

# FOOD AND ENVIRONMENTAL PROTECTION

# NEWS LETTER



Joint FAO/IAEA Division  
of Nuclear Techniques  
in Food and Agriculture  
and FAO/IAEA Agriculture and  
Biotechnology Laboratory, Seibersdorf  
International Atomic Energy Agency  
Vienna

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## To the Reader

As newly assigned Head of the Food and Environmental Protection Section of the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, I look forward to strengthening our collaboration with, among others, related units in the Food and Agriculture Organization of the United Nations, the World Health Organization, the Codex Alimentarius Commission and the World Trade Organization. These efforts will include subjects addressing overall food security, including food quality, food safety, plant health and the promotion of food trade in the areas of food irradiation and methods of analysis and sampling for contaminants, with a specific emphasis on developing countries. Increased efforts will also be applied in the application of safe technologies through the provision of training and support in the utilization of sound analytical methods, research, and web-based information systems for both sanitary and phytosanitary measures. I also plan to enhance the preparedness of our Member States in the application of the Joint Radiation Emergency Management Plan and in strengthening links with other Units of the Division and the Seibersdorf Laboratories, specifically in the areas of agrochemicals, biotechnology and radionuclides.

I hope that my experience for the past sixteen years in the development of food standards, guidelines and codes of practice related to consumer protection and the facilitation of international trade with the Secretariat of the Joint FAO/WHO Codex Alimentarius Commission in Rome, Italy will help us to reach these goals. My past experience in areas related to food quality and safety were also part of my responsibilities as a supervisor, food technologist and food quality grader with the United States Department of Agriculture.

As many of you may also be aware, Dr. Paul Thomas, who served as a consultant to the International Consultative Group on Food Irradiation (ICGFI) since 2 April 2002, retired from the Agency on 29 May 2003. Speaking on behalf of my colleagues in the Food and Environmental Section, and based on our excellent working relationship with Dr. Thomas over the years, he will be sorely missed by our Section. Dr. Thomas has carried out his duties in an excellent and enthusiastic manner, and he could always be counted on for providing sage advice in many areas of our work. His duties not only related to the smooth conduct of the ICGFI, but also included continual efforts to strengthen our relationship with the Codex Alimentarius Commission and other international governmental and non-governmental organizations, to increase our efforts in the transparent dissemination of information to our Member States, and in assisting our work in conducting coordinated research projects, technical cooperation projects and training courses related to food irradiation. We all wish Dr. Thomas continued health and happiness in his retirement.

We have accomplished much in the past, but we have many issues to deal with in the immediate future. This includes the consideration of the status of the International Consultative Group on Food Irradiation at its forthcoming meeting in Geneva from 7-9 October 2003, as well as the adoption of texts elaborated through the assistance of ICGFI at the next 26<sup>th</sup> Session of the Codex Alimentarius Commission in Rome from 30 June-7 July 2003. We also have numerous activities planned in the form of Research Coordination Meetings, Workshops and Seminars on subjects ranging from pesticide residue analysis and formulation control, the use of irradiation to ensure the quality and safety of foods and the transfer of radionuclides from soils to plants.

I look forward to your continued collaboration in carrying out these tasks and in fulfilling our priorities for the future, and trust that you will find this issue of the Food and Environmental Newsletter interesting and relevant to your work.

Sincerely,

David H. Byron  
Section Head  
Food and Environmental Protection

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## **B. FEATURE ARTICLES**

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### **Activities of the Joint FAO/IAEA Division Related to Subsidiary Bodies of the Codex Alimentarius Commission**

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#### Introduction

The IAEA and the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, including the FAO/IAEA Agriculture and Biotechnology Laboratory of the Agency's Laboratories at Seibersdorf, provide direct support to the Codex Alimentarius Commission in its efforts to enhance food quality and safety, the protection of consumers and the promotion of trade in food and agricultural products. This assistance is primarily directed to the Codex Committee on Food Additives and Contaminants, the Codex Committee on Methods of Analysis and Sampling, the Codex Committee on Pesticide Residues and the Codex Committee on Food Import and Export Inspection and Certification Systems.

Assistance is also provided to these committees through the International Consultative Group on Food Irradiation (ICGFI), established under the aegis of FAO, IAEA and WHO. The next 20<sup>th</sup> Annual Meeting of the International Consultative Group on Food Irradiation will be held at WHO Headquarters in Geneva, Switzerland from 7-9 October 2003.

#### Codex Committee on Food Additives and Contaminants

The Joint FAO/IAEA Division, and particularly the ICGFI, has provided expert advice to the Codex Committee on Food Additives and Contaminants (CCFAC) in the revision of the Codex Recommended International Code of Practice for Radiation Processing of Food. The revised Codex text was prepared by the Joint Division/ICGFI for circulation, comment and finalization by the 34<sup>th</sup> Session of the CCFAC in March 2002. The revised draft Code is scheduled for adoption as a final Codex text at the forthcoming 26<sup>th</sup> Session of the Codex Alimentarius Commission (CAC), which will be held in Rome from 30 June – 7 July 2003.

The most recent 35<sup>th</sup> Session (March 2003) of the CCFAC also finalized the draft Revised Codex General Standard for Irradiated Foods on the basis of a draft and advice provided by the Joint Division/ICGFI for final adoption at the 26<sup>th</sup> CAC. It is significant that the revised Standard allows exceptions to the maximum absorbed dose of 10 kGy in cases where such treatments are necessary to achieve a legitimate technological purpose, and with the stipulation that such applications should not compromise consumer safety.

The Joint Division, in collaboration with the IAEA Division of Radiation and Waste Safety, has also proposed the revision and expansion of the Codex Guideline Levels for Radionuclides in Foods Following Accidental Nuclear Contamination for Use in International Trade (CAC/GL 5-1989) to other radioisotopes and to guideline levels for long-term use. It is expected that this IAEA proposal, which was discussed and accepted at the most recent 35<sup>th</sup> Session of the Codex Committee on Food Additives and Contaminants (Arusha, Tanzania, 17-21 March 2003), will be approved as new work by the forthcoming 26<sup>th</sup> Session of the Codex Alimentarius Commission (Rome, Italy, 30 June -7 July 2003). Subsequent to this approval, the Guidelines will be revised through a collaborative effort between the IAEA and Finland.

### Codex Committee on Methods of Analysis and Sampling

The Joint Division provides expert advice to the Codex Committee on Methods of Analysis and Sampling (CCMAS) in the establishment of methods for the detection of contaminants, including pesticides, as well as for the detection of irradiated foods. These efforts aided the most recent 24<sup>th</sup> Session of the CCMAS (November 2002) in the endorsement of methods of analysis for irradiated foods, for aflatoxins (ochratoxin A, fumonisins and aflatoxins B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub>) and for pesticides and PCBs in various foodstuffs.

### Codex Committee on Pesticide Residues

The Joint Division, and particularly the FAO/IAEA Agriculture and Biotechnology Laboratory and the FAO/IAEA Training and Reference Center for Food and Pesticide Control (TRC), provide expert advice to the Codex Committee on Pesticide Residues (CCPR). In particular, the most recent 35<sup>th</sup> Session (April 2003) of the CCPR forwarded draft Revised Guidelines on Good Laboratory Practice in Residue Analysis to the 26<sup>th</sup> Session of the CAC for final adoption. In taking this decision, the Committee also accepted the offer of the TRC to lead the preparation of Guidelines on the Use of Mass Spectrometry for the identification, confirmation and quantitative determination of residues, subject to approval as new work by the forthcoming 26<sup>th</sup> Session of the CAC.

The 35<sup>th</sup> Session of the CCPR also welcomed the offer of the TRC to take the lead in preparing a revised document that would examine the possibility of elaborating Guidelines on Multiple Peaks for the Estimation of Uncertainty of Results, subject to approval as new work by the Commission. The 35<sup>th</sup> Session of the CCPR also noted that information provided by member countries on the revision of the list of methods for pesticide residue analysis would be made available on the website of the TRC, and that a template to be prepared by the TRC would be used to collect the information in a standard format.

### Codex Committee on Food Import and Export Inspection and Certification Systems

The Joint Division/ICGFI has also successfully finalized the Revised ICGFI Guidelines for the Certification of Foods Irradiated for Non-Phyosanitary Purposes in collaboration with the Codex Committee on Food Import and Export Inspection and Certification Systems. This collaboration included the harmonization of the ICGFI Guidelines with the previously adopted Codex Guidelines for Generic Official Certificate Formats and the Production and Issuance of Certificates.

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## **INFOCRIS/SICRA**

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INFOCRIS, and its Spanish version SICRA, are rapidly evolving to provide information, especially for analysts, to help implement Codex food standards. To tackle the problem of rising commodity detention rates caused by residues and contaminants, analysts and land managers have been provided with a new dynamic mapping tool to geo-reference contaminants. The system allows superimposing of up to four data sets on the same map and thus helps visualize important spatial and temporal trends. Three new features were added:

- ◆ an eLearning tracking system for students that automatically records progress and grades;
- ◆ a new system for managing external links and lists, and;
- ◆ a bulletin board to provide feedback.

With support from the German Government, a prototype module will be constructed to launch a distance learning initiative with affiliated universities.

If you want to adopt a record, or you have baseline contaminant or residue data that is geo-referenced, contact the relevant entity editor or the system supervisor ([infocris.feedback@iaea.org](mailto:infocris.feedback@iaea.org)).

## C. FORTHCOMING EVENTS

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### **FAO/IAEA Training Workshop on “Testing the Quality of Pesticide Products”**

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Technical Officer: Arpad Ambrus

This Workshop will be held at the National Institute of Agricultural Science and Technology, Suwon, Korea, from 28 September to 24 October 2003. The objectives of the workshop are to introduce the concept of multi-pesticide analytical procedures, advanced laboratory methodology, instrumental techniques used in the analysis of pesticide formulations and elements of quality control/quality assurance of the analytical procedures and laboratory operations.

As of May 2003, 57 nominations were received and approximately 33 qualified candidates and about 12 additional candidates are proposed for basic training. The selection of the qualified candidates will be made in June, depending on the availability of funds.

Further details can be found in the Prospectuses of the workshops that are available on the Website of the FAO/IAEA Training and Reference Center for Food and Pesticide Control (<http://www.iaea.org/trc>).

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### **Workshops on the “Introduction and Implementation of the Principles of Good Agriculture Practice (GAP) in the Production of Fresh Fruits and Vegetables”**

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Three workshops are planned for decision-making government officials and managers responsible for the production of fresh fruits and vegetables:

- ◆ Ecuador, September 2003 (in Spanish)
- ◆ Bangkok, December 2003
- ◆ Nairobi, February 2004

Detailed information about the above workshops can be obtained from:

Scientific Secretary  
 Arpad Ambrus  
 Head, Agrochemicals Unit

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**Training Workshop on “QA/QC in Pesticide Residue Analysis” (postponed to later date)**

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Technical Officer: Arpad Ambrus

As of 2 May 2003, nearly 100 nominations were submitted for this workshop and twenty-two candidates were selected for participation. Unfortunately, the workshop, originally planned to be held in Seibersdorf, Austria from 28 April – 6 June 2003, has been temporarily postponed due to current international travel restrictions. Nonetheless, pending the rescheduling of the workshop, the training materials will be provided on CD to all applicants who expressed an interest in receiving them.

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**Third FAO/IAEA Research Co-ordination Meeting (RCM) on “Classification of Soil Systems based on Transfer Factors of Radionuclides from Soil to Reference Plants”**

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Technical Officer: Ian Ferris

This RCM will be held at the Mediterranean Agronomic Institute of Chania (MAICh) in Crete, Greece from 22-26 September 2003. All contract and agreement holders have been invited to participate in this meeting, including Drs. Martin Frissel and Ray Hance, who were instrumental in establishing the CRP, and a representative of the International Union of Radioecologists. The purpose of the meeting is to evaluate the research work done since the second Research Co-ordination Meeting (RCM) held in Vienna in March 2001. In addition, two concepts for classifying transfer factors and minimizing uncertainty will be considered as well as the design for a new web-based information system on soil-plant transfer factors of long-lived radionuclides.

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**Workshop: “A Practical Integrated Approach to Agricultural Countermeasures for Enhancing Food Safety and Security Following a Nuclear or Radiological Emergency”**

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Technical Officer: Ian Ferris

This Workshop will be held in Crete, Greece from 27-29 September 2003.

Large-scale releases of radioactivity will affect food production and contaminated agro-ecosystems, potentially for many years. To mitigate the impact of contamination, such areas need to be managed and, where feasible, restored to sustain acceptable living and working conditions. Following the Chernobyl accident, many countermeasures have been successfully developed and implemented within the former Soviet Union. The EU project on "Sustainable Restoration and Long-Term Management of Contaminated Rural, Urban and Industrial Ecosystems" or STRATEGY, has examined the technical effectiveness and costs of individual countermeasures and also their practicality and suitability for urban, rural and industrial systems in the European Community. A major outcome was a template that provided a systematic way to evaluate each countermeasure against a wide range of criteria. To date, there have been few attempts to extend such an approach outside Europe despite the obvious need. The workshop co-sponsored by the Joint Division and IAEA's Department of Technical Co-operations aims to:



- ◆ extend the STRATEGY templates to major agro-ecosystems and work towards a relevant set of practical and socially acceptable agricultural countermeasures, especially for radionuclides with long physical half-lives, such as  $^{137}\text{Cs}$ ,  $^{90}\text{Sr}$  and actinide elements.
- ◆ validate, where possible, the specific countermeasures with relevant radionuclide transfer factor data and other expert knowledge.
- ◆ develop Stakeholder groups and agricultural countermeasure custodians.
- ◆ build up a roster of experts and database of agricultural regional countermeasures that may be readily updated via the Web and disseminated by CD-ROM.

Participants include: the FAO network of technical experts, EU Strategy and FARMING representatives and relevant CRP and TC counterparts.

For more information about the agenda contact Ian Ferris ([I.G.Ferris@iaea.org](mailto:I.G.Ferris@iaea.org)).

## D. PAST EVENTS

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### Second Research Co-ordination Meeting (RCM) on “Quality Control of Pesticide Products”

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Technical Officer: Arpad Ambrus

The 2<sup>nd</sup> Research Coordination Meeting took place at the Central Laboratory of the Bureau of Plant Industry in Manila, Philippines, from 17-22 February 2003. The seventeen (17) participants evaluated the results of their work during the last year and agreed on the work programme for the period of 2003-2005. The tentative programme of the inter-comparison studies to be carried out according to the AOAC peer verified method programme was also agreed.

A one-day national workshop on “Method validation and quality control in pesticide analytical laboratories” was organised in connection with the Research Co-ordination Meeting. In addition to the participants of the RCM, the forum was attended by 24 Philippine specialists working in fields related to the control of pesticide formulations, analysis of pesticide residues and registration of pesticides. The programme of the Forum included lectures related to pesticide formulation control, synthesis and identification of impurities of technical pesticide products and analysis of pesticide residues. The lectures were followed by discussion sessions. The forum provided the opportunity for the Philippine specialists to establish personal contacts with analysts from various countries and exchange information on topics of mutual interest. The participants of the forum discussed several important issues related to the analysis and regulation of pesticides and prepared a summary of the problems and their recommendations related to them, as follows:

## **Problems Related to the Quality Control of Pesticide Products and Analysis of Pesticide Residues**

### **Recommendations of the Scientific Forum**

- ◆ The use of pesticides is necessary for producing a sufficient amount of food for the increasing population of the world. The authorities responsible for the regulation and control of the use of pesticides should work in close cooperation to assure their safe, efficient and environmentally friendly application. The pesticide analytical laboratories should support the safe and efficient use of pesticides, and should verify that the pesticides were used according to the label instructions prepared in accordance with the principles of Good Agriculture Practice.
- ◆ To assure good biological efficacy and safety of pesticide products, the specifications, such as the physico-chemical properties, the composition of the technical active ingredient and formulated product and the impurities that are of toxicological importance, should be declared in detail in the registration documents, and the quality of marketed products should be regularly monitored by the laboratories assigned/contracted for the task.
- ◆ Equal quality requirements should be set and enforced for proprietary and for commodity (generic) pesticides.
- ◆ In addition to the control of active ingredient content, the regular monitoring of physical properties, concentration of significant impurities and by-products of toxicological significance and the quality of packing and the content of the label is equally important.
- ◆ The safe and efficient use of pesticides can be best verified, or the suitable corrections of the application conditions can be made, based on the analyses of samples taken from the fields of known pesticide application history. Therefore, such selective field surveys should be an important part of the work programme of the pesticide residue analytical laboratories. Nevertheless, the random sampling of marketed products should also be continued to reveal potential residue problems or unauthorized use of pesticides.
- ◆ The determination of the residues of all possible pesticides in every food, feed or environmental sample is very expensive and time consuming. Taking into account the properties of residues, the results obtained during the previous years, amount of pesticides sold and the relevant residue data from other countries, the potential of health or environmental hazard can be estimated. Further, the export requirements must be considered. This information should be used for establishing a priority list of pesticide residues to be looked for in specified samples.
- ◆ The exposure assessment and planning of field surveys are complex tasks, and the staff should be trained to perform them.
- ◆ Handling of food and feed commodities containing pesticide residues above the MRL should be clearly regulated and the procedures published to avoid unnecessary complaints. The confirmation and quantitative determination of residues below a certain concentration level is very difficult and not always necessary. Appropriate concentration limits, above which the residues present must be quantified, should be established, taking into account the objectives of the studies.

- ◆ Performing the reliable control of pesticide formulations and determining pesticide residues requires:
  - a) experienced analysts trained in instrumental analysis and related subjects, and
  - b) implementation of the appropriate quality control measures and quality assurance system in accordance with ISO 17025 and OECD GLP Guidelines, which require documented and relevant training records.
- ◆ Regular training of the staff and providing access to international scientific literature are among the pre-conditions for obtaining reliable and accurate results.
- ◆ The selected staff of the laboratories performing the official control of pesticides, after signing the statement on confidentiality, should have access to the relevant parts of the technical information submitted to support the registration in order to enable them to perform their tasks properly.
- ◆ If not available, the National Regulatory Authority should request from the registrant the provision of the relevant technical information together with appropriate validated methods, technical active ingredient and analytical standards. The methods provided should be suitable for performing with the equipment and instrumentation commercially available. If specific reagents, equipment or instruments are required, the registrant should provide them to the Regulatory Authority.
- ◆ The registration requirements should be modified to include the provision of all information, methods and substances needed for the official control of the quality of the pesticide products and determination of their residues in food, feed and environmental samples.
- ◆ In order to provide supporting information for regulatory actions and evidence of consumer and environmental safety, and to promote the export of agricultural products, sufficient number of samples of pesticide products, food, feed, etc. have to be tested for quality and concentration of pesticide residues, respectively.
- ◆ For this purpose, Governments should allocate adequate funds for the purchase and maintenance of equipment, chemicals and consumable materials and to keep the laboratory in good operating condition. In addition to regular budget allowances, the funds may also be obtained from different sources such as an assessment tax imposed on agrochemicals sold in the country and paid by the manufacturer/importer, income of the laboratory earned from service work, from export levies and/or from any of their combination.

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**FAO/IAEA (RCA) Project: Coordinators' Review and Formulation Meeting on the  
"Application of Irradiation for Improving Food Safety, Security and Trade"**

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Technical Officer: Tatiana Rubio-Cabello

Under the scope of the regional co-operative project on the "Application of Irradiation for Improving Food Safety, Security and Trade" (RAS/5/042), a meeting of the national project co-ordinators was convened in the Philippines Nuclear Research Institute (PNRI) in Manila, Philippines from 20-24 January 2003.

The objective of the meeting was to review the achievements of the project RAS/5/042 during the 2001-2002 cycle, to enumerate on problems encountered, if any, during its

implementation, to formulate regional and national activity plans for 2003-2004 and to prepare a future work plan for the 2005-2006 cycle. The Project Coordinators meeting (PCM) was attended by national coordinators from 12 countries (Australia, Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand, and Vietnam) that were members of the Regional Cooperative Agreement for Research, Development and Training in Nuclear Science and Technology of the IAEA. Mr. Kyoung-Pyo Kim (IAEA Project Officer), Ms. Tatiana Rubio-Cabello (IAEA Technical Officer) and some local observers also attended the meeting.

The participating countries elected Ms. Zenaida de Guzman of the Philippines as the Chairperson of the meeting. Mr. Gary Luckman (Australia), Ms. R.S. Wilson Wijeratnam (Sri Lanka) and Mr. A.K. Sharma (India) were appointed as rapporteurs.

The participating countries presented reports on related projects covering the period 2001 to 2002. All presentations were critically evaluated in accordance with the project objectives.

Many of the planned project objectives were achieved and completed satisfactorily in the 2001-2002 cycle. In fact, some countries adopted the harmonized regulations developed and approved in the Workshop on “Harmonization of Procedures and Regulations on Food Irradiation for Asia and the Pacific” (Seoul, Korea 1998) and the development of legislation on food irradiation is underway in other participating countries. The human resource development program, executed through various workshops, seminars and symposia, also achieved a significant increase in industry and consumer awareness of the application of food irradiation technology.

Significant efforts were made to conduct trade trials between the participating countries. However, this objective was not accomplished due to technical, administrative and financial constraints. These constraints needed to be further addressed in the 2003-2004 cycle so that this particular project objective might be successfully implemented.

As a result of the analyses made during the meeting, a new RCA project on the use of irradiation as a quarantine treatment for food commodities in the region was proposed for the cycle 2005-2006.

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**Second FAO/IAEA Research and Coordination Meeting on the  
“Use of Irradiation to Ensure Hygienic Quality of Fresh, Pre-Cut Fruits and  
Vegetables and other Minimally Processed Foods of Plant Origin”**

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Technical Officer: Tatiana Rubio-Cabello

The meeting was organized and held at the Agriculture and Food Science Research Centre of the Queen’s University of Belfast, Ireland from 14-18 April 2003. All 15 contract and agreement holders who had fulfilled the work research program were invited to participate in the meeting, including participants from Argentina, Brazil, Canada, Chile, China, Egypt, India, Malaysia, Pakistan, Portugal, Turkey, UK and the USA.

The purpose of the meeting was to evaluate the research work accomplished since the first RCM in Rio de Janeiro, Brazil in November 2001.

The Inaugural Session of the meeting was attended by Dr. Sydney Neill, Head of the Food Science Division of the Department of Agriculture and Rural Development and Dr. Karen King, Acting Head of School, Queen's University, Belfast who welcomed the attendees to Belfast and the Queen' University.

RCM participants critiqued their results and compared the results obtained in different countries. The results of the effect of irradiation in about 12 different pathogenic bacteria in more than 20 products were analyzed during the meeting. The participants also agreed on their future plans for the next 18 months of research work.

Ways to improve and standardize protocols were agreed upon so that inter-country comparisons could be made more easily. Recommendations were also made, in particular for additional studies on fruits, vegetables, seeds and seed sprouts.

A visit to the food irradiation unit, pathogen laboratories and sensory evaluation facilities of the Department of Agricultural and Rural Developments (DARD) was included as one of the activities of the meeting.

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### **Fifth Session of the Interim Commission on Phytosanitary Measures (ICPM)**

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The Fifth Session of the Interim Commission on Phytosanitary Measures (ICPM) was held in Rome, Italy from 7-11 April 2003.

The International Plant Protection Convention (IPPC) is identified in the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement) as the international organization responsible for setting phytosanitary standards. The IPPC is based on an international treaty (the Convention), which has equivalent legal status to the WTO agreements.

The IPPC has a relatively short history of standard setting. Nonetheless, from 1993 (when the IPPC adopted its first standard) to March 2003 the IPPC has completed 17 International Standards for Phytosanitary Measures (ISPM).

Irradiation was first raised as a possible topic for consideration by the IPPC Secretariat at the First Session of the ICPM in November 1998. The ICPM noted that substantial work toward regional and international harmonization had already occurred as a result of efforts by the IAEA, but that more efforts were required.

In the Third Session of the ICPM (April 2001) the topic of irradiation was raised again and several countries made strong statements supporting the elaboration of a standard for the use of irradiation as a phytosanitary measure. The position of these countries was supported by the offer of financial and technical support by IAEA and as a result of this initiative, this subject was added to the work programme for standard setting in 2001.<sup>1</sup> Based on this decision, a working group was established by the IPPC Secretariat in November 2001.<sup>2</sup>

The draft Standard produced by the expert working group was reviewed in May 2002 by the Standards Committee of the ICPM and was distributed to all governments for consultation.

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<sup>1</sup> Food and Environmental Protection Newsletter; Vol. 3, No.2, July 2001

<sup>2</sup> Food and Environmental Protection Newsletter; Vol. 4, No.1, January 2002

The comments were collected by the IPPC Secretariat and in light of these comments, the Standards Committee made some amendments during its meeting in November 2002.

The “Guidelines for the Use of Irradiation as a Phytosanitary Measure” were reviewed and adopted as part of the International Standards for Phytosanitary Measures series at the 5<sup>th</sup> Session of the ICPM in April 2003.

## **E. STATUS OF EXISTING COORDINATED RESEARCH PROJECTS (CRPs)**

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### **Use of Irradiation to Ensure the Hygienic Quality of Fresh, Pre-Cut Fruits and Vegetables and other Minimally Processed Food of Plant Origin**

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Technical Officer: Tatiana Rubio-Cabello

This CRP was initiated in 2001 with 12 research contracts and 3 research agreements. Considerable progress has been made in determining the feasibility of using irradiation as a treatment in these products to improve the microbiological quality without affecting the sensorial and nutritional properties.

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### **Irradiation to Ensure the Safety and Quality of Prepared Meals**

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Technical Officer: Tatiana Rubio-Cabello

This CRP was initiated at the end of 2001. It has 12 research contracts and 3 research agreements. The first meeting was held in Vienna, 10-14 June 2002, where the participants presented progress reports and future research plans. Since that time, important progress has been made by the participants.

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### **Evaluation of Methods of Analysis for Determining Mycotoxin Contamination of Food and Feed**

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Technical Officer: Bruno Doko

The overall objective of the CRP was to assist national food control authorities and institutions to improve food safety and stimulate international trade in food by identifying and validating time and cost-efficient methods for detection and quantification of mycotoxins. Particularly, methods for the determination of Fumonisin B1 in maize (using SAX clean up cartridge and fluorescamine as pre-derivatizing reagent) and the determination of Aflatoxin M1 in milk using IAC clean up columns were found applicable. In addition, progress was achieved in regard to a feasibility study of ELISA technology for mycotoxins in developing countries. The studies related to the production and use of C-14 materials provided significant information on the influence of food processing techniques and on the distribution of fumonisin in processed products.

The participation in the FAPAS (Food Analysis Performance Assessment Scheme)<sup>3</sup> proficiency testing programme funded by the IAEA had notably improved the performance of the participating laboratories as far as the overall results of the CRP programme were concerned.

The results of this CRP will be published as an IAEA-TECDOC. In addition, the CRP work on TLC methods for fumonisin B1, and ochratoxin A will be submitted for publication to a peer reviewed international journal.

In regard to further activities related to the CRP, training workshops on the presentation of the CRP methods are foreseen. In addition, the results of the CRP will be presented at the XI IUPAC Symposium on Mycotoxin and Phycotoxins in May 2004, Bethesda, MD, USA.

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### **Testing the Efficiency and Uncertainty of Sample Processing for Analysis of Food Contaminants**

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Technical Officer: Arpad Ambrus

The majority of the participants have performed their tasks satisfactorily and submitted their annual reports. The evaluation of the results and renewal of the contracts are being carried out. The 2<sup>nd</sup> RCM will be held in Cost Rica in January 2004.

## **F. AGRICULTURE & BIOTECHNOLOGY LABORATORY**

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### **Fellowship Training**

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Technical Officers: Arpad Ambrus & Bruno Doko

The training of six fellows from Nigeria on mycotoxin analysis has been completed. Training of two fellows from Hungary and Malaysia on planning field studies and evaluation of the results is in progress.

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<sup>3</sup> FAPAS<sup>®</sup> was established by the UK Ministry of Agriculture, Fisheries and Food (MAFF) in 1990. It quickly grew beyond just the UK and now is the premier international scheme of its type. FAPAS<sup>®</sup> remains a UK government agency administered by the Proficiency Testing Group based at the DEFRA Central Science Laboratory in York, UK. For additional info: <http://ptg.csl.gov.uk/fapas.cfm>

## **G. INTERNATIONAL CONSULTATIVE GROUP ON FOOD IRRADIATION (ICGFI)**

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### **20<sup>th</sup> Annual Meeting of the International Consultative Group on Food Irradiation**

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The 19<sup>th</sup> Annual Meeting of the International Consultative Group on Food Irradiation (November 2002) considered the continuation of international co-operation in the field of food irradiation and agreed that an International Forum on Food Irradiation (IFFI) be established by members of the ICGFI and other interested Governments, following the final two years of ICGFI expiring in May 2004.<sup>4</sup>

The 20<sup>th</sup> Annual Meeting of ICGFI will be held at WHO Headquarters, Geneva, Switzerland from 7-9 October 2003. The meeting will consider the new Declaration of IFFI, the Business Plan for IFFI and comments from Member States. Among other things, the Agenda for the Meeting includes:

- ◆ Consideration of the Draft Revised Codex General Standard for Irradiated Foods
- ◆ Consideration of the Draft Revised Codex Recommended International Code of Practice for Radiation Processing of Food
- ◆ Consideration of the Report of ICPM-5 on the IPPC International Standards for Phytosanitary Measures - Guidelines for the Use of Irradiation as a Phytosanitary Measure
- ◆ Consideration of the Revised Guidelines for Certification of Foods Irradiated for Non-Phytosanitary Purposes
- ◆ Consideration on the Brochure on Shelf-Stable Foods

## **H. NUCLEAR PREPAREDNESS**

Nuclear and radiological emergencies can impact food production and exports potentially for long periods. One of the key lessons identified from previous accidents is that greater attention to preparedness can mitigate the effects and assist in the recovery phase. Over the last two years, the Joint Division, in conjunction with the Department of Nuclear Safety and the Agency's laboratory at Seibersdorf, have worked to improve organizational response and raise awareness of the issues. On 14 February 2003, the FAO Emergency Co-ordination Group (ECG) adopted the FAO and IAEA Arrangement for the exchange of information including setting up a network of FAO technical experts to implement the related work programme. The main thrust of the work has now shifted from the establishment of the organizational framework to assisting Member States implement basic emergency plans for agriculture. The first FAO corporate initiative is a workshop planned for Crete, 27-29 September 2003 (see Forthcoming Events in this issue). The workshop will bring together a wide range of expertise to assemble a toolkit of practical agricultural countermeasures that may be applied at regional level or for similar agro-ecological zones.

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<sup>4</sup> Food and Environmental Protection Newsletter; Vol. 4, No.1, January 2002



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**Co-operative arrangements between FAO and IAEA for information exchange and technical support in relation to food and agriculture in the case of a nuclear or radiological emergency**

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This FAO/IAEA Arrangement was signed into effect on 25 April 2003. The document describes a common understanding of the practical arrangements between FAO and IAEA for notification, information exchange and provision of technical support in relation to food and agriculture in the case of a nuclear or radiological emergency and its aftermath. It provides not only an operational framework describing who does what and when but enshrines the concept of an “integrated” response. In this sense, the FAO/IAEA Arrangement is more than an instrument to meet FAO and IAEA responsibilities under the “Early warning” and Assistance Conventions. Rather, the document fosters prevention and preparedness as an integral part of agricultural development.

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**FAO's network of technical experts on the preparedness for and response to an actual, potential or perceived nuclear or radiological emergency**

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The inaugural meeting of FAO technical experts took place on 10 April 2003 following a public forum on nuclear preparedness held at FAO Headquarters. The representatives included:

<b>Unit</b>	<b>Name of Officer</b>	<b>Contact information</b>
AGAP	Mr Andrew Speedy	Andrew.Speedy@fao.org
AGPP	Mr Niek VanDerGraaff	Niek.VanDerGraaff@fao.org
AGLL	Mr Freddy Nachtergaele	Freddy.Nachtergaele@fao.org
ESCG	Mr Henri Josserand	Henri.Josserand@fao.org
ESNS	Mrs Maya Pineiro (alternate: Mary Kenny)	Maya.Pineiro@fao.org Mary.Kenny@fao.org
FIIU	Mr Hector Lupin	Hector.Lupin@fao.org
FORC	Ms Gillian Allard	Gillian.Allard@fao.org
GIIM	Mr Erwin Northoff	Erwin.Northoff@fao.org
GILW	Mr Fernando Servan (alternate: Ms Marta Iglesias)	Fernando.Servan@fao.org Marta.Iglesias@fao.org
TCES	Mr Laurent Thomas (alternate: Mr Werner Chakkalakal)	Laurent.Thomas@fao.org Werner.Chakkalakal@fao.org
TCDS	Ms Florence Rolle (Secretary ECG)	Florence.Rolle@fao.org

A technical meeting will take place in Vienna 16 and 17 June 2003. The aim of the meeting is to draft a work plan and to familiarize the FAO experts with the Emergency Response Centre and available information resources. The meeting will close with an open panel discussion including counterparts from the regional TC project RER9074: Long-term countermeasure strategies and monitoring of human exposure in rural areas affected by the Chernobyl accident. A review of the first FAO corporate initiative on practical agricultural countermeasures is also on the agenda.

## **I. WEBSITES**

FAO/IAEA Training and Reference Centre for Food and Pesticide Control:  
<http://www.iaea.org/trc>

International Food Contaminant and Residue Information System - INFOCRIS  
<http://www-infocris.iaea.org>

International Database on Insect Disinfestation and Sterilization - IDIDAS  
<http://www-ididas.iaea.org/>

## **J. PUBLICATIONS**

Rubio, T., Legislation and Application of Food Irradiation. Prospectus and Controversies. Ernährung Nutrition. Vol 27, Jänner 2003.

In Press:

Doko, M. B. and Park, D.L. 2003. Mycotoxin reduction and decontamination. *In: Mycotoxin Contamination and Control*, Njapau, H., Park, D.L., Pohland, A.E. and Trujillo, S. (Eds), AOAC International, Gaithersburg, Maryland.



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