

CODEX ALIMENTARIUS COMMISSION



Food and Agriculture
Organization of the
United Nations



World Health
Organization

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON PESTICIDE RESIDUES

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MATTERS OF INTEREST ARISING FROM OTHER INTERNATIONAL ORGANIZATIONS

ACTIVITIES OF THE JOINT FAO/IAEA DIVISION OF NUCLEAR TECHNIQUES IN FOOD AND AGRICULTURE RELEVANT TO CCPR WORK¹

1. For over fifty years, the Food and Agriculture Organization of the United Nations (FAO) and the International Atomic Energy Agency (IAEA), through the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture (the Joint Division), have worked together to champion the goals of both the IAEA, to accelerate and expand the peaceful contribution of nuclear technologies to promote global health and prosperity, and the FAO, to eliminate world hunger and reduce poverty through improved food security and sustainable agricultural development.
2. The Joint Division consists of five thematic sections working in the areas of food and environmental protection, soil and water management, plant breeding and genetics, animal production and health, and insect pest control, each with associated laboratory facilities at the FAO/IAEA Agriculture & Biotechnology Laboratories. The Joint Division's Programme provides support to growers and consumers by contributing new varieties of crops, controlling pests, diagnosing livestock diseases, increasing animal production, improving soil and water management, and increasing food safety. The Joint Division's work supports member countries in adapting, developing and transferring isotopic, nuclear and related techniques for food and agriculture and on promoting good agricultural practices to ensure food security and sustainable agricultural development. Efforts focus on food production, protection and safety to combat food insecurity.
3. The activities of the Food and Environmental Protection (FEP) sub-programme of the Joint Division are most closely related to the work of CCPR and include nuclear and isotopic analytical methods for (i) monitoring agrochemical residues and contaminants in foods and the environment and (ii) tracing and authenticating food products. As part of its sub-programme on food traceability, safety and quality to enhance international trade, the Joint Division continues to support member countries in Codex food safety standards and encourages the adoption of Codex MRLs as part of national and regional food control systems. In addition, the sub-programme also includes food irradiation for the control of microbial contaminants in foods (sanitary), maintenance of food quality, and the control of exotic insect pest problems (phytosanitary irradiation) reducing the need of chemical fumigants in food products in international trade. The sub-programme is also intimately involved in activities related to preparedness and response to nuclear and radiological incidents that could affect food and agriculture.

¹ Document prepared by and under responsibility of the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, IAEA, Vienna, Austria.

4. One of the ways in which the FEP sub-programme aims to improve food safety and food control systems and enhance trade is through forging sustainable networks of food control laboratories. Networks can leverage the expertise and competencies of national and regional food control laboratories in a world where food trade is increasingly complex and globalized. For example, the Red Analítica de Latino América y el Caribe (RALACA) network comprising in 2016 more than 50 laboratories in 21 Latin America & Caribbean countries, with new members from Ecuador, Brazil, Guatemala and El Salvador having joined in 2015. Over the past three years, 12 national chemical residue monitoring programmes have been developed and coordinated under RALACA; 15 laboratories worked together to monitor veterinary residues in foods and feeds; more than 125 analytical methods were developed and validated or re-validated; and over 340 laboratory staff were trained.

Performance Criteria Specific for Methods of Analysis for Pesticide Residues

5. The Joint Division continues to provide technical support to the electronic working group (EWG) on Performance Criteria Specific for Methods of Analysis for the Determination of Pesticide Residues that was re-established by the CCPR at its 46th session and chaired by the United States of America and co-chaired by China and India. Through the establishment of these performance standards, member countries involved in developing their own food safety programmes will have a clearer understanding of the method requirements when monitoring for compliance with international food safety standards. The draft document² is currently undergoing final review through an electronic working group of which the Joint Division is an active participant and is to be presented at the 48th session of the CCPR.

A WEB APPLICATION ON FOOD CONTAMINANTS³

6. At the request of CCPR and member countries, the Joint Division continues to support the Food Contaminant and Residue Information System (FCRIS) database <http://nucleus.iaea.org/fcris/> that contains information on analytical techniques for the detection of food contaminants such as pesticide and veterinary drug, residues as well as mycotoxins and heavy metal residues. The database also contains useful links to national and international food safety standards and guidelines.

JOINT DIVISION COORDINATED RESEARCH AND TECHNICAL COOPERATION PROJECTS – PESTICIDE RESIDUES IN FOODS

7. The Joint Division encourages and assists member countries with research and development on the uses of nuclear and related techniques and fosters the exchange of scientific and technical information. Activities designed to stimulate and coordinate research bringing scientists from both developing and developed countries to develop solutions to food safety related problems using isotopic and nuclear techniques are normally implemented through Coordinated Research Projects (CRPs). The objective of the research is to produce strategic outputs that can be applied downstream through capacity building Technical Cooperation Projects (TCP) in member countries. For example, CRP D52039 aims over the next five years to develop and strengthen radio-analytical and complementary techniques to control residues and other contaminants in aquaculture products. A list of recent coordinated research projects supported by the Joint Division and relevant to CCPR's work can be found in Table 1.
8. The FEP continues to provide scientific and technical leadership for over 40 TCPs at national, regional and interregional levels. A large number of these TCPs are associated with pesticides and related chemical contaminants, to ensure compliance with national and international food safety standards as well as Good Agricultural Practice training to both, ensure food safety and protect the environment. Tables 2 and 3 provide a list of IAEA TCPs supported by the Joint Division and relevant to CCPR's work.
9. The Joint Division provides technical leadership to TCPs, including training activities at its laboratory in Seibersdorf, Austria; organization and planning of scientific visits, fellowships and expert missions to assist in the development of human resources in developing countries; and through expert missions. Through these TCPs, member countries can also receive assistance with procurement of analytical instruments, supplies and standards, including stable isotope / radio-labelled standards.

² Document CX/PR 16/48/13 titled, "Proposed draft guidelines on performance criteria for methods of analysis for the determination of pesticide residues".

³ This section is presented in relation to discussions held at the 36th Session of the Joint FAO/WHO Codex Alimentarius Commission (REP13/CAC, paragraphs 138-141) concerning the Recommended Methods of Analysis for Pesticide Residues (CODEX STAN 229-1993).

For example, in Paraguay through the TCP PAR/5/010, in addition to the procurement of several modern analytical instruments and accessories, training was provided to over 50 scientists in areas of analytical techniques for monitoring foods of animal and vegetable origins for pesticide, veterinary drugs and heavy metals. Additional training provided in quality management systems enabled these laboratories to either get re-accredited or pursue new accreditation under ISO 17025 thereby enabling wider international acceptance of food safety monitoring results from the participating laboratories. As a direct result of the food safety monitoring capacity built in Paraguay, a network of 10 food safety monitoring laboratories has been established and at the request of Paraguay's parliamentary commission on health and safety, legislation is being drafted by the 5 participating institutions to create a food safety programme in Paraguay to protect the health of Paraguay's citizens and improving the global marketability of their food exports.

10. In a new regional project of extremely high priority for the Latin America and Caribbean region, the FEP has provided technical guidance in designing the project to better understand pathways for human exposure to persistent organic pollutants (POP) including organochlorine pesticides in the region. By providing technical guidance and using isotopic and related techniques, the FEP aims to empower the region's scientists with the tools and expertise to study the POPs and develop a plan to mitigate the impacts of POPs on human beings and the environment in Latin America and the Caribbean.
11. Through both CRPs and TCPs, FEP and the Joint Division continue to champion the goals of both the IAEA and the FAO and assists member countries meet their food security and environmental protection needs, protecting the health of their citizens and improving the global marketability of their food products.

Table 1. Ongoing Coordinated Research Projects supported by the Joint Division and relevant to CCPR's work

CRP Ref. No.	Ongoing CRPs
D52037	Implementation of Nuclear Techniques to Improve Food Traceability
D52039	Development and Strengthening of Radio-Analytical and Complimentary Techniques to Control Residues of Veterinary Drugs and Related Chemicals in Aquaculture Products
Closed (Completed) CRPs	
D52036	Development of Radiometric and Allied Analytical Methods to Strengthen National Residue Control Programmes for Antibiotic and Anthelmintic Veterinary Drug Residues
Proposed CRPs	
2156	The Use of Irradiation to Prevent Foodborne Parasitic Infections Associated with Fresh Fruits and Vegetables
2144	Nuclear Techniques and Novel Instrumentation for Low-Z isotope analysis in Food Products

Table 2. Some ongoing IAEA TCPs supported by the Joint Division and relevant to CCPR's work (beginning 2014 or earlier)

Number	Country/Region	Project No.	Title
1	Asia	RAS/5/062	Building Technological Capacity for Food Traceability and Food Safety Control Systems through the Use of Nuclear Analytical Techniques
2	Belize	BZE/5/007	Supporting Sustainable Capacity Building through Distance Learning for Laboratory Personnel of the National Agricultural Health Authority
3	Benin	BEN/5/009	Monitoring Safe Food Supply through Total Diet Studies and the Application of Nuclear and Complementary Analytical Techniques
4	Central African Republic	CAF/5/007	Enhancing Laboratory Capacity to Control Chemical and Bacteriological Hazards in Foodstuffs of Animal Origin
5	Ecuador	ECU/5/028	Consolidating Food Security and Environmental Sustainability in Palm Oil Production Using Nuclear Applications
6	El Salvador	ELS/7/006	Building Capacities to Minimize Environmental Contamination and to Protect the Health of the Rural Population by Strengthening Research Capabilities and Laboratory Infrastructure
7	Guatemala	GUA/7/004	Developing Capabilities to Evaluate the Transfer and Fate of Water Pollutants to Improve the Management of Major Basins and the Safety of Agricultural Products
8	Namibia	NAM/5/013	Assessing the Spatial Distribution of Lead, Cadmium and Selected Pesticide Residues in Livestock Farming
9	Oman	OMA/5/003	Strengthening National Capabilities in Food Safety and Food Traceability
10	Panama	PAN/5/022	Determining Pesticides and Inorganic Pollutants in Vegetables and Studying the Adsorption and Migration Through Nuclear Technologies in Zones of High Pollution Incidents to Guarantee Safe Food for Consumers
11	Paraguay	PAR/5/010	Strengthening the National Network of Laboratories Involved in Chemical Risk Analysis to Ensure Food Safety Through the Use of Nuclear and Complementary Non-Nuclear Techniques
12	Qatar	QAT/5/004	Upgrading the Central Food Laboratory
13	Africa	RAF/5/067	Establishing a Food Safety Network through the Application of Nuclear and Related Technologies
14	Latin America	RLA/7/019	Developing Indicators to Determine the Effect of Pesticides, Heavy Metals and Emerging Contaminants on Continental Aquatic Ecosystems Important to Agriculture and Agroindustry (ARCAL CXXXIX)

Table 3. Some new IAEA TCPs (beginning 2016) relevant to CCPR's work

Number	Country/ Region	Project Concept No.	Title
1	Bahrain	BAH/5/001	Determination of Pesticide and Mycotoxin Residues in water and food
2	Botswana	BOT/5/014	Enhancing the Use of Nuclear and Isotopic Analytical Techniques in Monitoring Chemical Food Contaminants in Botswana
3	Colombia	COL/5/025	Improving Capacity to Diagnose Residual Pesticides and other Contaminants in Exotic Tropical Fruits to Make Food Exports More Acceptable on the International Market
4	Costa Rica	COS/5/033	Assessing and implementing biochar use in climate smart and environmentally friendly pineapple production using isotopic techniques
5	Dominica	DMI/5/001	Enhancing Capacity to Monitor Agrochemical Residues in Foods and the Environment
6	Haiti	HAI/5/006	Increasing Productivity and Exportability in the Agricultural Sector through Soil and Water Management and Food Safety Monitoring
7	Iraq	IRQ/5/021	Developing Food Safety and Assurance System Using Nuclear and Other Related Technologies
8	Libya	LIB/5/012	Using Nuclear and Complementary Techniques for Monitoring Agrochemical Residues in Food Products and the Environment
9	Mauritius	MAR5/024	Building Capacity to Analyse Veterinary Drug Residues and Related Chemical Contaminants in Animal Products
10	Marshall Islands	MHL7001	Developing a National Radioactivity Monitoring Capacity
11	Mozambique	MOZ/5/006	Building Laboratory Capacity for Food Safety Using Nuclear/Isotopic and Complementary Analytical Techniques
12	Niger	NER/5/020	Building Capacity at the Central Laboratory (LABOCEL), Niamey, for Control of Food Products of Animal Origin
13	Panama	PAN5/024	Developing Analytical Capabilities for the Detection of Chemical Contaminants in Food and the Quality of Agrochemicals
14	Sierra Leone	SIL/5/016	Strengthening Laboratory Capabilities to Evaluate and Monitor Levels of Mycotoxins, Toxic Metals and Related Contaminants in Foods
15	Uganda	UGA/5/039	Enhancing the Monitoring of Veterinary Drug Residues, Related Chemicals and Natural Food Contaminants
16	Africa	RAF/5/078	Establishing a Food Safety Network through the Application of Nuclear and Related Technologies — Phase II
17	Asia and the Pacific	RAS/5/078	Enhancing Food Safety Laboratory Capabilities and Establishing a Network in Asia to Control Veterinary Drug Residues and Related Chemical Contaminants
18	Latin America	RLA/5/069	Improving Pollution Management of Persistent Organic Pollutants to Reduce the Impact on People and the Environment (ARCAL CXLII)
19	Interregional	INT/5/154	Improving Food Safety through the Creation of an Interregional Network that Produces Reliable Scientific Data Using Nuclear and Isotopic Techniques

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

UPDATE ON OECD WORK ON RESIDUE CHEMISTRY AND PESTICIDE MINOR USES RELEVANT TO CCPR WORK

A. Information document from OECD for the 48th Session of the Codex Committee on Pesticide Residues (CCPR)

A.1. Background

1. This document is provided to CCPR delegates for information. It gives an update of OECD activities in the area of pesticide residue chemistry and minor uses. With respect to the latter, this document is part of the information exchange process between Codex and OECD recommended previously to avoid duplication and overlap between international groups dealing with the issue of minor uses. OECD has an observer status within Codex.
2. The two OECD groups dealing with residue chemistry and minor uses are the Residue Chemistry Expert Group and the Expert Group on Minor Uses. An overview of recent activities within the two groups is given below, following a brief summary of OECD work on pesticides.

A.2. About the OECD work on Pesticides and Sustainable Pest Management

3. The Pesticide Programme was created in 1992 within the OECD's Environmental Health and Safety division to help OECD countries:
 - harmonise their pesticide review procedures,
 - share the work of evaluating pesticides, and
 - reduce risks associated with pesticide use.
4. The Pesticide Programme is directed by the Working Group on Pesticides (WGP), composed primarily of Delegates from OECD Member countries, but also including representatives from the European Commission and other international organisations (e.g. United Nations Food and Agriculture Organization, United Nations Environment Programme, World Health Organization, EPPO), and experts from the pesticide industry and public interest organisations (NGOs).

A.3. OECD Residue Chemistry Expert Group

5. The Residue Chemistry Expert Group (RCEG) was established in 2003. Its objectives are to:
 - Harmonise the way residue testing is conducted and results are interpreted,
 - Develop methods to support international harmonisation of maximum residue limits (MRLs) (the OECD does not set MRLs).
6. Nine OECD Test Guidelines have been published, as follows: **TG 501** Metabolism in Crops; **TG 502** Metabolism in Rotational Crops; **TG 503** Metabolism in Livestock; **TG 504** Residues in Rotational Crops (Limited Field Studies); **TG 505** Residues in Livestock; **TG 506** Stability of Pesticide Residues in Stored Commodities; **TG 507** Nature of Pesticide Residues in processed Commodities - High Temperature-Hydrolysis; **TG 508** Magnitude of Pesticide Residues in Processed Commodities; **TG 509** Crop Field Trial.
7. Seven Guidance Documents are available: Definition of Residue; Overview of Residue Chemistry Studies; Magnitude of Pesticide Residues in Processed Commodities; Pesticide Residue Analytical Methods; Crop Field Trials; and Residues in Livestock.
8. The Guidance Document on Residues in Livestock was updated in 2013. The revision includes an updated OECD Table of Feedstuffs Derived from Field Crops (available in the Guidance Document on Overview of Residue Chemistry Studies). Specifically, this Guidance Document describes current differences in OECD countries in livestock feeding practices and diet composition and factors influencing the determination of dietary burden and dose selection, and provides guidance for interpreting results from OECD TG 505 studies.

9. The MRL Calculator, a tool for statistical calculation of MRLs was published in 2011. It is an Excel spreadsheet simple to use without requiring extensive statistical knowledge from the user.
10. All the documents mentioned above and the MRL calculator are available on the OECD public web site: <http://www.oecd.org/env/ehs/pesticides-biocides/publicationsonpesticideresidues.htm>
11. The following outputs are in preparation: 1) Revision of the 2011 Guidance Document on Crop Field Trials (to deal with proportionality issues, clarify sampling procedures and take into account national/ Codex information on recent changes in crop groups): the revised GD will be available shortly for a broad commenting round through the WGP and the WNT (the Working Group of National Coordinators of the Test Guidelines Programme); 2) Development of a new Guidance Document for Rotational Crop Field Trials: the draft GD is expected to be sent for a broad commenting round towards the end of the first half of 2016.

A.4. OECD Expert Group on Minor Uses

12. The Expert Group on Minor Uses (EGMU) was established in 2007. The current work plan of the OECD EGMU focuses on issues associated with cooperation, technical and policy activities with the aim of facilitating the development of data and registration of pesticides for minor uses. As with many OECD chemicals and pesticide projects, the EGMU works towards providing the infrastructure, guidance and tools for promoting the registration of pesticides for minor uses, including aspects of data requirements, data generation and opportunities for harmonization to make available data useful across countries. The OECD work focuses on developing tools for risk assessment and mechanisms to facilitate co-operation and work-sharing. For further information, see the OECD website:

<http://www.oecd.org/env/ehs/pesticides-biocides/minoruses.htm>

13. Two Guidance Documents have been published: a Guidance Document on Defining Minor Uses of Pesticides and a Guidance Document on Regulatory Incentives for the Registration of Pesticide Minor Uses.
14. Two survey reports have been published: the Survey Results on Regulatory Incentives for the Registration of Pesticide Minor Uses and the Survey Results on Efficacy & Crop Safety Data Requirements and Guidelines for the Registration of Pesticide Minor Uses.
15. All OECD Minor Uses publications are available at:
<http://www.oecd.org/env/ehs/pesticides-biocides/publicationsonminorusesofpesticides.htm>
16. Currently, three main activities are underway, as follows.

- **Project 1:** *work towards developing a Guidance Document to address & solve minor uses:*

Responses to a 2013 survey to collect information on existing national and regional processes and known data exchanges are being analysed and a report of the survey was made available in September 2015. The survey report will now be utilised to form the basis of developing an OECD guidance document to address and solve minor uses. Other information sources such as further detailed background provided during the survey about various different approaches and programs operating internationally will also be utilised.

As part of the survey members were requested to propose a suitable crop for establishing a joint project. Many diverse suggestions were made as to a potential crop. The Netherlands, Australia and the Secretariat considered the suggested crops and also discussed if EGMU members themselves who are largely regulatory authorities had the capacity (including funding and mandate) to conduct a data generation project. They also noted that the first Global Minor Use Priority Setting Workshop was held in September 2015 where the objective was to establish joint global data generation projects for minor uses, and for which many EGMU members were involved. It was determined that rather than duplicate work being initiated elsewhere that EGMU would utilise the priorities identified from that process and offer regulatory support to the identified priority projects going forward. The EGMU had agreed to work with the leads of those projects to offer input to facilitating agreement of a global data package acceptable to regulators and in turn explore the possible establishment of potential for joint review of the data when available.

Finally, the EGMU and OECD's Expert Group on Integrated Pest Management are developing a thought starter on how IPM tools and technologies, including bio-pesticides, can help fill out the gaps in available crop protection products as regards minor uses. The thought starter will be considered at the 30 June to 1 July, 2016 meeting of the Working Group on Pesticides.

- **Project 2: Global Joint Reviews (GJRs) –enhancing minor uses from GJRs:** Information on GJRs relevant for minor uses is being collated as part of the existing work associated with the Global Joint Review MRL Analysis project and further sources of information are being explored. The first aim of the work is to identify differences in uses (crops) approved in various countries through GJRs. Subsequent aims would involve identifying the reasons for these differences and activities or initiatives that could enhance the scope of minor uses approved amongst countries through GJRs.
- **Project 3: work towards developing a Guidance Document on the exchange and use of international efficacy & crop safety data for minor uses:** A draft of the guidance document is being developed that will be available for further review by members in the first quarter of 2016. While some OECD countries do not currently require efficacy data, it was confirmed as an important consideration amongst the EGMU participants. The first step of the project – collecting and compiling information and data relating to pesticides efficacy for minor uses crops – is completed.

17. Review of EPPO Standards relating to Minor Uses' Efficacy

Following a review conducted by EGMU in 2014 of efficacy standards published by the European and Mediterranean Plant Protection Organisation (EPPO), the RSG (10-11 December 2014) agreed that the EPPO standards relating to minor uses' efficacy should be made available to the OECD member countries (via a link on the public web site). During May 2015 the WGP was requested by written procedure to endorse the above proposal. Subsequent to this the WGP in July 2015 similarly requested by written procedure approval from the **Heads of Delegations to the Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology for the**

The following text has since been added to the *Minor Uses of Pesticides* section of the OECD public web site:

In 2014 the OECD Pesticides Programme reviewed two Standards produced by the European and Mediterranean Plant Protection Organization (EPPO) in the series "Efficacy evaluation of plant protection products" with the aim of deciding if utilization of those standards could be advantageous for use by (non-EU) OECD member countries in facilitating the registration of minor uses. The two EPPO standards reviewed were "Principles of efficacy evaluation for minor uses" (EPPO Standard PP1/224) and "Efficacy and crop safety extrapolations for minor uses" (EPPO Standard PP1/257). The OECD determined that there would be limited value in the OECD establishing similar standards and recognized that while the documents have been developed with the EU in mind the general principles applied are in broad agreement with practices utilized throughout non-EU member countries. Further the standards note that extrapolation may be possible between different geographical zones (regions) if conditions are comparable and OECD considered the documents would have useful applicability to non-EU member countries in certain circumstances. OECD encourages member countries to use these standards in their work on minor uses. The standards can be found on the EPPO website at: http://www.eppo.int/PPP/PRODUCTS/minor_uses/minor_uses.htm#extrapolation

18. The last EGMU meeting took place at OECD headquarters (Paris) on 11th October 2013. At this meeting the work plan for EGMU was updated to reflect progress in the ongoing projects outlined above, and to initiate related but new activities in the areas of identifying *priority* minor uses for data generation and data exchange and developing a process for assessing trial protocols for future minor use GJRs.