.edqm.eu/home/npa.htm) via the Netherlands representative at RIVM (farmacopee@rivm.nl).
Develop the plant toxin network by contacting researcher in NRL network and outside NRL network in EU e.g. Denmark, France. Aim at organising Symposium on plant toxins in 2020.
Expected Output: Notes on the discussions.
Duration: M1-M12

Sub-activity 3.02.2 *Participation in symposia workshops and seminars*

Objectives: Dissemination of scientific results.
Description: Scientific assistance will be given to the organisation of the (biannual) World Mycotoxin Forum and the World Plant Toxin Forum. The work of the EURL Mycotoxins & plant toxins will be presented at these and other relevant fora.
Symposia to attend in 2019:
Mycotoxins
1. (MYCO) 41st Mycotoxins (Workshop Gesellschaft fur Mykotoxinforschung); May 6-8; Lisbon, Portugal
2. (MYCO) Gordon Research conference; June 15-21; Easton, MA, USA
3. (MYCO) WMF-meets IUPAC Oct 14-16; Belfast, UK

Plant toxins and mycotoxins
1. (PLANT) ICFC2019; June 6-7; Lisbon, Portugal.
2. (PLANT/MYCO) AOAC; September 8-11; Denver, Colorado, USA.
3. (MYCO/PLANT) RAFA; November 5-8; Prague, Czech Republic

Expected Output: Oral and/or poster presentation on scientific research performed within the EURL.
Duration: 2019 M1-M12
2020 to be determined

Sub-activity 3.03 ***To ensure a sound and efficient management of the EURL funding cycle***

Sub-activity 3.03.1 *EURL management*

Objectives: Manage EURL mycotoxins & plant toxins.
Description: Management of the EURL will be conducted to timely report the scientific results according to the work programme and within the budget. Discuss scientific, planning or budget issues and amendments with the Commission a soon as they arise.
Expected Output: Timely and within budget delivery of results according to work programme.
Duration: M1-M12

Sub-activity 3.3.2 *EURL Work programme*

Objectives:	Design the annual EURL work programme for 2020.
Description:	Compilation of the annual work programme and budget forecast for 2020. Wishes and questions from NRLs and the Commission in the area of analysis will be inventoried during the annual workshop. The subjects will be discussed with the Commission and a work programme with corresponding budget forecast will be compiled.
Expected Output:	Work Programme and budget forecast 2020 submitted in time.
Duration:	M11

Sub-activity 3.3.3 *EURL report and cost statement*

Objectives:	Prepare annual report 2019.
Description:	Compilation of the results of the annual work programme and budget for 2019.
Expected output:	EURL annual scientific report 2019 and cost statement 2019 in time.
Duration:	M11-M12

4 REAGENTS AND REFERENCE COLLECTIONS

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.*j ***Coordinating or performing tests for the verification of the quality of reagents and lots of reagents used for the diagnosis of foodborne, zoonotic or animal diseases and pests of plants.***

- *Art. 94.2.k* ***Where relevant for their area of competence, establishing and maintaining:***
  - ***i. reference collections of pests of plants and/or reference strains of pathogenic agents;***
  - ***ii. reference collections of materials intended to come into contact with food used to calibrate analytical equipment and provide samples thereof to national reference laboratories;***
  - ***iii. up-to-date lists of available reference substances and reagents and of manufacturers and suppliers of such substances and reagents.***

Sub-activity 4.01 ***Up-to-date lists of available reference substances and reagents and of manufacturers and suppliers of such substances and reagents (kiii)***

Objectives:	Provide NRLs with up-to-date list of reference materials, and analytical standards that are commercially available or have been acquired by the EURL.
Description:	The inventory with details on reference materials and analytical standards available from the EURL and from commercial providers will be updated.
Expected Output:	Updated tables with commercially available reference materials and analytical standards on internet.
Duration:	2019 M3-M12 2020 M3-M12

5 REQUIREMENTS RELATED TO OTHER LEGISLATION

Please specify applicable legislation:
(Number of Sub-activity boxes can be adjusted)

REMARKS