

# codex alimentarius commission

FOOD AND AGRICULTURE  
ORGANIZATION  
OF THE UNITED NATIONS

WORLD HEALTH  
ORGANIZATION

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**ALINORM 99/24A**

**JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX ALIMENTARIUS COMMISSION  
Twenty-Third Session  
Rome, 28 June - 3 July 1999**

**REPORT OF THE THIRTY-FIRST SESSION OF THE  
CODEX COMMITTEE ON PESTICIDE RESIDUES  
The Hague, 12 - 17 April 1999**

**Note:** This report includes Codex Circular Letter CL 1999/6-PR.

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CL 1999/6-PR  
April 1999

**TO:** - Codex Contact Points  
- Interested International Organizations

**FROM:** Secretary, Codex Alimentarius Commission  
FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy

**SUBJECT: DISTRIBUTION OF THE REPORT OF THE THIRTY-FIRST SESSION OF THE CODEX COMMITTEE ON PESTICIDE RESIDUES (ALINORM 99/24A)**

The report of the Thirty-first Session of the Codex Committee on Pesticide Residues will be considered by the 23rd Session of the Codex Alimentarius Commission (Rome, 28 June - 3 July 1999).

**PART A: MATTERS FOR ADOPTION BY THE 23RD SESSION OF THE CODEX ALIMENTARIUS COMMISSION**

The following matters will be brought to the attention of the 23rd Session of the Codex Alimentarius Commission for adoption:

- 1. DRAFT MAXIMUM RESIDUE LIMITS AND DRAFT REVISED MAXIMUM RESIDUE LIMITS AT STEP 8 (APPENDIX II OF ALINORM 99/24 AND ALINORM 99/24A); AND**
- 2. PROPOSED DRAFT MAXIMUM RESIDUE LIMITS AND PROPOSED REVISED DRAFT MAXIMUM RESIDUE AT STEP 5/8 (APPENDIX IV OF ALINORM 99/24 AND ALINORM 99/24A)**

Governments wishing to propose amendments or to comment on the Draft MRLs and Proposed Draft MRLs, including revised MRLs, should do so in writing in conformity with the Guide to the Consideration of Standards at Step 8 of the Procedure for the Elaboration of Codex Standards Including Consideration of Any Statements Relating to Economic Impact (*Codex Alimentarius Procedural Manual*, Tenth Edition, pp. 24-25) to the Secretary, Codex Alimentarius Commission, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (fax, +39 06 57054593; e-mail, codex@fao.org), **not later than 31 May 1999**.

- 3. DRAFT REVISED RECOMMENDED METHODS OF SAMPLING FOR THE DETERMINATION OF PESTICIDE RESIDUES FOR COMPLIANCE WITH MRLS (ALINORM 99/24A, APPENDIX III)<sup>1</sup>**

Governments wishing to propose amendments or to comment on the above Draft Revised Recommended Methods of Sampling should do so in writing in conformity with the Guide to the Consideration of Standards at Step 8 of the Procedure for the Elaboration of Codex Standards Including Consideration of Any Statements Relating to Economic Impact (*Codex Alimentarius Commission Procedural Manual*, Tenth Edition, pp. 24-25) to the Secretary, Codex Alimentarius Commission, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (fax, +39 06 57054593; e-mail, codex@fao.org), **not later than 31 May 1999**.

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<sup>1</sup> The Codex Committee on Pesticide Residues at its 31st Session considered the text of the Draft Revised Recommended Methods of Sampling for the Determination of Pesticide Residues for Compliance with MRLs contained in Appendix III of ALINORM 99/24 at Step 7. It amended the text and advanced it to Step 8 for adoption by the Commission at its 23rd Session. The text contained in Appendix III of ALINORM 99/24A supersedes the one in Appendix III of ALINORM 99/24.

**4. PROPOSED DRAFT MAXIMUM RESIDUE LIMITS AT STEP 5 (APPENDIX V OF ALINORM 99/24 AND ALINORM 99/24A)**

Governments wishing to propose amendments or to submit comments regarding the implications which the Proposed Draft Maximum Residue Limits may have for their economic interest should do so in writing in conformity with the Procedures for the Elaboration of Codex Standards and Related Texts (at Step 5) (*Codex Alimentarius Procedural Manual*, Tenth Edition, pp. 20-21) to the Secretary, Codex Alimentarius Commission, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (fax, +39 06 57054593; e-mail, [codex@fao.org](mailto:codex@fao.org)), **not later than 31 May 1999**.

**5. REVOCATION OF CODEX MRLs (APPENDIX VI OF ALINORM 99/24 AND ALINORM 99/24A)**

Governments wishing to comment on the proposed revocation (not including that of Codex MRLs replaced by the revised MRLs) should do so in writing to the Secretary, Codex Alimentarius Commission, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (fax, +39 06 57054593; e-mail, [codex@fao.org](mailto:codex@fao.org)), **not later than 31 May 1999**.

**PART B: REQUEST FOR INFORMATION AND DATA TO BE SENT TO JOINT FAO/WHO MEETING ON PESTICIDE RESIDUES**

**RESIDUES AND TOXICOLOGICAL DATA REQUIRED BY JMPR FOR PESTICIDES SCHEDULED FOR EVALUATION OR PERIODIC RE-EVALUATION**

Governments and interested international organizations are invited to send inventory of data for pesticides on the agenda of the JMPR. Inventories of information on use patterns or good agricultural practices, residue data, national MRLs, etc. should be sent to Dr Amelia Tejada, Plant Protection Service, AGP, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy, well before 30 November of a year before a JMPR meeting where a pesticide of concern is scheduled to be evaluated and, submission of residue data should be well before the end of February of the same year as the JMPR meeting. Toxicological data should be sent to Dr J.L. Herrman, International Programme on Chemical Safety, WHO, CH-1211 Geneva 27, Switzerland not later than one year before the JMPR meeting (see Appendix VII of ALINORM 99/24A).

Those countries specified under individual compounds in the ALINORM 99/24A concerning matters related to the FAO Panel of the JMPR (GAP, residue evaluation, etc.) on specific pesticide/commodity(ies) or concerning toxicological matters are invited to send information of data availability and/or toxicological data (for deadlines see the paragraph above).

## SUMMARY AND CONCLUSIONS

The Thirty-first Session of the Codex Committee on Pesticide Residues reached the following conclusions:

### **MATTERS FOR CONSIDERATION BY THE COMMISSION**

The Committee recommended to the Commission:

- Draft MRLs for adoption at Step 8, Proposed Draft MRLs at Step 5/8 and Proposed Draft MRLs/EMRL at Step 5 (Appendices II, IV & V);
- the amended text of the Draft Revised Recommended Methods of Sampling for the Determination of Pesticide Residues for Compliance with MRLs for adoption at Step 8 (Appendix III);
- revocation of certain existing Codex MRLs (Appendix VI); and
- the Priority List of Pesticides for new and periodic evaluations by the JMPR for endorsement (Appendix VII)

### **MATTERS OF INTEREST TO THE COMMISSION**

#### **MATTER OF INTEREST TO OTHER COMMITTEES**

The Committee:

- concluded that it was not in a position to take action on the request of the Codex Coordinating Committee for Africa to elaborate MRLs to address the difficulties in exporting fish caught in Lake Victoria due to the presence of certain pesticides until relevant data were submitted (paras. 15-16);
- agreed to support the MRL for cyfluthrin in milk at 0.04 mg/kg (whole milk basis), which had been advanced by the Codex Committee on Residues of Veterinary Drugs in Foods to Step 5 for adoption by the Codex Alimentarius Commission (para. 96);
- decided to send the “Agreed CCPR Positions on Setting EMRLs” to the Codex Committee on Food Additives and Contaminants for their consideration to ensure harmonization and consistency in Codex (para. 110 and Appendix VIII); and
- agreed that once a new paper became available on in-house method validation, it should be sent to the Codex Committees on Methods of Analysis and Sampling and on Pesticide Residues for harmonization purposes (para. 131).

#### **FOR INFORMATION TO THE COMMISSION**

The Committee:

- decided to consider at its next Session the recommendations of an informal JECFA/JMPR Harmonization Meeting held to resolve differences in residue definitions and related matters and to ensure harmonization and consistency between the JECFA and JMPR, pending their consideration by the 1999 JMPR (para. 7-9)
- noted the reports on general considerations by the 1997 and 1998 JMPR; concluded that maximum residue limits for monitoring (MRLMs), recommended by the JMPR when the dietary intake estimate(s) exceeds the ADI, would be treated as normal MRLs which would be footnoted indicating that assurance could not be provided that intake would not exceed the ADI (para. 18); and requested the JMPR Secretariat to prepare a short paper for consideration at the next Session that would provide practical proposals to address the increasing workload of the JMPR (para. 21);

- agreed to discuss the methodology for estimating acute dietary exposure at the next Session when worked examples would be available to assess its usefulness as a screening tool at the international level (para. 25);
- welcomed the proposal for the revised diets for estimating chronic dietary intake of pesticide residues and agreed that they should be sent to governments for comments (paras 27-29);
- decided that a revised questionnaire on the food processing practices in countries to improve dietary exposure assessment should be sent to governments for response (paras 35-36);
- agreed to request following new discussion papers for consideration at the next Session:
  - i. on the request of the Codex Committee on Nutrition and Foods for Special Dietary Uses, i.e., feasibility of establishing specific MRLs for cereal-based foods and infant formula, in particular, possible unique toxicological concerns to children (paras 10-14)
  - ii. on the issue of which uses to support when estimated chronic dietary intake(s) exceeded the ADI (para. 75); and
  - iii. on the feasibility of establishing MRLs for genetically modified crops and for metabolite residues (para. 105);
- agreed on the amended CCPR positions on treating outliers and violation rates in setting EMRLs (para. 108);
- agreed to seek comments on the paper on the need for EMRL for camphechlor in fish and to request information on trade problems caused by camphechlor residues in fish and availability of monitoring data (para. 114);
- agreed on the process for the review of the criteria for determining suitability of methods of analysis and the revision of the list of methods of analysis (para. 128);
- agreed to seek comments on performance criteria of analytical methods in relation to in-house validation (para. 129);
- recommended a number of actions regarding problems relative to pesticide residues in food in developing countries (paras 139- 148); and
- decided to defer further consideration on regulatory practices to facilitate use of Codex MRLs for pesticides pending the outcome of considerations of relevant matters by the Codex Committee on General Principles and the Codex Alimentarius Commission, and inputs from Member countries (para. 149).

#### **MATTERS OF GENERAL NATURE REFERRED TO THE JOINT FAO/WHO MEETING ON PESTICIDE RESIDUES**

The Committee invited the JMPR to consider or to give advice on:

- physiological and developmental characteristics of infants and children (para. 13) ;
- susceptibility of infants and young children to chemicals and validity of the ADIs established for these populations (para. 14) ;
- the term MRLM, as the term ‘monitoring’ is confusing (para. 18);
- the question on minimum data requirements to establish MRLs and STMRs for post-harvest uses (para. 73); and
- providing several options when the JMPR estimates EMRLs to enable the CCPR to make appropriate risk management decisions (para. 109).

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## LIST OF ABBREVIATIONS

(Used in this Report)

CAC	Codex Alimentarius Commission
CCFAC	Codex Committee on Food Additives and Contaminants
CCGP	Codex Committee on General Principles
CCMAS	Codex Committee on Methods of Analysis and Sampling
CCNFSDU	Codex Committee on Nutrition and Foods for Special Dietary Uses
CCPR	Codex Committee on Pesticide Residues
CCRVDF	Codex Committee on Residues of Veterinary Drugs in Foods
FAO	Food and Agriculture Organization of the United Nations
JECFA	Joint FAO/WHO Expert Committee on Food Additives
JMPR	Joint FAO/WHO Meeting on Pesticide Residues
WHO	World Health Organization
WTO	World Trade Organization
CI	Consumers International
EC	European Community
GCPF	Global Crop Protection Federation
Acute RfD	Acute Reference Dose
ADI	Acceptable Daily Intake
CXL	Codex Maximum Residue Limit for Pesticide
DIE	Daily Intake Estimate
GAP	Good agricultural practice
EMRL	Extraneous Maximum Residue Limit
IEDI	International Estimated Daily Intake
IESTI	International Estimated Short-Term Intake
MRL	Maximum Residue Limit
PHI	Pre-harvest Interval
PTDI	Provisional Tolerable Daily Intake
STMR	Supervised Trials Median Residue
TMDI	Theoretical Maximum Daily Intake
SPS Agreement	Agreement on the Application of Sanitary and Phytosanitary Measures
TBT Agreement	Agreement on Technical Barriers to Trade

## ALINORM 99/24A

**REPORT OF THE THIRTY-FIRST SESSION OF THE  
CODEX COMMITTEE ON PESTICIDE RESIDUES****INTRODUCTION**

1. The Codex Committee on Pesticide Residues (CCPR) held its 31st Session in The Hague, The Netherlands, from 12-17 April 1999. Dr W.H. van Eck of the Netherlands Ministry of Health, Welfare and Sport chaired the Session. The Session was attended by 50 Member countries and 15 international organizations. The list of participants is attached as Appendix I to this Report.

**OPENING OF THE SESSION**

2. The Session was opened by Dr E. Borst-Eilers, the Minister of Health, Welfare and Sport. She welcomed the Committee to The Hague and acknowledged the increased significance of the work of the Codex Alimentarius Commission in recent years, especially within the framework of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) of the World Trade Organization (WTO). She mentioned the growing role of risk analysis in establishing MRLs, which would be focussed in the future on the issues relating to acute exposure. There was an urgent need to incorporate acute risk analysis into the decision-making process at the international level.

**ADOPTION OF THE AGENDA (Agenda Item 1)**

3. The Committee **adopted** the Agenda<sup>1</sup> with the understanding that it would consider the lengthy procedure for the development of MRLs and its consequences for growers, as requested by the USA, under Agenda Item 11 Other Business and Future Work.

**APPOINTMENT OF RAPPORTEURS (Agenda Item 2)**

4. Mr. C.W. Cooper (USA) and Mr. D. Lunn (New Zealand) were **appointed** as rapporteurs.

**MATTERS REFERRED TO THE COMMITTEE<sup>2</sup> (Agenda Item 3)**

5. The Committee received a report on matters referred to this Committee by the 45th Session of the Executive Committee and from other Codex Committees.

**Methods of Sampling**

6. The Committee agreed to refer the comments on the Draft Revised Recommended Methods of Sampling for the Determination of Pesticides for Compliance with MRLs from the Codex Committees on Residues of Veterinary Drugs in Foods (CCRVDF) and on Methods of Analysis and Sampling (CCMAS), and International Dairy Federation (IDF) to the *ad hoc* Working Group on Methods of Analysis and Sampling (see paras 124-127).

**JECFA/JMPR Harmonization Meeting**

7. The Committee was informed that following the request of the 11th Session of the CCRVDF, an informal JMPR/JECFA Harmonization Meeting was convened in Rome (February 1999) in order to resolve differences in residue definitions and related matters and to ensure harmonization and consistency between the JECFA and JMPR when considering chemicals that were used both as veterinary drugs and pesticides.

8. The Representative of FAO presented a preliminary oral report of the Harmonization Meeting. The Committee noted that the Meeting made several general and specific recommendations which

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<sup>1</sup> CX/PR 99/1.

<sup>2</sup> CX/PR 99/2, CX/PR 99/2-Add.1 (comments from the United Kingdom).

would be considered by the JMPR in September this year. These recommendations had already been considered by the JECFA at its Fifty-second meeting in February 1999, and had generally been received favourably. The JECFA had agreed to change the expression of MRLs in milk from a volume basis to a weight basis.

9. The Committee noted that many of the harmonization issues related to specific substances could be resolved only when these substances were re-evaluated and **concluded** that detailed consideration on the recommendations of the Harmonization Meeting be postponed pending their consideration by the JMPR.

### **Establishment of Specific MRLs for Cereal-Based Foods for Infants and Young Children<sup>3</sup>**

10. The Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) requested the CCPR to consider the feasibility of establishing specific MRLs for cereal-based foods and infant formula. The Committee noted clarification had been provided by the 21st Session of the CCNFSDU in response to the request of the CCPR made at its 29th Session.

11. The Committee noted that the European Community (EC) was of the opinion that the toxicological databases supporting ADIs might not be fully adequate in all cases to ensure that the special needs of infants and young children were covered, in particular, in such areas as endocrine disruption and reproductive tests, developmental neurotoxicity and immunotoxicity. It also noted that as a temporary precautionary measure and pending review of the databases supporting existing ADIs, MRLs at the level of 0.01 mg/kg would be adopted within the EC for all pesticides in baby food.

12. The Observer from Consumers International (CI) expressed its view that Codex MRLs needed to be developed in a way that explicitly considers the greater exposure and greater susceptibility of children; that an additional 10-fold uncertainty factor should be applied to establish ADIs, unless there are reliable data supporting the use of another safety factor; and that the current MRL setting process used by JMPR/CCPR did not explicitly consider this. The Observer of CI welcomed the actions taken by the USA and EC in this area (see paras 11 & 37).

13. The Committee **requested** the Codex Secretariat, in collaboration with Germany, the United States of America, CI and the Commission of the EC to prepare a paper in response to the request of the CCNFSDU, in particular, possible unique toxicological concerns to children, for consideration at the next Session of the Committee. The Committee also **requested** the JMPR to consider at its next meeting the physiological and developmental characteristics of infants and young children.

14. The Observer from the Global Crop Protection Federation (GCPF) stated that a body of scientific evidence existed which did not support the premise of generally higher susceptibility of children to chemicals and drugs. The Observer encouraged the WHO Panel of the JMPR to review this issue and establish a position regarding an increased susceptibility of infants and young children and the validity of the ADIs established by WHO for these age groups. The Committee **requested** the JMPR to provide advice on this matter.

### **Establishment of MRLs for Fish<sup>4</sup>**

15. The Committee noted the concern of the Codex Coordinating Committee for Africa regarding the difficulties experienced by the countries bordering Lake Victoria in exporting fish caught in this lake due to the presence of certain pesticides and its request to the CCPR to consider the problem of pesticide residues in fish with a view to establishing MRLs.

16. No data had been provided to the CCPR. Therefore, the Committee **concluded** that it was not in a position to take action until relevant data were submitted.

17. The Representative of WHO noted that the report<sup>5</sup> of an FAO/NACA<sup>6</sup>/WHO Study Group on the Food Safety Issues Associated with Products from Aquaculture became available. The Study Group

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<sup>3</sup> ALINORM 99/26, para. 74.

<sup>4</sup> ALINORM 99/28, para. 9.

had considered potential biological and chemical hazards that might be important for farmed finfish and crustaceans. Regarding the use of chemicals in aquaculture, the Study Group urged national governments to enforce a licensing system for chemicals, including pesticides, in aquaculture and to establish withdrawal times appropriate to environmental conditions and fish species. However, more information was required on pesticides and their conditions of uses to assure that residues in fish tissue were not harmful to health.

## **REPORT ON GENERAL CONSIDERATIONS BY THE 1997 AND 1998 JOINT FAO/WHO MEETINGS ON PESTICIDE RESIDUES<sup>7</sup> (Agenda Item 4)**

### **1997 JMPR**

18. The Committee **supported** the proposal made by the 1997 JMPR for establishment of the term 'MRLM' (maximum residue level for monitoring) as a useful instrument for intake calculations and risk management decisions on pesticide residues for which the available information was insufficient to conclude that their intake would be below the ADI. However, the Committee **invited** the JMPR to reconsider the term 'MRLM' as the term 'monitoring' was confusing. The Committee **concluded** that MRLMs would be treated as normal MRLs, which would be footnoted indicating that assurance could not be provided that intake would not exceed the ADI. These MRLs should not be advanced to Step 8 until intake concerns were solved.

19. Comments on the extrapolation of residue data to minor crops had been received from developed countries only which were in support of the recommendations and data requirements specified in the 1997 JMPR report.

### **1998 JMPR**

20. The Committee took note of the general items in the 1998 JMPR report, namely the capacity of the JMPR to undertake periodic reviews; use of data from biomedical testing involving human subjects in hazard evaluation; issues related to aggregate and cumulative risk assessment; progress on development of International Estimated Short-term Intakes (IESTIs); worked examples of the estimation of STMRs and maximum residue levels for commodities of animal origin; use of OECD guidance documents; the development of minimum residue data requirements through the OECD pesticide Forum; data requirements for the validation of analytical procedures; residue data reflecting the GAP of developing countries; the format that will be used for summarizing toxicological data; the definition of independent supervised residue trials; use of the framework for the assessment of carcinogenicity being developed by the International Programme on Chemical Safety; procedures for estimating an acute reference dose; and interpretation of cholinesterase inhibition. It also noted that dietary risk assessments were performed on all pesticides that were evaluated at the Meeting.

21. The Committee recognized problems associated with the increasing workload of the JMPR. Most participants (who serve in their individual capacities as experts) were employees of national regulatory agencies. In many cases they were not provided sufficient time during working hours by their employers to undertake the extensive and time-consuming reviews necessary for preparing their residue and toxicological working papers, requiring that they devote their personal time to this activity. In addition, their work sometimes was not recognized as being pivotal to the work of the CCPR in establishing international food standards. On the other hand, it was noted that the submission of dossiers using the OECD standardized format and use of national documents might increase the efficiency of the JMPR. The Committee **requested** the JMPR Secretariat to prepare a short paper for consideration at the next Session that provides practical proposals to address this issue.

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<sup>5</sup> Food Safety Issues Associated with Products from Aquaculture, Report of an FAO/NACA/WHO Study Group, Bangkok, Thailand, 22-26 July 1997, TRS 883 (WHO 1999).

<sup>6</sup> Network of Aquaculture Centres in Asia and the Pacific.

<sup>7</sup> Pesticide residues in food – 1997 (FAO Plant Production and Protection Paper 145, 1998) and 1998 (FAO Plant Production and Protection Paper 148, 1999).

22. The JMPR was encouraged by some delegates and observers to move forward as quickly as possible with the development of procedures for assessment of aggregate exposure (exposure to a single pesticide from various sources) and cumulative exposure (exposure to several pesticides with a common mechanism of toxicity or that produce similar toxic effects). The Committee noted that effort should be concentrated on issues that could be dealt with more easily. For a number of reasons aggregate exposure was extremely difficult to assess at the international level. Although a number of issues were still to be resolved on cumulative risk assessment before it could be performed routinely, the JMPR should concentrate on this area. The development of procedures for assessment of cumulative exposure at the national or regional level would be useful for the development of procedures for cumulative exposure by WHO. (see para. 37)

23. The Committee appreciated the progress that the JMPR had made in developing procedures for establishing Acute Reference Doses, and encouraged the JMPR to make use of work in this area by national governments and the European Community in the future.

24. The 1998 JMPR concluded that it would be premature to undertake IESTI calculations, particularly as data on 97.5 percentile food consumption and median commodity weights had not been received from many governments. The WHO Representative reported that in response to CL 1998/29-PR, information on 97.5 percentile consumption (eaters only) for the general population and among children aged 6 and under had been received from Australia, France, Japan, Netherlands, United Kingdom and USA. However, the data provided by the six countries were not entirely consistent and further information was required before the databases could be used for acute hazard exposure assessment. The Delegations of Canada and South Africa indicated that appropriate data would be available in 2000. Data on median commodity weights have been received from France, United Kingdom and USA. However, these data also needed further clarification before a consolidated database could be prepared.

25. The Committee **agreed** to discuss the methods used to calculate the IESTI at its next Session when worked examples would be available to assess its usefulness as a screening tool at the international level. The Committee **encouraged** all governments that have such information to provide it to WHO as soon as possible to assure that their consumption patterns and unit weights are taken into account. A reminder to governments would be sent in a circular letter.

26. Noting the lack of opportunity to discuss all general consideration issues covered in the report of the 1998 JMPR, the Committee **agreed** to include the report on the agenda of the next Session.

## **CONSIDERATION OF INTAKE OF PESTICIDE RESIDUES (Agenda Item 5)**

### **(A) PROGRESS REPORT BY WHO ON THE REVISION OF GEMS/FOOD REGIONAL DIETS**

27. In 1995, the Joint FAO/WHO Consultation on Guidelines for Predicting Dietary Intake of Pesticide Residues in its report (FAO/WHO, 1995) recommended that the existing five GEMS/Food regional/cultural diets be updated and, where appropriate, expanded. This recommendation was subsequently endorsed by the CCPR and JMPR. Based on a paper by Barraj and Petersen, the Joint FAO/WHO Consultation on Food Consumption and Exposure Assessment of Chemicals held in 1997 in Geneva (FAO/WHO, 1997) recommended that a statistical cluster analysis be applied to the 1990-1994 FAO Balance Sheet data<sup>8</sup> to group countries by similarities in dietary patterns and to estimate the consumption of commodity components in those diets.

28. The Representative of WHO reported on the results of the cluster analysis performed by GEMS/Food which identified 13 regional/cultural dietary patterns that could be used for evaluation of dietary exposure to pesticides as well as that of other chemicals in food. The estimated average consumption of the 36 major foods and food groups used in the analysis were presented for each regional/cultural dietary pattern, including identification of countries which had tentatively been assigned to the proposed regional/cultural groupings. Before proceeding to develop the diets further, the

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<sup>8</sup> FAOSTAT.PC, 1996, Version 3.0.

WHO Representative requested the Committee to confirm the acceptability or otherwise of the proposed clusters and in particular, the estimated consumption levels for the 36 foods and food groups given in the individual cluster diets.

29. The Committee generally welcomed the revised diets, but most delegations needed more time to consider whether their assigned cluster and diet were appropriate. Some delegations requested more information on the details of the cluster analysis used to generate the diets. The Committee **agreed** that the proposed clusters and diets, including more specific details on the methodology used in the cluster analysis, should be sent to governments for comment by means of a circular letter. An analysis of the government responses should be reported at the next Session of the Committee.

**(B) REPORT ON PESTICIDE RESIDUE INTAKE STUDIES AT INTERNATIONAL AND NATIONAL LEVEL BASED ON REVISED GUIDELINES FOR PREDICTING DIETARY INTAKE OF PESTICIDE RESIDUES**

**Predictions of Dietary Intake for Pesticides Evaluated by the 1998 JMPR<sup>9</sup>**

30. The 1998 JMPR estimated Supervised Trials Median Residues (STMRs) for all commodities considered in relation to the new compound kresoxim-methyl and for all those undergoing periodic review that were on the agenda of the FAO Panel. However, for compounds evaluated for specific commodities and for those evaluated for toxicity only, both MRLs and STMRs are used as the basis for estimating dietary intake. Theoretical Maximum Daily Intakes (TMDIs) which are based on MRLs and International Estimated Daily Intakes (IEDIs) which are based on STMRs were calculated according to the Revised Guidelines for Predicting Dietary Intake of Pesticide Residues<sup>10</sup>. Dietary intake estimates that are calculated based on a combination of MRLs and STMRs are referred to as Daily Intake Estimates (DIEs).

31. Exposure assessment calculations were performed for pesticides evaluated by the 1997 JMPR except when all MRLs were proposed for withdrawal, as is the case for folpet or when no ADI existed, as is the case for formothion. Of the pesticides considered, 22 had TMDI, DIE or IEDI estimates that were below the ADI for all five regional diets: amitraz, amitrole, benomyl, bentazone, bitertanol, carbendazim, 2,4-D, dicloran, dinocap, diphenylamine, ethoxyquin, glufosinate-ammonium, hexythiazox, kresoxim-methyl, maleic hydrazide, methiocarb, mycobutanil, oxydemeton-methyl, phosmet, procymidone, quintozone, thiophanate methyl. Because of concerns for cumulative toxicity, residues of benomyl, carbendazim and thiophanate-methyl were considered together.

32. The best international intake calculations for dimethoate (IEDI), disulfoton (DIE) and endosulfan (TMDI) exceeded their corresponding ADIs in one or more of the regional diets. Data to calculate more refined exposure estimates for these pesticides, such as STMRs in the cases of disulfoton and endosulfan and processing factors in all three cases, were not available. In addition, factors only available at the national level, such as percent of crop treated and monitoring data, could not be applied at the international level. Consequently, the current dietary intake assessments were likely to overestimate exposure. However, it should be noted that consideration of aggregate exposure and cumulative toxicity may result in a higher exposure estimate but information and/or methodologies were not currently available at the international level to take these factors into account.

33. The Observer from CI expressed concern over the reporting of dietary intake calculations stressing that it should be more balanced by noting that cumulative and aggregated exposure, non-dietary exposure and vulnerability of infants and young children might result in higher exposure. To put the discussion into perspective, the Chairperson reminded the Committee that it had agreed at its 29th Session upon an approach for chronic dietary risk assessment at the international level and its implementation in establishing Codex MRLs. It had considered the agreed approach as a balanced one, safeguarding the health of consumers while not unnecessarily disrupting international trade. The 30th Session of the Committee had considered the issue again and had identified further areas of interest where progress at the international level was expected to be feasible. Specific requests had been referred

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<sup>9</sup> CX/PR 99/4.

<sup>10</sup> WHO, 1997.

to the JMPR for consideration in order to further improve the international chronic dietary intake assessment. The Chairperson also indicated that the issue of aggregate exposure was a matter best addressed at the national level and that progress was being made at the national and international level with respect to cumulative exposure estimation. The Committee noted that although the current methodology for chronic dietary exposure was still under development, it was generally accepted by the Committee.

34. Regarding acute hazards, the 1998 JMPR established Acute RfDs for amitraz, dinocap, endosulfan, methiocarb and phosmet. Short-term exposure assessments of acute hazards posed by these pesticides would be undertaken after databases on large portion single day consumption (eaters only) for the general population and children aged 6 and under, and on typical median commodity weights had been established by GEMS/Food. Governments which have such data, but have not yet submitted it to WHO, were requested to do so at their earliest opportunity<sup>11</sup>.

### **Processing studies for improving estimates of dietary intake of pesticide residues<sup>12</sup>**

35. The revised Guidelines for Predicting Dietary Intake of Pesticide Residues highlighted the usefulness of processing studies to more accurately estimate pesticide residues in food as consumed. Although some commodities are directly consumed fresh, most commodities will undergo some processing, either commercial or in the home. In order to promote the development of appropriate processing studies which were more representative of the predominant processes used by industry and consumers and to assist in the interpretation of processing studies submitted to the JMPR as well as for other purposes, GEMS/Food had developed a questionnaire<sup>13</sup> to obtain more detailed information on food processing practices in different countries. The questionnaire was tested in cooperation with the International Union of Food Science and Technology (IUFOST) and its member institutions. A preliminary evaluation of the responses received from IUFOST adhering bodies indicated that such processing information would be useful at both the national and international levels.

36. The Committee recognized the usefulness of the questionnaire but noted that the results needed to be interpreted with caution in view of the semi-quantitative basis of the data. In addition, several delegations pointed out a number of improvements that should be considered, including the addition of milk, meat, hops and herbs to the questionnaire. In addition, the questionnaire should be reviewed to assure that all commodities for which Codex MRLs had been established or were being elaborated were included. With these revisions, the Committee **decided** that the GEMS/Food questionnaire should be sent to governments in a circular letter for response. A report on the results of the survey would be prepared for the next Session.

## **CONSIDERATION OF RESIDUES OF PESTICIDES IN FOOD AND ANIMAL FEEDS (Agenda Item 6)**

### **General Considerations**

37. The Delegation of the United States informed the Committee that the US Food Quality Protection Act required greater attention to the question of residues in food, particularly children's food, and that USEPA was actively addressing the issues of common mechanisms of action. The Delegation expressed its support for the JMPR efforts in this area and, once the US methodologies and policy were established, they would be provided to the JMPR. Based on these comments, the Delegation was of the opinion that MRLs for certain organophosphates should not advance pending results of current studies on these compounds at the national and international levels. This view was shared by the Observer from Consumers International. (see para. 22)

38. The European Community expressed its difficulties in accepting evaluations of the JMPR when: (1) all data points were accommodated in estimating an MRL without their statistical analysis; (2) an

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<sup>11</sup> See CL 1998/29-PR.

<sup>12</sup> CX/PR 99/5.

<sup>13</sup> CRD 8.

MRL was based on the combination of residue data from trials supporting different GAPs without identifying the critical GAP; and (3) an MRL was based on a GAP where no growth stage or PHI was specified or PHI was 0-day.

### **Proposed Draft MRLs at Step 5**

39. The Committee noted that those Proposed Draft MRLs/EMRL advanced to Step 5 by the Committee at its last Session had not been considered by the 45th Session of the Executive Committee due to the short interval between the sessions of the CCPR and Executive Committee. These MRLs would be considered by the Codex Alimentarius Commission (CAC) for adoption at Step 5 at its 23rd Session in 28 June-3 July this year and delegations were invited to comment prior to that Session.

#### **(A) DRAFT AND PROPOSED DRAFT MAXIMUM RESIDUE LIMITS AT STEPS 7 AND 4<sup>14</sup>**

##### CAPTAN (007)

40. The Delegations of Chile and France and the Observer from the EC expressed their concern about the proposed draft MRL for grapes, as the fermentation process at wine production was affected by high levels of captan. They preferred a PHI of more than 0 days and a lower MRL. The Committee was informed that a full data package would be made available to the 2000 JMPR and that GAPs would likely be revised. Governments were **requested** to submit information on GAP and their comments on the MRL proposals to the JMPR.

##### CARBARYL (008)

41. The Committee **decided** to recommend to the CAC to replace all existing CXLs with temporary MRLs at the same levels as respective CXLs, as the TMDI significantly exceeds the ADI which had been reduced by the 1996 JMPR. The Committee **agreed** on a timeframe of 4 years for these temporary MRLs. New studies would be available for toxicological evaluation by the 2000 JMPR and periodic review of residue data in 2001. The Delegation of Germany asked for an Acute RfD to be estimated by the JMPR.

42. The Committee noted that its use on animal feedingstuffs was no longer supported. As this might not reduce the intake concerns, the Committee **requested** written confirmation of precise information on the availability of studies and GAP before the next CCPR.

##### CHLORFENVINPHOS (014)

43. The Committee **decided** to retain the CXLs for Brussels sprouts, head cabbages, cauliflower and carrot for 4 years under the periodic review procedure as new residue data would become available. The Committee **recommended** revocation of all other CXLs as these commodities were no longer supported.

##### CHLORMEQUAT (015)

44. The Observer from the EC noted that the ADI was based on a neurotoxic effect and asked that JMPR estimate an Acute RfD. The Committee was informed that two 28-day feeding studies on rat and dog were available for evaluation by the 2000 JMPR.

##### DIAZINON (022)

45. The Delegations of New Zealand and Australia highlighted that there were pressing trade issues associated with these MRLs. The Delegation of New Zealand proposed to advance these proposed draft MRLs for final adoption with omission of Steps 6 and 7. However, as new scientific information had been submitted to the JMPR for consideration in 1999, the Committee **decided** not to take actions on these MRLs awaiting the evaluation of the 1999JMPR.

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<sup>14</sup> CX/PR 99/6, CX/PR 99/6-Add.1 (CRD 4; comments from Australia, Brazil, Denmark, Germany, Indonesia, Netherlands, New Zealand, Poland, Slovak Republic, South Africa, Thailand, United States of America, Consumers International, and European Community), and CRD 11 (comments from European Community)



DICOFOL (026)

46. At the 30th Session of the Committee, the manufacturer was requested to provide revised STMR estimates. Based on them, only the IEDI for the European diet exceeded the ADI calculated using all commodities. However, by excluding pome fruit, the IEDI did not exceed the ADI for the European diet. The Delegation of the United States explained that the reference dose was not exceeded for either the general population or children in the country as the US calculation included refinements such as percent of crop treated and survey data. The Committee **decided** to withdraw the draft MRL for pome fruit. The Committee **decided** to recommend revocation of the general CXL for fruits as recommended by the 1992 JMPR and to advance the MRL for milks to Step 8.

DIMETHOATE (027)

47. The Committee should consider at its next Session deletion of those CXLs recommended for withdrawal by the 1998 JMPR.

ENDOSULFAN (032)

48. The Delegation of the USA and the Observer from the EC informed the Committee that they both had endosulfan under review. The US Delegation informed the Committee that new field trials on broccoli were available and encouraged the petitioners to make this data available to the JMPR.

49. The Committee was informed that the residue evaluation by the JMPR had been postponed to the year 2003 and that the following commodities would be supported: cacao bean, citrus, coffee beans, cotton seed, wine- and table grapes, hazelnut, melon (except watermelon), peach, pineapple, pome fruit, potato, soya beans, sugar beet, tea and tomato. Written confirmation of commodities supported was **requested** to be sent to the FAO secretary of the JMPR. The Committee should consider at its next Session revocation of CXLs which would no longer be supported.

ETHOXYQUIN (035)

50. The Committee noted that the 1998 JMPR had lowered the ADI. The Committee postponed deletion of the CXL on pear pending the residue evaluation by the 1999 JMPR.

FENTHION (039)

51. The Delegation of Germany informed the Committee that residues in citrus fruits were only found in the inedible part of the fruit and, therefore, there was no concern for acute exposure. The Committee was informed that animal feeding studies and new data on olives would be available for the 2000 JMPR as well as data supporting the new GAP on oranges and mandarins. However, data from trials on oranges and mandarins that were planned for this year would not be available in time for evaluation in 2000.

52. The Delegation of the USA indicated that they could not support advancement of the draft MRLs pending the outcome of their cumulative risk assessment process on organophosphate pesticides.

53. Taking into account the comments of several delegations, the Committee **decided** to retain the draft MRLs to Step 7(7B), awaiting the residue evaluation by the 2000 JMPR.

FOLPET (041)

54. The Committee was informed that review of environmental fate data was scheduled for the 1999 JMPR. The Committee should consider at its next Session deletion of those MRLs and CXLs recommended for withdrawal by the 1998 JMPR.

LINDANE (048)

55. The Committee was informed that lindane was scheduled for evaluation by the JMPR in 2001 (toxicology) and 2003 (periodic review of residue data). On the question of whether or not to revoke existing CXLs, several delegations preferred to recommend their revocation at the present Session as: (1) TMDIs greatly exceeded the temporary ADI; (2) lindane had been banned in many countries; (3) lindane had limited uses; and (4) last evaluation of lindane by the JMPR was in 1989. However, as

lindane was intended to be supported, the Committee **decided** to postpone to its next Session considerations on revocation of CXLs (except those accompanied by the letter "E" ), awaiting detailed information on which commodities would be supported and what data would become available. The Committee noted the temporary ADI would remain until 2001 when the periodic review of toxicological data was scheduled.

#### MEVINPHOS (053)

56. The Committee noted that residue trial data would be submitted for broccoli, Brussels sprouts, cauliflower, citrus fruits, cucumber, grapes, melons (except watermelon), peas (pods and succulent = immature seeds), spinach, strawberry and tomato. It **decided** to maintain the CXLs for these commodities for 4 years under the periodic review procedure. The Committee also **decided** to recommend revocation of the CXLs for commodities use of which were no longer supported.

#### OMETHOATE (055)

57. The Committee noted that omethoate was no longer supported and the 1998 JMPR had withdrawn all previous proposals. The Committee would consider withdrawal of all MRLs at the 32nd Session.

#### 2-PHENYLPHENOL (056)

58. The Committee **decided** to recommend revocation of the CXL for apple and noted that data to support the CXLs for citrus fruits and pear had been submitted for the 1999 JMPR review.

#### PARATHION (058)

59. The Committee **decided** to advance the draft MRL for apple to Step 8 noting some reservations.

#### PHOSALONE (060)

60. The Committee **decided** to recommend revocation of the CXLs for citrus fruits, grapes and potato as they were no longer supported. The Committee **decided** to retain the CXL for apple beyond the 4 year period awaiting the 1999 JMPR review as it noted that new data had been submitted.

#### QUINTOZENE (064)

61. The Committee noted that the 1998 JMPR had suggested withdrawal of the CXLs for lettuce (head) and potato for consideration at the next Session of the Committee.

#### THIABENDAZOLE (065)

62. The Committee noted that CXLs for apple, citrus fruits, pear and strawberry would be supported and new data had been developed for mango and avocado.

63. The Committee also noted that the proposed draft MRL of 60 mg/kg for mushrooms (VO 0450) was missing from the list of MRLs<sup>15</sup> and this MRL would be discussed at the next Session at Step 4.

64. The Committee discussed the proposed draft MRLs for some animal products. The Commission of the EC was requested to submit in writing their concerns regarding the residue definition and availability of analytical methods to both JMPR/JECFA and Codex secretariats. Since thiabendazole is also used as a veterinary drug, it was stressed that coordination and harmonization between the CCPR and CCRVDF was essential.

65. The Committee **recommended** to revoke CXLs for cereal grains, onion bulb, sugar beet, sugar beet leaves or tops, sugar beet molasses, sugar beet pulp (dry), and tomato as recommended by the 1997 JMPR. The Committee **decided** to retain the CXLs for apple, citrus fruits, pear, and strawberry under the periodic review procedure as new data became available for the 2000 JMPR review.

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<sup>15</sup> CX/PR 99/6, Part 1.

CARBENDAZIM (072)

66. The Committee noted the 1998 JMPR recommendation to withdraw the CXLs for a number of commodities and that it would consider them next year.

DISULFOTON (074)

67. The Committee **decided** to return all draft MRLs to Step 6 for government comments and subsequent discussion next year.

THIOMETON (076)

68. The Committee **recommended** to revoke all CXLs as the compound was no longer supported.

CHINOMETHIONAT (080)

69. Since the compound was no longer supported, the Committee would consider the deletion of all CXLs next year.

CHLOROTHALONIL (081)

70. The Delegations of Brazil, France and Spain expressed their concern that the proposed draft MRL would not be sufficient for unbagged bananas, as the MRL was based on only data from bagged bananas. The Committee **requested** governments and concerned parties to submit information on unbagged bananas for evaluation by the JMPR.

71. The Delegation of the USA disagreed with the residue definition and expressed concern that data from Italian trials were not included in the evaluation of trial data on peach. The FAO Joint Secretary requested governments and concerned parties to provide relevant information on GAP in South Europe on peach to the JMPR for consideration together with available residue data.

CHLOPYRIPHOS-METHYL (090)

72. Several delegations expressed their concern regarding the IEDI calculations made by the manufacturer as the IEDI exceeded the ADI for all regional diets. The manufacturer was willing to improve the IEDI calculation for the next Session.

73. Based on questions of the Delegations of Japan and the USA, the Committee **decided** to refer for further consideration by the JMPR the question on minimum data requirements to establish MRLs and STMRs for post-harvest uses.

74. The Committee **decided** to return the draft MRLs for barley, oats and rice to Step 6 for reconsideration at the next Session; and to recommend revocation of the CXL for maize as this commodity was no longer supported.

75. The Delegation of Australia expressed concern that the selection of certain MRLs for amendments to address the exceedence of the ADI was somewhat arbitrary and suggested the need for the development of a procedure to consistently identify appropriate risk management options, when IEDI calculations exceed the ADI. Delegations of Australia, Canada, New Zealand, United States of America, the EC and the Codex secretariat would prepare a paper on this subject for the next Session addressing the issue of which uses to support when the ADI was exceeded.

CARBOFURAN (096)

76. The Delegation of Thailand informed the Committee that new data would be generated on rice, maize, sweet corn, soya bean (dry) and soya bean (immature), which would be submitted to the JMPR. The Committee noted that the following crops would be supported: carrot, cotton seed, egg plant, maize, maize fodder, oats, onion bulb, rapeseed, husked rice, soya bean, sugar beet, sweet corn (corn on the cob), tomato and wheat. The Committee **decided** that for these crops the CXLs would remain for 4 years under the periodic review procedure, awaiting the evaluation by the JMPR in 2002. In addition, there would be support for grapes, peanut, pepper, sunflower seed and turnip. The Committee **decided** to recommend revocation of the CXLs for commodities not supported.

77. The Committee confirmed, as proposed by the 1997 JMPR, the CXLs for banana; cattle fat; edible offal of cattle, goats, horses, pigs and sheep; goat fat; horse fat; meat of cattle, goats, horses, pigs and sheep; milks; pig fat; sheep fat; and sugar cane.

78. The Committee noted that the compound had been scheduled for the 2002 JMPR for both residues and toxicological (Acute RfD) evaluation.

79. The Committee noted that (\*) should be added to the MRL for potato because the 1997 JMPR determined that residue levels in all trials were below the limit of determination. The Committee **advanced** the MRLs of sorghum and sweet corn (corn on the cob) to Step 5 since it was unclear whether (\*) should have been added to the MRL. The Committee **requested** the FAO Secretary to the JMPR to look into this problem regarding whether (\*) was necessary for these MRLs. The Observer from the EC noted that, although the 1997 JMPR had concluded that an MRL for citrus fruits should be established for carbofuran and carbosulfan, only an MRL for oranges (sweet, sour) had been recommended; and requested that an MRL for mandarin be elaborated. (see para. 95)

#### METHAMIDOPHOS (100)

80. It was noted that methamidophos was scheduled for a periodic review by the 2000 JMPR where an Acute RfD would be established. The Committee **returned** the MRL for pome fruits to Step 6 for consideration at its next Session together with the proposals for peach and tomato at Step 6.

#### PHOSMET (103)

81. The Committee noted that the residue definition should read as phosmet (parent compound only). The Committee was informed that all commodities except feijoa and kiwifruit would be supported and precise information on date availability would be provided to the Committee well in advance of the next Session. Several delegations expressed their concern regarding acute dietary intake, especially for children. The Committee **requested** WHO to include phosmet as one of the worked examples when the Committee considers the proposed IESTI methodology at its next Session.

#### DITHIOCARBAMATES (105)

82. The Committee noted that manufacturers had provided revised STMR-P estimations for EBDCs<sup>16</sup> and ETU<sup>17</sup> with regard to apple juice as requested at the last Session. The values for EBDCs and ETU in wine were already included in the STMR estimations provided to the 30th Session. The IEDIs of the EBDCs were recalculated for the 5 regional diets, resulting in the IEDIs of EBDC ranging from 3-36% of the ADI.

83. The Committee was informed that EBDC (mancozeb/maneb) trial data on apple, asparagus, banana, barley, beans, broccoli, head cabbages, cauliflower, celery, cucumber, dry beans, grapes, hops (dry), leek, head lettuce, maize, maize fodder, mandarins, melons (except watermelon), oats, onion bulb, oranges (sweet, sour), peas, pear, potato, rapeseed oil, rye, sweet peppers, summer squash, sugar beet, sweet corn (corn-on-the cob), tomato and wheat would be submitted to the JMPR for the evaluation in 2002. A toxicological evaluation of PTU<sup>18</sup> was scheduled for the 1999 JMPR, while residue evaluation for propineb was tentatively scheduled for 2003.

84. Several delegations regretted the unavailability of appropriate specific analytical methods for ziram and other individual dithiocarbamates in order to perform adequate and separate risk assessment.

#### ETHEPHON (106)

85. The Committee noted that GAP and/or trial data had been received for cantaloupe, grapes, peppers, pineapple, and tomato together with limited data for watermelon for evaluation by the JMPR. The Committee **decided** to retain the draft MRLs at Step 7(7B), pending the 1999 JMPR residue evaluation.

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<sup>16</sup> Ethylene bis(dithiocarbamate).

<sup>17</sup> Ethylene thiourea.

<sup>18</sup> Propylene thiourea.

IPRODIONE (111)

86. The Committee noted that new indoor trials on tomato were being conducted and would be available for review by 2000 subject to scheduling for JMPR evaluation. The Committee **agreed** to extend the 4-year period under the periodic review procedure for the CXL for tomato.

PHORATE (112)

87. The Committee **decided** to recommend revocation of the CXLs on barley, rape seed and tomato and to withdraw the draft MRL for carrot since these commodities were no longer supported.

GUAZATINE (114)

88. The Committee noted the absence of an ADI for this compound. Data would be submitted in 2000 to support the CXL for citrus fruits. The Committee **agreed** to recommend revocation of all existing CXLs as recommended by the 1997 JMPR. However, the Committee decided to introduce a guideline level for cereal grains at 0.05 mg/kg as recommended by the 1997 JMPR and another for citrus fruits at the same level as the current CXL, pending the establishment of a new ADI.

ALDICARB (117)

89. The CXL for banana was **recommended** for revocation as no confirmation was received on the data availability.

CYPERMETHRIN (118)

90. The Committee **invited** governments to comment at Step 8 on the MRLs advanced by CCRVDF prior to the next Session of the CAC in June 1999. The Committee noted that these MRLs were different from those recommended by the CCPR. The FAO Joint Secretary of the JMPR would contact the manufacturers to determine if both cypermethrin and alpha-cypermethrin were to be reviewed together at the 2000 JMPR under the periodic review programme.

PHENTHOATE (128)

91. The Committee **decided** to recommend to revoke for all CXLs as the compound was no longer supported.

AZOCYCLOTIN (129)

92. The Committee **agreed** to consider deletion of the existing CXLs and MRLs at its next Session, as the use of the compound would no longer be supported. Recognizing the relationship between azocyclotin and cyhexatin (67), the Committee **requested** information on the support of cyhexatin and which commodities would be supported before its next Session.

DELTAMETHRIN (135)

93. The Committee noted that MRLs estimated by the JECFA for veterinary uses would be circulated for comments at Step 3 through a circular letter, CL-RVDF. Governments were **invited** to coordinate their comments at the national level.

PHOXIM (141)

94. The Committee **decided** to recommend revocation of all CXLs as the compound was no longer supported for agricultural uses.

CARBOSULFAN (145)

95. On the question of an MRL for oranges (sweet, sour) and the conclusion of the 1997 JMPR that an MRL for citrus fruits should be established, the Committee **decided** to consider the matter at the next Session. (see para. 79)

CYFLUTHRIN (157)

96. The Committee was informed that the CCRVDF had recommended MRLs for several animal commodities. As a follow-up to the decision of its last Session, the Committee **agreed** to support the MRL for milk (0.04 mg/kg on whole milk basis), which had been advanced by the CCRVDF to Step 5 for adoption by the CAC, for the sake of harmonization.

GLYPHOSATE (158)

97. The Delegation of France proposed to include the metabolite AMPA<sup>19</sup> (198) in the residue definition (see para. 105).

OXYDEMETON-METHYL (166)

98. The Committee noted the recommendation of the 1998 JMPR to withdraw a number of MRLs. The Committee **requested** the JMPR to clarify whether demeton-S-methyl and demeton-S-methyl-sulphon should remain in the residue definition.

ABAMECTIN (177)

99. The Committee noted that, for animal products, residue definitions were different between the CCPR and CCRVDF. Without a harmonized residue definition, the EC opposed their advancement beyond Step 6. The Delegation of Germany noted that no reference material for the metabolite 8,9-Z-avermectin B1b was available. The Committee **decided** to return all draft MRLs to Step 6. It further **decided** that information should be sought through a circular letter on the residue definition for animal products.

BIFENTHRIN (178)

100. The Committee noted that the 1997 JMPR had not recommend changing the MRLs for animal products despite that a higher MRL had been proposed for wheat. The Delegation of Australia informed the Committee on processing (milling) studies on wheat which were in progress.

MYCLOBUTANIL (181) (see Annex II)CLETHODIM (187)

101. The Committee noted that this compound was scheduled for residue evaluation by the 1999 JMPR. The Committee **invited** Germany, the United States and the Netherlands to forward written comments on this compound to the JMPR. The Committee **decided** to advance the MRLs for alfalfa fodder, beans (except broad bean and soya bean), folder beet, garlic, onion bulb, peanut and tomato to Step 5 and to return all draft MRLs to Step 6.

TEBUCONAZOLE (189) (see Annex II)HALOXYFOP (194)

102. The Delegations of Germany and Netherlands had already submitted extensive written comments on this compound to the Chairperson. The Delegation of France was asked to send written comments to the CCPR. The Committee **postponed** discussions to the next Session to fully consider these written comments.

TEBUFENOZIDE (196)

103. The Committee noted that the information on current GAP had been provided to the JMPR by Germany. The Delegation of France withdrew its earlier reservation concerning the lack of processing studies for grapes.

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<sup>19</sup> Aminomethylphosphonic acid.

FENBUCONAZOLE (197)

104. The Delegation of the Republic of Korea informed the Committee of their national limits for a number of commodities being discussed.

AMINOMETHYLPHOSPHONIC ACID (AMPA) (198)

105. Several Delegations expressed their reservations regarding establishing MRLs for a metabolite residue resulting from the treatment of a genetically-modified commodity with glyphosate. They stated that there must be a clear policy on how to deal with a number of issues regarding genetically modified crops. The Committee **agreed** that a short paper should be prepared by Canada in collaboration with Australia, South Africa, United States of America, Commission of the EC and GCPF, on the feasibility of establishing MRLs for genetically modified crops and metabolite residues for consideration at the next Session.

**(B) DRAFT AND PROPOSED DRAFT EXTRANEIOUS MAXIMUM RESIDUE LIMITS****“Criteria” for Setting EMRLs<sup>20</sup>**

106. The Committee recalled that it had considered at its last Session document CX/PR 98/8 which had been prepared by the United States of America. The paper had addressed the issue of criteria for setting EMRLs. The Committee had agreed to the suggested CCPR positions except for those on treating outliers and violation rates. The Committee had decided that comments should be sought from Member governments on their current practices in treating outliers and on what violation rates were used.

107. Document CX/PR 99/7 had been prepared by the United States in collaboration with Australia, New Zealand, Netherlands, South Africa and the Codex Secretariat, containing the agreed CCPR positions, the new suggested positions on outliers and violation rates, the summary of government comments, and the comparison of the approaches used by this Committee and the CCFAC. In presenting the paper, the Delegation of the United States explained that the new suggested CCPR positions had been prepared for treating outliers and violation rates to accommodate divergent practices as submitted by countries and to provide for flexibility for the JMPR and governments. The Delegation proposed that discussions should focus on these two items.

108. The Committee generally **supported** the new suggested CCPR positions and was of the view that: EMRLs should be established to be protective of the public health in the first instance; and treatment of outliers and selection of violation rate should be on a case-by-case basis and required flexibility. Several delegations stated that the CAC had a mandate to protect consumers' health and to facilitate international food trade and other issues for consideration were secondary to these two primary mandates. In order to provide for further flexibility, the Committee **agreed** to delete the term “unique” from Point 15 “Outliers” and to delete the third sentence reporting a violation rate range, considered to be inconsistent with the goal of the Committee, from the last paragraph of Point 16 “Violation Rates”. The Committee noted that the amended “Agreed CCPR position on estimation of EMRLs”<sup>21</sup> would be included in future working documents on MRLs/EMRLs for reference.

109. The Committee **requested** that the JMPR would consider providing several options when it estimates EMRLs to enable this Committee to make appropriate risk management decisions.

110. The Delegation of Australia introduced the comparison of the approaches used by the CCPR and CCFAC indicating that, while they were in parallel, there were a number of significant differences. It was also noted that the CCFAC approach was still under development within the framework of the General Standard for Contaminants and Toxins in Foods. For the sake of better harmonization and consistency throughout Codex, the Committee **decided** to send the “Agreed CCPR Positions on Setting EMRLs” to the CCFAC for their consideration.

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<sup>20</sup> CX/PR 99/7, CX/PR 99/7-Add.1 (CRD 1)

<sup>21</sup> Appendix VIII of this report.

111. The Committee **thanked** the Delegation of the United States and all other parties involved in the development of the paper of their work and efforts.

### **Need for EMRL for Camphechlor in Fish<sup>22</sup>**

112. The Committee recalled that at its last Session, in response to the request of the Delegation of Germany for an EMRL for toxaphene in fish, Germany had been asked to prepare a paper for consideration at this Session taking into consideration the *FAO Manual on the Submission and Evaluation of Pesticide Residues Data for the Estimation of Maximum Residue Levels in Food and Feed* and CX/PR 98/8. The Committee noted that the ISO name of toxaphene was camphechlor and **agreed** to use the ISO name.

113. The Delegation of Germany presented document CX/PR 99/8 which contained background information, toxicological aspects of camphechlor, analytical methods, residue definition, and estimation of a possible EMRL. The Delegation advised that all information and data currently available could be provided to the JMPR for estimation of a PTDI and an EMRL. The Committee noted that the elaboration of an EMRL for camphechlor fell within the Terms of Reference of this Committee<sup>23</sup>.

114. Some delegations supported the elaboration of an EMRL for camphechlor for health and trade reasons. The Delegation of the United States<sup>24</sup> and some other delegations did not support this proposal for several reasons. Points requiring further consideration include: lack of an ADI; residue definition; intake estimates; source of the residues; relationship between residue levels and fish species/location of fish catch; portion of fish where residues were found; and risk management possibilities. It was noted that as camphechlor was an old compound, it would be more beneficial to the work of CCPR to give higher priority to newer compounds. The Committee, therefore, **agreed** to seek government comments on the paper through a circular letter which should also request information on trade problems and availability of monitoring data. Based on comments submitted in response to this circular letter, Germany agreed to prepare a new paper for consideration at the next Session of the Committee.

### **Extraneous Maximum Residue Limits**

#### DDT (021)

115. At the 30th Session the Committee had decided to advance the EMRL in meat to Step 5 and to discuss it again at its current Session in view of the new approach for EMRLs. However, the EMRL had not been considered by the Executive Committee and, therefore, had not been included in a circular letter. Nevertheless, because of the importance of the subject, the Chairperson opened a discussion on it again at Step 4 noting that delegations might not have been prepared.

116. The Delegation of New Zealand offered a proposal to the Committee to advance the EMRL for meat to Step 5 with omission of Steps 6 and 7 for adoption at Step 8. They noted that the JMPR had highlighted that there were no exposure problems identified and that when governments had exposure concerns they could always set lower limits at the national level when required to protect public health in their country in conformity with the provisions of the SPS Agreement. They further highlighted that this Committee had effectively dealt with the outliers and violation rate issues; no new residue data were expected; there were significant trade problems; and the evaluation of the 1996 JMPR resulted in the reconfirmation of the current temporary Codex EMRL of 5 mg/kg in meat<sup>25</sup>.

117. The Delegations of Australia and the United States supported the proposal. However, the Delegation of Norway and Observer from the EC expressed their reservations to this proposal. The Chair referred to the discussion at the last Session and reminded the Committee that the EC had

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<sup>22</sup> CX/PR 99/8, CRD 2 (comments from USA), CRD 12 (updated Table prepared by Germany).

<sup>23</sup> Codex Alimentarius Commission Procedural Manual, Tenth Edition, page 93, item (f).

<sup>24</sup> See CRD 2.

<sup>25</sup> The previous JMPR proposal was at 1 mg/kg made in 1993.



reservations with the 1996 Evaluation based on a different interpretation with regard to the selection of outliers and violation rates.

118. The Observer from the EC explicitly asked for a clarification regarding the existing trade problems, since the current CXL actually is 5 mg/kg and, although temporary, it had been adopted by the CAC. The Delegation of New Zealand gave an explanation to problems being experienced in trade due to several countries ignoring the current Codex EMRL because of its temporary status. The Delegation of Australia reported on its trade difficulties due to small violation.

119. In view of the lack of consensus, the proposed draft EMRL was advanced again to Step 5 for adoption by the CAC. The Delegation of New Zealand invited those delegations with reservations to its proposal to provide their scientific rationale and justification for their lower national limits.

120. The Chairperson, to facilitate consensus, proposed to seek comments on a level of 3 mg/kg in addition to the proposed draft EMRL of 5 mg/kg when the latter was advanced to Step 6. Using a 0.5% violation rate, 3 mg/kg seemed to be an appropriate level based on the 1996 Evaluation. However, this proposed value did not conform to the geometric progression approach used by the JMPR for estimating MRLs and EMRLs. It was decided that for requesting comments on two different values, the level of 3 mg/kg would be placed between square brackets to illustrate its status as an alternative proposal. The Chairperson suggested requesting the JMPR to consider this proposal concerning its statistical validity and non-conformity to the geometric progression on the basis of the 1996 JMPR evaluation when it reviews residue data on DDT in 2000. The Committee would then possibly be able to discuss the EMRL again at its 33rd Session, in time for advancing it to Step 8 for adoption by the CAC in 2001. The Committee **accepted** the Chairperson's proposal.

121. The Delegation of New Zealand requested its opposition to the decision by the Committee not to advance the EMRL in meat be recorded in the Report. The Delegation noted that: there had been no identified intake concerns; significant trade problems had been highlighted by 2 countries; the other EMRLs for DDT had already advanced several years previously; and the sole reason provided by Norway and the EC was that they had a different level in their legislation. The New Zealand Delegation was concerned that this was not consistent with current Codex principles and was unduly delaying an urgently needed EMRL. The Delegation was also strongly opposed to the proposal put forward by the Chairperson, and agreed by the Committee, to request comments on an arbitrarily chosen value as an alternative to the JMPR recommendation. They were concerned that this was neither consistent with the established Codex principles that standards should be based on science and risk analysis, nor was it compatible with the provisions of the WTO's SPS agreement.

### **(C) GUIDELINE LEVELS**

#### **METHYLBROMIDE (052)**

122. After debating and recognizing other initiatives at the international level, the Committee **decided** to retain the current guideline levels.

### **RECOMMENDATIONS FOR METHODS OF ANALYSIS AND SAMPLING (Agenda Item 7)**

123. The Chairperson of the ad hoc Working Group on Methods of Analysis and Sampling, Dr P. van Zoonen, presented the report of the Group.

#### **(A) DRAFT REVISED RECOMMENDED METHODS OF SAMPLING FOR THE DETERMINATION OF PESTICIDE RESIDUES FOR COMPLIANCE WITH MRLS<sup>26</sup>**

124. The Committee recalled that it had advanced the Draft Revised Recommended Methods of Sampling<sup>27</sup> to Step 8 at its last Session and referred the text to the CCRVDF and CCMAS. The comments of these Committees and those from International Dairy Federation were referred to the

<sup>26</sup> CX/PR 99/2 and CX/PR 99/2-Add.1, CRD 5 (Report of the ad hoc Working Group on Methods of Analysis and Sampling).

<sup>27</sup> ALINORM 99/24, Appendix II.

Working Group (see para. 6). The Committee considered the Draft Revised Methods of Sampling at Step 7.

125. The Working Group considered all comments submitted to the Committee and recommended the incorporation of many of them, mostly of editorial nature. For those comments not recommended for incorporation, the reasons for non-incorporation were provided in the report of the Working Group. The Working Group also recommended the inclusion of some worked examples as an Annex to the Guidelines.

126. Based on the comments made at the Session, the Committee **agreed** to the following:

- To accept changes suggested by the Working Group;
- To add the term “for pesticides” at the end of Section 1 Objective to further clarify that the Methods of Sampling applied only to pesticide residues;
- To replace the wording in Section 2.1 with the second sentence of the definition of Codex MRL contained in the *Procedural Manual* to highlight that, by ensuring that GAP was followed, consumer protection would be ensured;
- To insert the term “should be recorded and” in Section 3.8 after the term “mixing” in the third sentence; and
- To separate the schematic in Annex II into two: one for poultry and meat and another for other commodities.

127. The Committee **agreed** to advance the Draft Revised Recommended Methods of Sampling for the Determination of Pesticide Residues for Compliance with MRLs to Step 8 for adoption by the Commission at its 23rd Session. The agreed text is attached to this report as Appendix III.

**(B) REVIEW OF THE CRITERIA FOR SELECTION OF METHODS OF ANALYSIS AND IN-HOUSE VALIDATION OF METHODS OF ANALYSIS FOR PESTICIDE RESIDUES<sup>28</sup>**

128. The Committee was informed by the Chairperson of the Working Group of Methods of Analysis and Sampling that the list of methods of analysis had been developed over a long period of time. Criteria to select methods exist but no such criteria exist for their deletion. Based on a number of responses to a request to identify commonly used methods in government laboratories or other laboratories involved in the determination of MRL compliance and whether these methods met the Codex and CCPR criteria<sup>29</sup>, and on discussions within the Working Group, the Committee **agreed** to the following process:

- i. A set of performance and validation criteria should be established to serve as a basis for judging the suitability of analytical methods for Codex purposes. These criteria would be included in Volume 2 of the *Codex Alimentarius* with reference to the “List of Methods in Use”.
- ii. The Working Group should prepare a “List of Methods in Use” which were known to meet the established performance criteria. The detailed description of methods, together with tests demonstrating their performance, would be included in the data base recommended by the FAO/IAEA Training and Reference Centre for Food and Pesticide Control (TRC) to facilitate practical implementation of method validation. The data base would be accessible on the Home Page of the TRC and regularly updated and expanded. The “List of Methods in Use” would be reconsidered at regular intervals and the old methods automatically deleted unless evidence is received on their continued use.
- iii. Until the validation criteria were established, the current list of recommended methods would not be revised or expanded.

129. The Committee was informed that the Working Group had discussed in-house validation in detail due to accreditation requirements. It noted that the Joint FAO/IAEA Expert Consultation on Validation of Analytical Methods for Food Control<sup>30</sup> had concluded that in-house validation was

<sup>28</sup> CX/PR 99/9, CX/PR 99/19, CRD 5.

<sup>29</sup> CL 1998/30-PR.

<sup>30</sup> *Validation of Analytical Methods for Food Control*, Report of a Joint FAO/IAEA Expert Consultation, Vienna, Austria 2-4 December 1997, Food and Nutrition Paper 68, FAO.

acceptable as a way of validation of methods. The Committee **agreed** with the proposals of the Working Group that: (1) comments should be sought through a circular letter on performance criteria of analytical methods for pesticide residue determination (Summer 1999); and (2) the Delegation of the Netherlands would collect detailed information on extraction efficiency and stability of residues in storage and in solution which were critical to in-house method validation. Based on comments provided in response to the above actions, the Netherlands would prepare a paper for consideration by this Committee at its next Session.

130. The Representative of FAI/IAEA informed the Committee of its activities including an International Workshop on Method Validation to be held in Budapest from 4 to 6 November 1999 under the auspices of FAO, IAEA, AOAC International and IUPAC. The FAO/IAEA TRC had initiated the elaboration of a Practical Approach to Validation of Multi-residue Methods with a view towards providing it to the relevant Codex Committees for consideration and subsequent adoption by the Codex Alimentarius Commission. The Representative invited participants of the CCPR to take part in the elaboration of the Practical Approach by contacting Dr Ambrus of FAO/IAEA.

131. Recognizing the need for harmonization, Committee **agreed** that once a new paper became available on in-house method validation, it should be sent to the CCMAS and CCRVDF to ensure consistency within Codex.

132. The Committee **agreed** that a working group should convene at its next Session under the chairship of Dr van Zoonen.

### **ESTABLISHMENT OF CODEX PRIORITY LISTS OF PESTICIDES<sup>31</sup>** (Agenda Item 8)

133. The Committee **agreed** to add two new pesticides to the priority list, flutolanil, proposed by the United States, and quinclorac, proposed by Canada. Flutolanil and quinclorac were tentatively scheduled for toxicological and residue review in 2002 and 2003, respectively. Because support could not be identified for pyrifenoxy, it was removed from the priority list and the agenda of the 1999 JMPR.

134. Azocyclotin, chinomethionat, and phosphamidon were not supported for periodic reevaluation. Clofentezine and triadmepron would be supported, and they had been added to the schedule for periodic reevaluation. The periodic reevaluation of residues of endosulfan was delayed from 2000 to 2003. The toxicological evaluation of guazatine was moved from 2002 to 2001, and the evaluation of guazatine residues in citrus fruits was tentatively scheduled for review in 2001. The periodic toxicological reevaluation of cyhexatin was delayed from 2002 to 2003. It was noted that the toxicological and residue evaluations of tolylfluanid in 2002 were actually periodic reevaluations.

135. The manufacturer of metalaxyl indicated that an isomer, metalaxyl-M, would be supported. Data could be made available by 2002. This substance had been tentatively scheduled for periodic toxicological and residue reevaluation in 2002 and 2003, respectively. Chloromequat had been tentatively scheduled for toxicological evaluation in 2000 to consider the establishment of an Acute RfD, and the dithiocarbamates had been scheduled for evaluation of residues in 2002.

136. Attention was drawn to the fact that periodic reevaluations by the JMPR had sometimes been delayed at the request of the manufacturer, in some cases for several years, which was not consistent with the periodic review procedure. The Committee **asked** the informal group on priorities to consider this issue at its next meeting.

137. The Committee **expressed** its appreciation to the FAO Secretary of JMPR for preparing a document detailing the rationale and summarizing available data on compounds scheduled for review of residues in 1999 and 2000. The JMPR Secretariat indicated that the preparation of the document would be facilitated by the submission of information by manufacturers on which commodities would be supported for the development of MRLs. The preparation of such a document at future meetings was encouraged.

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<sup>31</sup> CX/PR 99/11, CRD 6.

138. The Committee **thanked** the informal group on priorities, under the chairship of Dr R. Eichner (Australia), for proposing the priority list<sup>32</sup> and **agreed** that an informal group on priorities should convene at its next Session under the chairship of Dr T. Doust of Australia.

### **PROBLEMS RELATIVE TO THE PESTICIDE RESIDUES IN FOOD IN DEVELOPING COUNTRIES**<sup>33</sup> (Agenda Item 9)

139. The Report of the *ad hoc* Working Group on Problems Related to Pesticide Residues in Food in Developing Countries (CRD 7) was presented by its Chairperson, Dr Cheah Uan Boh (Malaysia).

140. Dr Cheah informed the Committee that at the request of the 30th Session of the CCPR a follow-up paper on pesticide residue problems in developing countries had been prepared. The paper<sup>34</sup> addressed issues related to extrapolation and trade violation data on pesticide/commodity combinations derived from information from a limited number of importing countries from 1993 to 1998. The paper also provided a valuable basis for discussion of some management options. The Committee was informed that the analysis of data might be of assistance to developing countries to identify reasons for detention and that it could allow them to take appropriate actions.

141. Dr Cheah indicated that developing countries appeared to be able to overcome the lack of MRLs for commodities frequently violating regional or international trade on bilateral and regional basis. Growers and exporters might be made aware of requirements of the importing country and that it was the responsibility of exporting countries to ensure availability of such information. In case the violation arose because the importing country has not registered a particular pesticide, a possible management option might be the reference to the Codex MRLs. The encouragement of acceptance of Codex MRLs by importing countries might be of assistance in realization of the spirit of the SPS Agreement.

142. Dr Cheah drew the attention of the Committee that extrapolation as a possibility had limitations in applicability, and therefore, could be used only on case by case basis. The need to focus on the generation of appropriate data for submission to support elaboration of MRLs was stressed to be of vital importance for developing countries and that the best solution for that was regional cooperation. Therefore collaborative regional groups could play a pivotal role in this regard.

143. Dr Cheah indicated that the improved liaison between national authorities and manufacturers of the pesticides, for which crop data was requested, was essential and that the offer of GCPF to facilitate such contacts was valuable. It was pointed out that in order to try and minimize crop residue levels, exporting countries were encouraged to review their GAP and also to introduce IPM procedures where applicable.

144. On the proposal of the Delegation of Brazil to hold discussions fully at a Plenary in view of importance of this issue, the Committee felt that it was of use to the Committee to keep considering these issues first at the level of the Working Group.

145. The Delegation of Argentina requested that the proposed draft MRL for maleic hydrazide for garlic should proceed as fast as possible.

146. The Delegation of UK informed the Committee that the OECD Pesticide Forum was elaborating minimal requirements for data submission which would be of use to developing countries in future.

147. The Committee noted the following recommendations prepared by the Working Group and generally **supported** them:

- the difficulties of data extrapolation from major to minor crops should not be underestimated and that data extrapolation would only be possible under well-defined circumstances;
- there should be renewed effort on the part of developing countries to generate appropriate crop trial data;

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<sup>32</sup> Appendix VII.

<sup>33</sup> CX/PR 99/12/CX/PR 99/13 (integrated into one paper), CRD 7 (Report of the *ad hoc* Working Group), CRD 10 (Comments from Argentina in original language).

<sup>34</sup> CX/PR 99/12/CX/PR 99/13.

- exporting countries should review their GAP and the scope for introducing improved IPM procedures to minimise crop residue levels;
- importing countries should be encouraged to accept the spirit of the SPS Agreement and adopt Codex MRLs except where reduced levels could be scientifically justified and that it would be beneficial if the WTO could develop appropriate guidelines to deal with trade disputes of this nature; and
- a report should be submitted on the regional cooperation among developing countries on this subject at the next Session.

148. The Committee **expressed** its appreciation to Dr Cheah who chaired the Working Group for three consecutive terms for his important contribution to this matter and agreed that the Working Group should be convened at its next Session under the Chairship of South Africa.

### **REGULATORY PRACTICES TO FACILITATE USE OF THE CODEX MAXIMUM RESIDUE LIMITS FOR PESTICIDES<sup>35</sup>** (Agenda Item 10)

149. The Committee recalled the usefulness of the above referenced document, welcomed by the 30th Session of the Committee, and noted that to date the input from Member countries and international organizations for updating the document had been limited. The Committee also noted that the CCGP was considering several issues such as “Risk Analysis”, “Revision of Acceptance Procedure” and “Review of the Statements of Principle of the Role of Science and the Extent to Which Other Factors should be Taken into Account” which, when completed, could have implications to the content of the document. The Committee **decided** to defer further consideration pending the outcome of considerations by the next sessions of the CCGP and the CAC on the issues enumerated above. Member governments and interested international organizations were once again invited through a circular letter to send their comments on the CX/PR 98/13 to Mr Wessel (ITIC).

### **OTHER BUSINESS AND FUTURE WORK** (Agenda Item 11)

#### **Lengthy Procedure for the Development of MRLs**

150. The Delegation of the United States informed the Committee of their concern that, whereas MRLs and approved uses were being withdrawn at both national and the Codex level, MRLs for newer compounds were being progressed slowly through the Codex system or not considered by Codex even though the new compounds might be safer. Since fruits from the USA were exported in volume to countries which heavily relied on the Codex standards, trade problems were encountered. The United States suggested that a paper be prepared, exploring options for solving this problem.

151. Some delegations stated that factors such as Codex Step procedure, JMPR workload and development of data by manufacturers contributed to the time of the elaboration of MRLs. Nevertheless, if sufficient data had been provided to the JMPR, which had enabled high quality evaluations by the JMPR, JMPR proposals had normally proceeded fast with omission of Steps 6 and 7.

152. Noting its heavy current workload and the opportunity to omit Steps 6 and 7, and that there had not been many proposals submitted for the Priority List, the Committee **agreed** not to pursue this issue for the time being.

### **DATE AND PLACE OF THE NEXT SESSION** (Agenda Item 12)

153. The Committee was informed that the Thirty-second Session of the Committee would be held in The Hague from 1 to 6 May 2000, subject to confirmation by the Netherlands and Codex Secretariats.

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<sup>35</sup>

CX/PR 99/14.

## ANNEX I

## SUMMARY STATUS OF WORK

Subject	Step	Action by	Document Reference (ALINORM 99/24A)
Draft MRLs	8	23rd CAC	Appendix II
Draft Revised Methods of Sampling for the Determination of Pesticide Residues for Compliance with MRLs	8	23rd CAC	Appendix III paras 124-127
Proposed Draft MRLs	5/8	23rd CAC	Appendix IV
Draft MRLs	6, 7	Secretariat, Governments, JMPR, 32nd CCPR	Annex II CX/PR 99/6
Proposed Draft MRLs/EMRL	5	23rd CAC	Appendix V
Proposed Draft MRLs	3	Secretariat, Governments, 32nd CCPR	Annex II CX/PR 99/6
Priority List of Pesticides (new pesticides and pesticides under periodic review)	1	23rd CAC, JMPR, Secretariat, Governments, International organizations, Australia, CCPR	Appendix VII paras 133-137
Methodology of Acute Dietary Exposure Assessment	-	JMPR, WHO, 32nd CCPR	paras. 25, 34
Methods of Analysis	-	Secretariat, Governments, The Netherlands, 32nd CCPR	paras. 128-132
Identification of pesticide/commodity combinations of interest to developing countries	-	South Africa, Governments, 32nd CCPR	paras 139-148
Regulatory practices to Facilitate the Use of Codex Maximum Residue Limits for Pesticides	2	Governments, Secretariat, International Toxicology Information Center, 32nd CCPR	paras. 145
“Criteria” for setting EMRLs	-	Secretariat 32nd CCPR	paras. 106-110
Need for EMRL for camphechlor in fish (discussion paper)	-	Secretariat, Governments Germany, 32nd CCPR	para. 112-114
Discussion Papers on: - feasibility of establishing specific MRLs for cereal-based foods and infant formula, in particular, possible unique toxicological concerns to children - which uses to support when the chronic dietary intake estimate(s) exceed the ADI - feasibility of establishing MRLs for genetically modified crops and for metabolite residues	-	32nd CCPR and: Secretariat, Germany, USA, CI, Commission of EC  Australia, Canada, New Zealand, USA, EC, Secretariat  Canada, Australia, South Africa, USA, Commission of EC, GCPF, Secretariat	para.10-13  para. 75  para. 105

## ANNEX 2

## STATUS OF MRLS/EMRLS CONSIDERED AT THE SESSION

Commodity Code	Name	MRL (mg/kg)		Step	Remarks
<b>7</b>	<b>CAPTAN</b>				
FP 226	Apple	20		5	EC: concern on inclusion of outliers
AB 226	Apple pomace, Dry	2		5	
FS 13	Cherries	40		5	Republic of Korea, EC: prefer lower MRL; EC: concern over GAP
DF 269	Dried grapes (=currants, raisins and sultanas)	50		5	
FB 269	Grapes	25		5	South Africa, EC: prefer lower MRL; EC: concern over GAP
FS 245	Nectarine	5		5	EC: insufficient data base
FP 230	Pear	10		5	
FS 14	Plums (including prunes)	5		5	
FB 275	Strawberry	30		5	South Africa, EC: prefer lower MRL; EC: disagrees with the evaluation
VO 448	Tomato	2		5	EC: insufficient data base
<b>8</b>	<b>CARBARYL</b>				
AL 1021	Alfalfa forage (green)	100			CXL-D
AL 1021	Alfalfa forage (green)	100	T		5/8(a)
FP 226	Apple	5			CXL-D
FP 226	Apple	5	T		5/8(a)
FS 240	Apricot	10			CXL-D
FS 240	Apricot	10	T		5/8(a)
VS 621	Asparagus	10			CXL-D
VS 621	Asparagus	10	T		5/8(a)
FI 327	Banana	5			CXL-D
FI 327	Banana	5	T		5/8(a)
GC 640	Barley	5	Po		CXL-D
GC 640	Barley	5	Po T		5/8(a)
AL 1030	Bean forage (green)	100			CXL-D
AL 1030	Bean forage (green)	100	T		5/8(a)
VR 574	Beetroot	2			CXL-D
VR 574	Beetroot	2	T		5/8(a)
FB 264	Blackberries	10			CXL-D
FB 264	Blackberries	10	T		5/8(a)
FB 20	Blueberries	7			CXL-D
FB 20	Blueberries	7	T		5/8(a)
VB 41	Cabbages, Head	5			CXL-D
VB 41	Cabbages, Head	5	T		5/8(a)
VR 577	Carrot	2			CXL-D
VR 577	Carrot	2	T		5/8(a)
MM 812	Cattle meat	0.2			CXL-D
MM 812	Cattle meat	0.2			5/8(a)
FS 13	Cherries	10			CXL-D
FS 13	Cherries	10	T		5/8(a)
FC 1	Citrus fruits	7			CXL-D
FC 1	Citrus fruits	7	T		5/8(a)
AL 1023	Clover	100	fresh wt		CXL-D
AL 1023	Clover	100	fresh wt T		5/8(a)
VP 526	Common bean (pods and/or immature seeds)	5			CXL-D
VP 526	Common bean (pods and/or immature seeds)	5	T		5/8(a)
SO 691	Cotton seed	1			CXL-D
SO 691	Cotton seed	1	T		5/8(a)
VD 527	Cowpea (dry)	1			CXL-D

Commodity Code	Name	MRL (mg/kg)		Step	Remarks
VD 527	Cowpea (dry)	1	T	5/8(a)	
FB 265	Cranberry	7		CXL-D	
FB 265	Cranberry	7	T	5/8(a)	
VC 424	Cucumber	3		CXL-D	
VC 424	Cucumber	3	T	5/8(a)	
FB 266	Dewberries (including boysenberry and loganberry)	10		CXL-D	
FB 266	Dewberries (including boysenberry and loganberry)	10	T	5/8(a)	
VO 440	Egg plant	5		CXL-D	
VO 440	Egg plant	5	T	5/8(a)	
PE 112	Eggs	0.5		CXL-D	
PE 112	Eggs	0.5	T	5/8(a)	
MM 814	Goat meat	0.2		CXL-D	
MM 814	Goat meat	0.2	T	5/8(a)	
FB 269	Grapes	5		CXL-D	
FB 269	Grapes	5	T	5/8(a)	
AS 162	Hay or fodder (dry) of grasses	100		CXL-D	
AS 162	Hay or fodder (dry) of grasses	100	T	5/8(a)	
FI 341	Kiwifruit	10	fresh wt	CXL-D	
FI 341	Kiwifruit	10	fresh wt T	5/8(a)	
VL 53	Leafy vegetables	10		CXL-D	
VL 53	Leafy vegetables	10	T	5/8(a)	
AF 645	Maize forage	100		CXL-D	
AF 645	Maize forage	100	T	5/8(a)	
VC 46	Melons, except watermelon	3		CXL-D	
VC 46	Melons, except watermelon	3	T	5/8(a)	
AO3 1	Milk products	0.1	(*)	CXL-D	
AO3 1	Milk products	0.1	(*) T	5/8(a)	
ML 106	Milks	0.1	(*)	CXL-D	
ML 106	Milks	0.1	(*) T	5/8(a)	
FS 245	Nectarine	10		CXL-D	
FS 245	Nectarine	10	T	5/8(a)	
AO51900	Nuts (whole in shell)	10		CXL-D	
AO51900	Nuts (whole in shell)	10	T	5/8(a)	
GC 647	Oats	5	Po	CXL-D	
GC 647	Oats	5	Po T	5/8(a)	
VO 442	Okra	10		CXL-D	
VO 442	Okra	10	T	5/8(a)	
FT 305	Olives	10		CXL-D	
FT 305	Olives	10	T	5/8(a)	
DM 305	Olives, Processed	1		CXL-D	
DM 305	Olives, Processed	1	T	5/8(a)	
VR 588	Parsnip	2		CXL-D	
VR 588	Parsnip	2	T	5/8(a)	
AL 528	Pea vines (green)	100	fresh wt	CXL-D	
AL 528	Pea vines (green)	100	fresh wt T	5/8(a)	
FS 247	Peach	10		CXL-D	
FS 247	Peach	10	T	5/8(a)	
AL 697	Peanut fodder	100		CXL-D	
AL 697	Peanut fodder	100	T	5/8(a)	
SO 703	Peanut, Whole	2		CXL-D	
SO 703	Peanut, Whole	2	T	5/8(a)	
AL 697	Peanut fodder	100		CXL-D	
AL 697	Peanut fodder	100	T	5/8(a)	
FP 230	Pear	5		CXL-D	
FP 230	Pear	5	T	5/8(a)	
VP 63	Peas (pods and succulent=immature seeds)	5		CXL-D	



Commodity Code	Name	MRL (mg/kg)		Step	Remarks
VP 63	Peas (pods and succulent=immature seeds)	5	T	5/8(a)	
VO 51	Peppers	5		CXL-D	
VO 51	Peppers	5	T	5/8(a)	
FS 14	Plums (including prunes)	10		CXL-D	
FS 14	Plums (including prunes)	10	T	5/8(a)	
VR 589	Potato	0.2		CXL-D	
VR 589	Potato	0.2	T	5/8(a)	
PM 110	Poultry meat	0.5	V	CXL-D	
PM 110	Poultry meat	0.5	V T	5/8(a)	
PO 113	Poultry skin	5	V	CXL-D	
PO 113	Poultry skin	5	V T	5/8(a)	
VC 429	Pumpkins	3		CXL-D	
VC 429	Pumpkins	3	T	5/8(a)	
VR 494	Radish	2		CXL-D	
VR 494	Radish	2	T	5/8(a)	
FB 272	Raspberries, Red, Black	10		CXL-D	
FB 272	Raspberries, Red, Black	10	T	5/8(a)	
GC 649	Rice	5	PoP	CXL-D	
GC 649	Rice	5	PoP T	5/8(a)	
CM 649	Rice, Husked	5	Po	CXL-D	
CM 649	Rice, Husked	5	Po T	5/8(a)	
GC 650	Rye	5	Po	CXL-D	
GC 650	Rye	5	Po T	5/8(a)	
MM 822	Sheep meat	0.2		CXL-D	
MM 822	Sheep meat	0.2	T	5/8(a)	
GC 651	Sorghum	10	Po	CXL-D	
GC 651	Sorghum	10	Po T	5/8(a)	
AF 651	Sorghum forage (green)	100	fresh wt	CXL-D	
AF 651	Sorghum forage (green)	100	fresh wt T	5/8(a)	
VD 541	Soya bean (dry)	1		CXL-D	
VD 541	Soya bean (dry)	1	T	5/8(a)	
AL 1265	Soya bean forage (green)	100	fresh wt	CXL-D	
AL 1265	Soya bean forage (green)	100	fresh wt T	5/8(a)	
VC 431	Squash, Summer	3		CXL-D	
VC 431	Squash, Summer	3	T	5/8(a)	
FB 275	Strawberry	7		CXL-D	
FB 275	Strawberry	7	T	5/8(a)	
VR 596	Sugar beet	0.2		CXL-D	
VR 596	Sugar beet	0.2	T	5/8(a)	
AV 596	Sugar beet leaves or tops	100		CXL-D	
AV 596	Sugar beet leaves or tops	100	T	5/8(a)	
VR 497	Swede	2		CXL-D	
VR 497	Swede	2	T	5/8(a)	
VO 1275	Sweet corn (kernels)	1		CXL-D	
VO 1275	Sweet corn (kernels)	1	T	5/8(a)	
VO 448	Tomato	5		CXL-D	
VO 448	Tomato	5	T	5/8(a)	
TN 85	Tree nuts	1		CXL-D	
TN 85	Tree nuts	1	T	5/8(a)	
GC 654	Wheat	5	Po	CXL-D	
GC 654	Wheat	5	Po T	5/8(a)	
CM 654	Wheat bran, Unprocessed	20	PoP	CXL-D	
CM 654	Wheat bran, Unprocessed	20	PoP T	5/8(a)	
CF 1211	Wheat flour	0.2	PoP	CXL-D	
CF 1211	Wheat flour	0.2	PoP T	5/8(a)	
CF 1212	Wheat wholemeal	2	PoP	CXL-D	
CF 1212	Wheat wholemeal	2	PoP T	5/8(a)	
VC 433	Winter squash	3		CXL-D	

Commodity Code	Name	MRL (mg/kg)		Step	Remarks
VC 433	Winter squash	3	T	5/8(a)	
<b>14</b>	<b>CHLORFENVINPHOS</b>				
VB 400	Broccoli	0.05		CXL-D	
VB 402	Brussels sprouts	0.05		CXL	
VB 41	Cabbages, Head	0.05		CXL	
VR 577	Carrot	0.4		CXL	
VB 404	Cauliflower	0.1		CXL	
VS 624	Celery	0.4		CXL-D	
FC 1	Citrus fruits	1		CXL-D	
SO 691	Cotton seed	0.05		CXL-D	
VO 440	Egg plant	0.05		CXL-D	
VR 583	Horseradish	0.1		CXL-D	
VA 384	Leek	0.05		CXL-D	
GC 645	Maize	0.05		CXL-D	
MM 95	Meat (from mammals other than marine mammals)	0.2	(fat) V	CXL-D	
ML 107	Milk of cattle, goats & sheep	0.008	F V	CXL-D	
VO 450	Mushrooms	0.05		CXL-D	
VA 385	Onion, Bulb	0.05		CXL-D	
SO 697	Peanut	0.05		CXL-D	
VR 589	Potato	0.05		CXL-D	
VR 494	Radish	0.1		CXL-D	
GC 649	Rice	0.05		CXL-D	
CM 1205	Rice, Polished	0.05		CXL-D	
VR 497	Swede	0.05		CXL-D	
VR 508	Sweet potato	0.05		CXL-D	
VO 448	Tomato	0.1		CXL-D	
VR 506	Turnip, Garden	0.05		CXL-D	
GC 654	Wheat	0.05		CXL-D	
<b>26</b>	<b>DICOFOL</b>				
AO2 2	Fruits (except as otherwise listed)	5		CXL-D	
ML 106	Milks	0.1	F	8	
FP 9	Pome fruits	5		W	EC: deletion unacceptable without a withdrawal of authorisations for uses on pome fruit
<b>39</b>	<b>FENTHION</b>				
FC 0003	Mandarins	0.5		7B	CI: acute intake concern EC: database insufficient
OC 0305	Olive oil, Virgin	3		7B	France, Spain: too high
FC 0004	Oranges , Sweet, Sour	0.5		7B	CI: acute intake concern EC: database insufficient
<b>48</b>	<b>LINDANE</b>				
FP 226	Apple	0.5		CXL	
VD 71	Beans (dry)	1	Po	CXL	
VB 402	Brussels sprouts	0.5		CXL	
VB 403	Cabbage, Savoy	0.5		CXL	
VB 41	Cabbages, Head	0.5		CXL	
SB 715	Cacao beans	1		CXL	
VR 577	Carrot	0.2	E	CXL	
VB 404	Cauliflower	0.5		CXL	
GC 80	Cereal grains	0.5	Po	CXL	
FS 13	Cherries	0.5		CXL	
DM 1215	Cocoa butter	1		CXL	
DM 1216	Cocoa mass	1		CXL	

Commodity Code	Name	MRL (mg/kg)		Step	Remarks
FB 265	Cranberry	3		CXL	
FB 279	Currant, Red, White	0.5		CXL	
PE 112	Eggs	0.1	E	CXL	
VL 476	Endive	2		CXL	
FB 269	Grapes	0.5		CXL	
VB 405	Kohlrabi	1		CXL	
VL 482	Lettuce, Head	2		CXL	
MM 97	Meat of cattle, pigs & sheep	2	(fat) V	CXL	
ML 106	Milks	0.01	F V	CXL	
FP 230	Pear	0.5		CXL	
VP 63	Peas (pods and succulent=immature seeds)	0.1		CXL	
FS 14	Plums (including prunes)	0.5		CXL	
VR 589	Potato	0.05	(*)	CXL	
PM 110	Poultry meat	0.7	(fat) E	CXL	
VR 494	Radish	1		CXL	
SO 495	Rape seed	0.05	(*)	CXL	
VL 502	Spinach	2		CXL	
FB 275	Strawberry	3		CXL	
VR 596	Sugar beet	0.1		CXL	
AV 596	Sugar beet leaves or tops	0.1		CXL	
VO 448	Tomato	2		CXL	

EC: Toxicological concerns; probable withdrawal of uses

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FP 226	Apple	0.5		CXL-D	
FS 240	Apricot	0.2		CXL-D	
VB 400	Broccoli	1		CXL	
VB 402	Brussels sprouts	1		CXL	
VB 41	Cabbages, Head	0.05		5(a)	
VR 577	Carrot	0.1		CXL-D	
VB 404	Cauliflower	1		CXL	
FS 13	Cherries	1		CXL-D	
FC 1	Citrus fruits	0.2		CXL	
VP 526	Common bean (pods and/or immature seeds)	0.05		5(a)	
VC 424	Cucumber	0.2		CXL	
FB 269	Grapes	0.5		CXL	
VL 480	Kale	1		CXL-D	
VA 384	Leek	0.02	(*)	5	
VL 482	Lettuce, Head	0.5		CXL-D	
VC 46	Melons, except watermelon	0.05		CXL	
VA 385	Onion, Bulb	0.1		CXL-D	
FS 247	Peach	0.5		CXL-D	
FP 230	Pear	0.2		CXL-D	
VP 63	Peas (pods and succulent=immature seeds)	0.1		CXL	
VR 589	Potato	0.1		CXL-D	
VL 502	Spinach	0.5		CXL	
FB 275	Strawberry	1		CXL	
VO 448	Tomato	0.2		CXL	
VR 506	Turnip, Garden	0.1		CXL-D	

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FP 226	Apple	25	Po	CXL-D	
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Commodity Code	Name	MRL (mg/kg)		Step	Remarks
<b>58</b>	<b>PARATHION</b>				
FP 226	Apple	0.05	(*)	8	USA: prefer holding at Step 6 pending the cumulative risk analyses of OP pesticides; EC: new data available.
<b>60</b>	<b>PHOSALONE</b>				
FP 226	Apple	5		CXL	
FC 1	Citrus fruits	1		CXL-D	
FB 269	Grapes	5		CXL-D	
VR 589	Potato	0.1	(*)	CXL-D	
<b>65</b>	<b>THIABENDAZOLE</b>				
FP 226	Apple	10		CXL	
FI 327	Banana	3		CXL-D	
FI 327	Banana	5	Po	5/8(a)	
MM 812	Cattle meat	0.05		5(a)	
ML 812	Cattle milk	0.05		5(a)	
MO 812	Cattle, Edible offal of	0.1		5(a)	
GC 80	Cereal grains	0.2		CXL-D	
FC 1	Citrus fruits	10	Po	CXL	
VO 450	Mushroom	60		3	
VA 385	Onion, Bulb	0.1		CXL-D	
FP 230	Pear	10		CXL	
VR 589	Potato	5	Po	CXL-D	
VR 589	Potato	15		5/8(a)	
PM 110	Poultry meat	0.05		5/8	
FB 275	Strawberry	3		CXL	
VR 596	Sugar beet	5		CXL-D	
AV 596	Sugar beet leaves or tops	10		CXL-D	
DM 596	Sugar beet molasses	1		CXL-D	
AB 596	Sugar beet pulp, Dry	5		CXL-D	
VO 448	Tomato	2		CXL-D	
VS 469	Witloof chicory (sprouts)	0.05	(*)	5/8	
EC: Concern regarding method of analysis and residue definition;					
USA: Analytical methodology is available.					
<b>74</b>	<b>DISULFOTON</b>				
VS 621	Asparagus	0.02	(*)	6	
GC 640	Barley	0.2		6	
VD 71	Beans (dry)	0.2		6	
VB 400	Broccoli	0.1		6	
VB 41	Cabbages, Head	0.2		6	
VB 404	Cauliflower	0.05		6	
PE 840	Chicken eggs	0.02	(*)	6	
VP 526	Common bean (pods and/or immature seeds)	0.2		6	
SO 691	Cotton seed	0.1		6	
VP 528	Garden pea (young pods)	0.1		6	
VP 529	Garden pea, Shelled	0.02	(*)	6	
VL 482	Lettuce, Head	1		6	
VL 483	Lettuce, Leaf	1		6	
GC 645	Maize	0.02	(*)	6(a)	
ML 107	Milk of cattle, goats & sheep	0.01		6	
AF 647	Oat forage (green)	0.5		6	
AS 647	Oat straw and fodder, Dry	0.05		6	
GC 647	Oats	0.02	(*)	6	
PM 110	Poultry meat	0.02	(*)	6	
GC 651	Sorghum	1		6	
AF 651	Sorghum forage (green)	5		6	

Commodity Code	Name	MRL (mg/kg)	Step	Remarks
VO 447	Sweet corn (corn-on-the-cob)	0.02 (*)	6	
VO 1275	Sweet corn (kernels)	0.02 (*)	6	
GC 654	Wheat	0.2	6	
AF 654	Wheat forage (whole plant)	1	6	
AS 654	Wheat straw and fodder, Dry	5	6	
<b>76</b>	<b>THIOMETON</b>			
FP 226	Apple	0.5	CXL-D	
FS 240	Apricot	0.5	CXL-D	
VB 41	Cabbages, Head	0.5	CXL-D	
VR 577	Carrot	0.05 (*)	CXL-D	
VS 624	Celery	0.5	CXL-D	
GC 80	Cereal grains	0.05 (*)	CXL-D	
FS 244	Cherry, Sweet	0.5	CXL-D	
VL 469	Chicory leaves	0.5	CXL-D	
VP 526	Common bean (pods and/or immature seeds)	0.5	CXL-D	
OC 691	Cotton seed oil, Crude	0.1 (*)	CXL-D	
VO 440	Egg plant	0.5	CXL-D	
VL 476	Endive	0.5	CXL-D	
AM 1051	Fodder beet	0.05 (*)	CXL-D	
AV 1051	Fodder beet leaves or tops	0.05 (*)	CXL-D	
FB 269	Grapes	0.5	CXL-D	
DH 1100	Hops, Dry	2	CXL-D	
VL 482	Lettuce, Head	0.5	CXL-D	
AF 645	Maize forage	0.1 (*) fresh wt	CXL-D	
SO 90	Mustard seeds	0.05 (*)	CXL-D	
HH 740	Parsley	0.5	CXL-D	
FS 247	Peach	0.5	CXL-D	
SO 703	Peanut, Whole	0.5	CXL-D	
FP 230	Pear	0.5	CXL-D	
VP 63	Peas (pods and succulent=immature seeds)	0.5	CXL-D	
VO 51	Peppers	0.5	CXL-D	
FS 14	Plums (including prunes)	0.5	CXL-D	
VR 589	Potato	0.05 (*)	CXL-D	
FP 231	Quince	0.5	CXL-D	
SO 495	Rape seed	0.05 (*)	CXL-D	
AS 81	Straw and fodder (dry) of cereal grains	0.1 (*)	CXL-D	
FB 275	Strawberry	0.5	CXL-D	
VR 596	Sugar beet	0.05 (*)	CXL-D	
AV 596	Sugar beet leaves or tops	0.05 (*)	CXL-D	
VO 448	Tomato	0.5	CXL-D	
<b>81</b>	<b>CHLOROTHALONIL</b>			
FI 327	Banana	0.01 (*)	5(a)	Brazil: concern about GAP
VD 71	Beans (dry)	0.2	5/8	
HH 624	Celery leaves	3	5/8	
FB 21	Currants, Black, Red, White	25	CXL-D	
FB 21	Currants, Black, Red, White	5	5/8(a)	
HH 740	Parsley	3	5/8	
FS 247	Peach	25	CXL-D	
FS 247	Peach	0.2	8(a)	USA: disagreement on residue evaluation
VO 445	Peppers, Sweet	7	5/8	
VO 447	Sweet corn (corn-on-the-cob)	0.01 (*)	5/8	
<b>90</b>	<b>CHLORPYRIFOS-METHYL</b>			
GC 640	Barley	10	6	

Commodity Code	Name	MRL (mg/kg)		Step	Remarks
GC 645	Maize	10	Po	CXL-D	
GC 647	Oats	10	Po	6	
GC 649	Rice	10	Po	6(a)	
USA: Cumulative exposure concern					
EC: Intake concern					
CI: Intake concern for children					
<b>96</b>	<b>CARBOFURAN</b>				
AL 1020	Alfalfa fodder	20		CXL-D	
AL 1020	Alfalfa fodder	10		5/8(a)	
AL 1021	Alfalfa forage (green)	10		5(a)	EC: too high
FI 327	Banana	0.1	(*)	CXL	
GC 640	Barley	0.1	(*)	CXL-D	
VB 402	Brussels sprouts	2		CXL-D	
VB 41	Cabbages, Head	0.5		CXL-D	
VC 4199	Cantaloupe	0.2		5	EC, CI: acute intake concern
VR 577	Carrot	0.5		CXL	
MF 812	Cattle fat	0.05	(*)	CXL	
VB 404	Cauliflower	0.2		CXL-D	
AB 1	Citrus pulp, Dry	2		5	
SB 716	Coffee beans	0.1	(*)	CXL-D	
SB 716	Coffee beans	1		5/8(a)	
VC 424	Cucumber	0.3		5	EC, CI: acute intake concern
MO 96	Edible offal of cattle, goats, horses, pigs & sheep	0.05	(*)	CXL	
VO 440	Egg plant	0.1	(*)	CXL	
MF 814	Goat fat	0.05	(*)	CXL	
DH 1100	Hops, Dry	5		CXL-D	
MF 816	Horse fat	0.05	(*)	CXL	
VB 405	Kohlrabi	0.1	(*)	CXL-D	
VL 482	Lettuce, Head	0.1	(*)	CXL-D	
GC 645	Maize	0.1	(*)	CXL	
AS 645	Maize fodder	5	fresh wt	CXL	
MM 96	Meat of cattle, goats, horses, pigs & sheep	0.05	(*)	CXL	
ML 106	Milks	0.05	(*)	CXL	
SO 90	Mustard seeds	0.1	(*)	CXL-D	
GC 647	Oats	0.1	(*)	CXL	
SO 88	Oilseed	0.1	(*)	CXL	
VA 385	Onion, Bulb	0.1	(*)	CXL	
FC 4	Oranges, Sweet, Sour	0.5		5	EC, CI: acute intake concern
FS 247	Peach	0.1	(*)	CXL-D	
FP 230	Pear	0.1	(*)	CXL-D	
MF 818	Pig fat	0.05	(*)	CXL	
VR 589	Potato	0.5		CXL-D	
VR 589	Potato	0.1	(*)	5/8(a)	
CM 649	Rice, Husked	0.2		CXL	
MF 822	Sheep fat	0.05	(*)	CXL	
GC 651	Sorghum	0.1		5	
AF 651	Sorghum forage (green)	2		5	
AS 651	Sorghum straw and fodder, Dry	0.5		5	
VD 541	Soya bean (dry)	0.2		CXL	
VC 431	Squash, Summer	0.3		5	EC, CI: acute intake concern
FB 275	Strawberry	0.1	(*)	CXL-D	
VR 596	Sugar beet	0.1	(*)	CXL	
AV 596	Sugar beet leaves or tops	0.2		CXL	
GS 659	Sugar cane	0.1	(*)	CXL	
SO 702	Sunflower seed	0.1	(*)	5/8	
VO 447	Sweet corn (corn-on-the-cob)	0.1		5	EC, CI: acute intake concern

Commodity Code	Name	MRL (mg/kg)		Step	Remarks
VO 1275	Sweet corn (kernels)	0.1	(*)	CXL	
VO 448	Tomato	0.1	(*)	CXL	
GC 654	Wheat	0.1	(*)	CXL	
<b>100</b>	<b>METHAMIDOPHOS</b>				
FP 9	Pome fruits	0.5		6	USA, EC: acute dietary intake concern
<b>103</b>	<b>PHOSMET</b>				
AL 1020	Alfalfa fodder	40		CXL	
AL 1021	Alfalfa forage (green)	40	fresh wt	CXL	
FP 226	Apple	10		CXL	Chile: reservation with regard to GAP; Germany: processing studies required
FS 240	Apricot	10		5(a)	
FB 20	Blueberries	10		CXL	
MM 812	Cattle meat	1	(fat) V	CXL	
FC 1	Citrus fruits	5		CXL	
SO 691	Cotton seed	0.05		5	
FI 335	Feijoa	2		CXL-D	
FB 269	Grapes	10		CXL	Germany: processing studies required
FI 341	Kiwifruit	15		CXL-D	
GC 645	Maize	0.05		CXL	
AS 645	Maize fodder	10		CXL	
AF 645	Maize forage	10		CXL	
ML 106	Milks	0.02	(*) V	CXL	
FS 245	Nectarine	5		CXL	
AL 72	Pea hay or pea fodder (dry)	10		CXL	
AL 528	Pea vines (green)	10	fresh wt	CXL	
FS 247	Peach	10		CXL	
FP 230	Pear	10		CXL	
VD 72	Peas (dry)	0.02	(*)	CXL	
VP 63	Peas (pods and succulent=immature seeds)	0.2		CXL	
VR 589	Potato	0.05	(*)	5(a)	
VO 447	Sweet corn (corn-on-the-cob)	0.05		CXL	
VR 508	Sweet potato	10	Po	CXL	
TN 85	Tree nuts	0.1		CXL	
Finland, France, Germany, Netherlands, Spain, Sweden and CI: acute dietary intake concern, especially for (young) children					
<b>105</b>	<b>DITHIOCARBAMATES</b>				
AM 660	Almond hulls	20		8	
TN 660	Almonds	0.1	(*)	8	
FP 226	Apple	3		CXL-D	
VS 621	Asparagus	0.1		8	
FI 327	Banana	1		CXL-D	
FI 327	Banana	2		8(a)	EC: database too limited; not acceptable
GC 640	Barley	1		8	EC: insufficient trials
AS 640	Barley straw and fodder, Dry	25		8	
VB 41	Cabbages, Head	5		8	EC: data support lower MRL
VR 577	Carrot	0.5		CXL-D	
VR 577	Carrot	1		8(a)	EC: database supports 0.2 mg/kg
FS 13	Cherries	1		CXL	
VL 510	Cos lettuce	10		8	
FB 265	Cranberry	5		8	
VC 424	Cucumber	0.5		CXL-D	
VC 424	Cucumber	2		8(a)	
FB 21	Currants, Black, Red, White	5		CXL-D	
FB 21	Currants, Black, Red, White	10		8(a)	EC: only GAP for black currants
MO 105	Edible offal (mammalian)	0.1		8	

Commodity Code	Name	MRL (mg/kg)	Step	Remarks
PE 112	Eggs	0.05 (*)	8	
VA 381	Garlic	0.5	8	
FB 269	Grapes	5	CXL	
DH 1100	Hops, Dry	30	8	
VL 480	Kale	15	8	
VA 384	Leek	0.5	8	EC: leek classified as a stem vegetable in EC
VL 482	Lettuce, Head	5	CXL-D	
VL 482	Lettuce, Head	10	8(a)	EC: poor database supports MRL of 5 mg/kg
AS 645	Maize fodder	2	8	EC: not sufficient trial data
FC 3	Mandarins	10	8	
FI 345	Mango	2	8	EC: database too poor; data on banana and mango not mutually supportive
MM 95	Meat (from mammals other than marine mammals)	0.05 (*)	8	
VC 46	Melons, except watermelon	1	CXL-D	
VC 46	Melons, except watermelon	0.5	8(a)	
ML 106	Milks	0.05 (*)	8	
VA 385	Onion, Bulb	0.5	8	
FC 4	Oranges, Sweet, Sour	2	8	EC: MRL too low
FI 350	Papaya	5	8	EC: poor database
SO 697	Peanut	0.1 (*)	8	
AL 697	Peanut fodder	5	8	EC: poor database
FP 230	Pear	3	CXL-D	
VO 445	Peppers, Sweet	1	8	EC: MRL does not cover mancozeb use
FS 14	Plums (including prunes)	1	CXL	
FP 9	Pome fruits	5	8(a)	
VR 589	Potato	0.1	CXL-D	
VR 589	Potato	0.2	8(a)	
PM 110	Poultry meat	0.1	8	EC: too high, 0.05 mg/kg(*) appropriate
PO 111	Poultry, Edible offal of	0.1	8	
VC 429	Pumpkins	0.2	8	EC: database too limited
VA 389	Spring onion	10	8	
VC 431	Squash, Summer	1	8	
VR 596	Sugar beet	0.5	8	
AV 596	Sugar beet leaves or tops	20	8	
VO 447	Sweet corn (corn-on-the-cob)	0.1 (*)	8	
VO 448	Tomato	3	CXL-D	
VO 448	Tomato	5	8(a)	
VC 432	Watermelon	1	8	
GC 654	Wheat	0.2	CXL-D	
GC 654	Wheat	1	8(a)	
AS 654	Wheat straw and fodder, Dry	25	8	
VC 433	Winter squash	0.1	8	EC: no reflection to GAP; not acceptable
<b>106</b>	<b>ETHEPHON</b>			
VC 4199	Cantaloupe	1	7B	
FB 269	Grapes	1	7B	
VO 51	Peppers	30	7B	
FI 353	Pineapple	1	7B	
VO 448	Tomato	2	7B	
<b>111</b>	<b>IPIRODIONE</b>			
VO 448	Tomato	5	CXL	
<b>112</b>	<b>PHORATE</b>			
GC 640	Barley	0.05	CXL-D	
VR 577	Carrot	0.2	W	



Commodity Code	Name	MRL (mg/kg)		Step	Remarks
SO 495	Rape seed	0.1		CXL-D	
VO 448	Tomato	0.1		CXL-D	
<b>114</b>	<b>GUAZATINE</b>				
GC 80	Cereal grains	0.1	(*)	CXL-D	
GC 80	Cereal grains	0.05	(*)	GL	Netherlands: disagreement with setting guideline levels
FC 1	Citrus fruits	5	Po	CXL-D	
FC 1	Citrus fruits	5	Po	GL	Netherlands: disagreement with setting guideline levels
VC 46	Melons, except watermelon	5	Po	CXL-D	
FI 353	Pineapple	0.1	(*)	CXL-D	
VR 589	Potato	0.1	(*)	CXL-D	
GS 659	Sugar cane	0.1	(*)	CXL-D	
<b>117</b>	<b>ALDICARB</b>				
FI 0327	Banana	0.5		CXL-D	
<b>128</b>	<b>PHENTHOATE</b>				
MM 812	Cattle meat	0.05	(*)	CXL-D	
FC 1	Citrus fruits	1		CXL-D	
PE 112	Eggs	0.05	(*)	CXL-D	
ML 106	Milks	0.01	(*)	CXL-D	
CM 649	Rice, Husked	0.05		CXL-D	
<b>141</b>	<b>PHOXIM</b>				
VB 403	Cabbage, Savoy	0.05	(*)	CXL-D	
MM 812	Cattle meat	0.2	(fat) V	CXL-D	
VB 404	Cauliflower	0.05	(*)	CXL-D	
GC 80	Cereal grains	0.05	(*)	CXL-D	
VP 526	Common bean (pods and/or immature seeds)	0.05	(*)	CXL-D	
SO 691	Cotton seed	0.05	(*)	CXL-D	
VL 482	Lettuce, Head	0.1		CXL-D	
ML 106	Milks	0.05	F V	CXL-D	
VA 385	Onion, Bulb	0.05	(*)	CXL-D	
VR 589	Potato	0.05	(*)	CXL-D	
MM 822	Sheep meat	0.5	(fat) V	CXL-D	
VO 447	Sweet corn (corn-on-the-cob)	0.05	(*)	CXL-D	
VO 448	Tomato	0.2		CXL-D	
<b>145</b>	<b>CARBOSULFAN</b>				
AB 1	Citrus pulp, Dry	0.1		5	
FC 4	Oranges, Sweet, Sour	0.1		5	EC: acute intake concern
<b>158</b>	<b>GLYPHOSATE</b>				
SO 691	Cotton seed	0.5		CXL-D	
SO 691	Cotton seed	10		5/8(a)	
OC 691	Cotton seed oil, Crude	0.05	(*)	5/8	
OR 691	Cotton seed oil, Edible	0.05	(*)	5/8	
GC 645	Maize	0.1	(*)	CXL-D	
GC 645	Maize	1		5/8(a)	
AF 645	Maize forage	1		5/8	
GC 651	Sorghum	0.1	(*)	CXL-D	
GC 651	Sorghum	20		5/8(a)	
<b>177</b>	<b>ABAMECTIN</b>				
AM 660	Almond hulls	0.1		5	
TN 660	Almonds	0.01	(*)	5	

Commodity Code	Name	MRL (mg/kg)	Step	Remarks
FP 226	Apple	0.02	5	
MF 812	Cattle fat	0.1 V	5	
MO 1280	Cattle kidney	0.05 V	5	
MO 1281	Cattle liver	0.1 V	5	
MM 812	Cattle meat	0.01 (*)	6	
ML 812	Cattle milk	0.005	6	
MO 812	Cattle, Edible offal of	0.05	6	
FC 1	Citrus fruits	0.01 (*)	6	
SO 691	Cotton seed	0.01 (*)	6	
VC 424	Cucumber	0.01	6	
MM 814	Goat meat	0.01 (*)	6	
ML 814	Goat milk	0.005	6	
MO 814	Goat, Edible offal of	0.1	6	
DH 1100	Hops, Dry	0.1	5	
VL 483	Lettuce, Leaf	0.05	5	
VC 46	Melons, except watermelon	0.01 (*)	5	
FP 230	Pear	0.02	6	
VO 445	Peppers, Sweet	0.02	6	
VR 589	Potato	0.01 (*)	5	
VC 431	Squash, Summer	0.01 (*)	5	
FB 275	Strawberry	0.02	6	
VO 448	Tomato	0.02	6	
TN 678	Walnuts	0.01 (*)	5	
VC 432	Watermelon	0.01 (*)	5	
<b>178</b>	<b>BIFENTHRIN</b>			
MF 812	Cattle fat	0.5	8	USA: prefers 1 mg/kg
ML 812	Cattle milk	0.05 (*)	8	USA: prefers 0.1 mg/kg
GC 654	Wheat	0.5 Po	8	
CM 654	Wheat bran, Unprocessed	2 PoP	5/8	
CF 1211	Wheat flour	0.2 PoP	5/8	
CF 1212	Wheat wholemeal	0.5 PoP	5/8	
<b>181</b>	<b>MYCLOBUTANIL</b>			
FB 278	Currant, Black	0.5	5/8	
FS 12	Stone fruits	2	5(a)	EC: PHI not specified
FB 275	Strawberry	1	5	France: questioned availability of data on indoor uses
VO 448	Tomato	0.3	5/8	
<b>187</b>	<b>CLETHODIM</b>			
AL 1020	Alfalfa fodder	10	5	
VD 71	Beans (dry)	0.1	6	
VP 61	Beans, except broad bean and soya bean	0.5 (*)	5	
MO 1280	Cattle kidney	0.2 (*)	6	
MO 1281	Cattle liver	0.2 (*)	6	
MM 812	Cattle meat	0.5 (*)	6	
ML 812	Cattle milk	0.1 (*)	6	
PE 840	Chicken eggs	0.5 (*)	6	
PM 840	Chicken meat	0.5 (*)	6	
SO 691	Cotton seed	0.5	6	
OC 691	Cotton seed oil, Crude	0.5 (*)	6	
OR 691	Cotton seed oil, Edible	0.5 (*)	6	
VD 561	Field pea (dry)	2	6	
AM 1051	Fodder beet	0.1 (*)	5	
VA 381	Garlic	0.5	5	
VA 385	Onion, Bulb	0.5	5	
SO 697	Peanut	5	5	

Commodity Code	Name	MRL (mg/kg)	Step	Remarks
VR 589	Potato	0.2	6	
SO 495	Rape seed	0.5	6	
OC 495	Rape seed oil, Crude	0.5 (*)	6	
OR 495	Rapeseed oil, Edible	0.5 (*)	6	
VD 541	Soya bean (dry)	10	6	
OC 541	Soya bean oil, Crude	1	6	
OR 541	Soya bean oil, Refined	0.5 (*)	6	
VR 596	Sugar beet	0.1	6	
SO 702	Sunflower seed	0.2	6	
OC 702	Sunflower seed oil, Crude	0.05	6	
OR 702	Sunflower seed oil, Edible	0.05	6	
VO 448	Tomato	1	5	
Germany objected that the analytical method to distinguish between clethodim and sethoxydim was available only on request.				
<b>189</b>	<b>TEBUCONAZOLE</b>			
FI 327	Banana	0.05	5/8	
FS 13	Cherries	5	5	
VC 424	Cucumber	0.2	5/8	
DF 269	Dried grapes (=currants, raisins and sultanas)	3	5	USA: reservations regarding treatment of outliers
FB 269	Grapes	2	6	USA: reservations regarding treatment of outliers France: concern over GAP
GC 647	Oats	0.05 (*)	5/8	
FS 247	Peach	1	5/8	
VO 445	Peppers, Sweet	0.5	5/8	
FP 9	Pome fruits	0.5	5/8	
<b>196</b>	<b>TEBUFENOZIDE</b>			
FI 341	Kiwifruit	0.5	5/8	
<b>197</b>	<b>FENBUCONAZOLE</b>			
FS 240	Apricot	0.5	5	South Africa: reservation with regard to GAP
FI 327	Banana	0.05	5/8	
GC 640	Barley	0.2	5	Germany: database not clear The Netherlands: GAP supports lower MRL
AS 640	Barley straw and fodder, Dry	3	5	
MF 812	Cattle fat	0.05 (*)	5	
MO 1280	Cattle kidney	0.05 (*)	5	
MO 1281	Cattle liver	0.05	5	
MM 812	Cattle meat	0.05 (*)	5	
ML 812	Cattle milk	0.05 (*)	5	
FS 13	Cherries	1	5/8	
VC 424	Cucumber	0.2	5/8	
PE 112	Eggs	0.05 (*)	5	
FB 269	Grapes	1	5/8	
VC 46	Melons, except watermelon	0.2	5/8	
FS 247	Peach	0.5	5	South Africa: reservation with regard to GAP
TN 672	Pecan	0.05 (*)	5/8	
FP 9	Pome fruits	0.1	5/8	
PF 111	Poultry fats	0.05 (*)	5	
PM 110	Poultry meat	0.05 (*)	5	
PO 111	Poultry, Edible offal of	0.05 (*)	5	
SO 495	Rape seed	0.05 (*)	5	Germany: database insufficient
GC 650	Rye	0.1	5/8	

Commodity Code	Name	MRL (mg/kg)	Step	Remarks
VC 431	Squash, Summer	0.05	5/8	
SO 702	Sunflower seed	0.05 (*)	5/8	
GC 654	Wheat	0.1	5/8	
AS 654	Wheat straw and fodder, Dry	3	5/8	

**198 AMINOMETHYLPHOSPHONIC ACID (AMPA)**

GC 645	Maize	2	5	
AS 645	Maize fodder	5	5	
AF 645	Maize forage	2	5	

Canada, France, Ireland and Spain : reservation with regard to the lack of clear policy to problems arising from genetically-modified commodities

Commodity Code	Name	EMRL (mg/kg)	Step	Remarks
<b>21</b>	<b>DDT</b>			
MM 95	Meat (from mammals other than marine mammals)	5 (fat)	5(a)	

Commodity Code	Name	GL (mg/kg)	Step	Remarks
<b>52</b>	<b>METHYL BROMIDE</b>			
CP 179	Bread and other cooked cereal products	0.01 (*)	4	
SB 715	Cacao beans	5 Po	4	
GC 80	Cereal grains	5 Po	4	
AO6 1	Cocoa products	0.01 (*) Po	4	
DF 167	Dried fruits	2 Po	4	
DF 167	Dried fruits	0.01 (*) Po	4	
AO4 1	Milled cereals products	1 Po	4	
AO4 1	Milled cereals products	0.01 (*) Po	4	
SO 697	Peanut	10 Po	4	
SO 697	Peanut	0.01 (*) Po	4	
TN 85	Tree nuts	10 Po	4	
TN 85	Tree nuts	0.01 (*) Po	4	

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**DRAFT AND DRAFT REVISED MAXIMUM RESIDUE LIMITS FOR PESTICIDES**  
(Advanced to Step 8 of the Codex Procedure)

Commodity		MRL (mg/kg) <sup>1</sup>	
<b>26</b>	<b>DICOFOL</b>		
ML 106	Milks	0.1	F
<b>58</b>	<b>PARATHION</b>		
FP 226	Apple	0.05	(*)
<b>81</b>	<b>CHLOROTHALONIL</b>		
FS 247	Peach	0.2	(a)
<b>105</b>	<b>DITHIOCARBAMATES</b>		
AM 660	Almond hulls	20	
TN 660	Almonds	0.1	(*)
VS 621	Asparagus	0.1	
FI 327	Banana	2	(a)
GC 640	Barley	1	
AS 640	Barley straw and fodder, Dry	25	
VB 41	Cabbages, Head	5	
VR 577	Carrot	1	(a)
VL 510	Cos lettuce	10	
FB 265	Cranberry	5	
VC 424	Cucumber	2	(a)
FB 21	Currants, Black, Red, White	10	(a)
MO 105	Edible offal (mammalian)	0.1	
PE 112	Eggs	0.05	(*)
VA 381	Garlic	0.5	
DH 1100	Hops, Dry	30	
VL 480	Kale	15	
VA 384	Leek	0.5	
VL 482	Lettuce, Head	10	(a)
AS 645	Maize fodder	2	
FC 3	Mandarins	10	
FI 345	Mango	2	
MM 95	Meat (from mammals other than marine mammals)	0.05	(*)
VC 46	Melons, except watermelon	0.5	(a)
ML 106	Milks	0.05	(*)
VA 385	Onion, Bulb	0.5	
FC 4	Oranges, Sweet, Sour	2	
FI 350	Papaya	5	
SO 697	Peanut	0.1	(*)
AL 697	Peanut fodder	5	
VO 445	Peppers, Sweet	1	

<sup>1</sup> (\*): At or about the limit of determination;  
 F: The residue is fat soluble and MRLs for milk and milk products are derived as explained in the introductions to Volume 2B of the *Codex Alimentarius*;  
 Po: The MRL accommodated post-harvest treatment of the commodity;  
 (a): Draft Revised Maximum Residue Limit.

<b>Commodity</b>		<b>MRL (mg/kg)<sup>1</sup></b>	
FP 9	Pome fruits	5	(a)
VR 589	Potato	0.2	(a)
PM 110	Poultry meat	0.1	
PO 111	Poultry, Edible offal of	0.1	
VC 429	Pumpkins	0.2	
VA 389	Spring onion	10	
VC 431	Squash, Summer	1	
VR 596	Sugar beet	0.5	
AV 596	Sugar beet leaves or tops	20	
VO 447	Sweet corn (corn-on-the-cob)	0.1	(*)
VO 448	Tomato	5	(a)
VC 432	Watermelon	1	
GC 654	Wheat	1	(a)
AS 654	Wheat straw and fodder, Dry	25	
VC 433	Winter squash	0.1	
<b>178</b>	<b>BIFENTHRIN</b>		
MF 812	Cattle fat	0.5	
ML 812	Cattle milk	0.05	(*)
GC 654	Wheat	0.5	Po

**DRAFT REVISED RECOMMENDED METHODS OF SAMPLING FOR THE  
DETERMINATION OF PESTICIDE RESIDUES FOR COMPLIANCE WITH MRLS**  
(Advanced to Step 8 of the Codex Procedure)<sup>†</sup>

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**DRAFT REVISED RECOMMENDED METHODS OF SAMPLING FOR THE  
DETERMINATION OF PESTICIDE RESIDUES FOR COMPLIANCE WITH MRLS**

**1. OBJECTIVE**

The objective of these sampling procedures is to enable a representative sample to be obtained from a lot, for analysis to determine compliance with Codex Maximum Residue Limits (MRLs) for pesticides.

**2. PRINCIPLES**

- 2.1 Codex MRLs are based on Good Agricultural Practice data and foods derived from commodities that comply with the respective Codex MRLs are intended to be toxicologically acceptable.
- 2.2 A Codex MRL for a plant, egg or dairy product takes into account the maximum level expected to occur in a composite sample, which has been derived from multiple units of the treated product and which is intended to represent the average residue level in a lot. A Codex MRL for

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<sup>†</sup> The Codex Committee on Pesticide Residues at its 31st Session amended the text of the document contained in Appendix III of ALINORM 99/24.

meat and poultry takes into account the maximum level expected to occur in the tissues of individual treated animals or birds.

- 2.3 In consequence, MRLs for meat and poultry apply to a bulk sample derived from a single primary sample, whereas MRLs for plant products, eggs and dairy products apply to a composite bulk sample derived from 1-10 primary samples.

### 3. SAMPLING PROCEDURES

*Notes. (a) The terms used are defined in Annex I and the procedures are shown schematically in Annexes IIA and IIB.*

*(b) ISO recommendations for sampling of grain<sup>1</sup>, or other commodities shipped in bulk may be adopted, if required.*

#### 3.1 Precautions to be taken

Contamination and deterioration of samples must be prevented at all stages, because they may affect the analytical results. Each lot to be checked for compliance must be sampled separately.

#### 3.2 Collection of primary samples

The minimum number of primary samples to be taken from a lot is determined from Table 1, or Table 2 in the case of a suspect lot of meat and . Each primary sample should be taken from a randomly chosen position in the lot, as far as practicable. The primary samples must consist of sufficient material to provide the laboratory sample(s) required from the lot.

*Note. (a) Sampling devices required for grain<sup>1</sup>, pulses<sup>2</sup> and tea<sup>3</sup> are described in ISO recommendations and those required for dairy products<sup>4</sup> are described by the IDF.*

#### 3.3 Preparation of the bulk sample

##### 3.3.1 Procedure for meat and poultry (Table 3)

Each primary sample is considered to be a separate bulk sample.

##### 3.3.2 Procedure for plant products, eggs or dairy products (Tables 4 and 5)

The primary samples should be combined and mixed well, if practicable, to form the bulk sample.

##### 3.3.3 Alternative procedure where mixing to form the bulk sample is inappropriate or impractical

Where units may be damaged (and thus residues may be affected) by the processes of mixing or sub-division of the bulk sample, or where large units cannot be mixed to produce a more uniform residue distribution, the units should be allocated randomly to replicate laboratory samples at the time of taking the primary samples. In this case, the result to be used should be the mean of valid results obtained from the laboratory samples analyzed.

#### 3.4 Preparation of the laboratory sample

Where the bulk sample is larger than is required for a laboratory sample, it should be divided to provide a representative portion. A sampling device, quartering, or other appropriate size reduction process may be used but units of fresh plant products or whole eggs should not be cut or broken. Where required, replicate laboratory samples should be withdrawn at this stage or they may be prepared as in 3.3.3, above. The minimum sizes required for laboratory samples are given in Tables 3, 4 and 5.

#### 3.5 Sampling record

The sampling officer must record the nature and origin of the lot; the owner, supplier or carrier of it; the date and place of sampling; and any other relevant information. Any departure from the recommended method of sampling must be recorded. A signed copy of the record must accompany each replicate laboratory sample and a copy should be retained by the sampling officer. A copy of the sampling record should be given to the owner of the lot, or a



representative of the owner, whether or not they are to be provided with a laboratory sample. If sampling records are produced in computerised form, these should be distributed to the same recipients and a similar verifiable audit trail maintained.

### 3.6 **Packaging and transmission of the laboratory sample**

The laboratory sample must be placed in a clean, inert container which provides secure protection from contamination, damage and leakage. The container should be sealed, securely labelled and the sampling record must be attached. Where a bar code is utilised, it is recommended that alphanumeric information is also provided. The sample must be delivered to the laboratory as soon as practicable. Spoilage in transit must be avoided, e.g. fresh samples should be kept cool and frozen samples must remain frozen. Samples of meat and poultry should be frozen prior to despatch, unless transported to the laboratory before spoilage can occur.

### 3.7 **Preparation of the analytical sample**

The laboratory sample should be given a unique identifier which, together with the date of receipt and the sample size, should be added to the sample record. The part of the commodity to be analysed<sup>5,6</sup>, i.e. the analytical sample, should be separated as soon as practicable. Where the residue level must be calculated to include parts which are not analysed<sup>††</sup>, the weights of the separated parts must be recorded.

### 3.8 **Preparation and storage of the analytical portion**

The analytical sample should be comminuted, if appropriate, and mixed well, to enable representative analytical portions to be withdrawn. The size of the analytical portion should be determined by the analytical method and the efficiency of mixing. The methods for comminution and mixing should be recorded and should not affect the residues present in the analytical sample. Where appropriate, the analytical sample should be processed under special conditions, e.g. at sub-zero temperature, to minimize adverse effects. Where processing could affect residues and where practical alternative procedures are not available, the analytical portion may consist of whole units, or segments removed from whole units. If the analytical portion thus consists of few units or segments, it is unlikely to be representative of the analytical sample and sufficient replicate portions must be analysed, to indicate the uncertainty of the mean value. If analytical portions are to be stored before analysis, the method and length of time of storage should be such that they do not affect the level of residues present. Additional portions must be withdrawn for replicate and confirmatory analyses, as required.

## 4. **CRITERIA FOR DETERMINING COMPLIANCE**

4.1 Analytical results must be derived from one or more laboratory samples taken from the lot and received in a fit state for analysis. The results must be supported by acceptable quality control data (e.g. for instrument calibration and pesticide recovery - refer to Codex Alimentarius, Volume 2, Section 4.2, "Guidelines on good laboratory practice in pesticide residue analysis"). Results should not be corrected for recovery. Where a residue is found to exceed an MRL, its identity should be confirmed and its concentration must be verified by analysis of one or more additional analytical portions derived from the original laboratory sample(s).

4.2 The Codex MRL applies to the bulk sample.

4.3 The lot complies with a Codex MRL where the MRL is not exceeded by the analytical result(s).

4.4 Where results for the bulk sample exceed the MRL, a decision that the lot is non-compliant must take into account: (i) the results obtained from one or more laboratory samples, as applicable; and (ii) the accuracy and precision of analysis, as indicated by the supporting quality control data.

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<sup>††</sup> For example, the stones of stone fruit are not analysed but the residue level is calculated assuming that they are included but contain no residue<sup>5</sup>.

**Table 1. Minimum number of primary samples to be taken from a lot**

	Minimum number of primary samples to be taken from the lot
<b>(a) Meat and poultry</b>	
a non-suspect lot	1
a suspect lot	determined according to Table 2
<b>(b) Other products</b>	
(i) Products, packaged or in bulk, which can be assumed to be well mixed or homogeneous	1 see note (d) under definition of a lot, Annex 1
(ii) Products, packaged or in bulk, which may not be well mixed or homogeneous	see note (i), below
<i>either:</i>	
Weight of lot, kg	
<50	3
50-500	5
>500	10
<i>or</i>	
Number of cans, cartons or other containers in the lot	
1-25	1
26-100	5
>100	10

*Note. (i) For products comprised of large units, in class A only, the minimum number of primary samples should comply with the minimum number of units required for the laboratory sample (see Table 4).*

**Table 2. Number of randomly selected primary samples required for a given probability of finding at least one non-compliant sample in a lot of meat or poultry, for a given incidence of non-compliant residues in the lot**

Incidence of non-compliant residues in the lot %	Minimum number of samples ( $n_0$ ) required to detect a non-compliant residue with a probability of:		
	90%	95%	99%
90	1	-	2
80	-	2	3
70	2	3	4
60	3	4	5
50	4	5	7
40	5	6	9
35	6	7	11
30	7	9	13
25	9	11	17
20	11	14	21
15	15	19	29
10	22	29	44
5	45	59	90
1	231	299	459
0.5	460	598	919
0.1	2302	2995	4603

Notes. (a) The Table assumes random sampling.

(b) Where the number of primary samples indicated in Table 2 is more than about 10% of units in the total lot, the number of primary samples taken may be fewer and should be calculated as follows:

$$n = \frac{n_0}{1 + (n_0 - 1) / N}$$

where  $n$  = minimum number of primary samples to be taken

$n_0$  = number of primary samples given in Table 2

$N$  = number of units, capable of yielding a primary sample, in the lot.

(c) Where a single primary sample is taken, the probability of detecting a non-compliance is similar to the incidence of non-compliant residues.

(d) For exact or alternative probabilities, or for a different incidence of non-compliance, the number of samples to be taken may be calculated from:

$$1-p = (1-i)^n$$

where  $p$  is the probability and  $i$  is the incidence of non-compliant residues in the lot (both expressed as fractions, not percentages), and  $n$  is the number of samples.

**Table 3. Meat and poultry: description of primary samples and minimum size of laboratory samples**

Commodity classification	Examples	Nature of primary sample to be taken	Minimum size of each laboratory sample
<b>Class B, primary food commodities of animal origin</b>			
1. <b>Mammalian meats</b> , type 06, group 030 Note: for enforcement of MRLs for fat soluble pesticides samples must be taken according to section 2 below.			
1.1 <b>Large mammals</b> , whole or half carcass, usually 10 kg or more	cattle sheep pigs	whole or part of diaphragm, supplemented by cervical muscle, if necessary	<b>0.5 kg</b>
1.2 <b>Small mammals</b> whole carcass	rabbits	whole carcass or hind quarters	<b>0.5 kg</b> , after removal of skin and bone
1.3 <b>Mammal meat parts, loose fresh/chilled/frozen</b> packaged or otherwise	quarters chops steaks shoulders	whole unit(s), or a portion of a large unit	<b>0.5 kg</b> , after removal of bone
1.4 <b>Mammal meat parts, bulk frozen</b>	quarters chops	<b>either</b> a frozen cross-section of a container <b>or</b> the whole (or portions) of individual meat parts	<b>0.5 kg</b> , after removal of bone
2. <b>Mammalian fats, including carcass fat</b> , type 06, group 031 Note: samples of fat taken as described in 2.1, 2.2 and 2.3 may be used to determine compliance of the fat, or the whole product, with the corresponding MRLs.			
2.1 <b>Large mammals, at slaughter, whole or half carcass</b> Usually 10 kg or more	cattle sheep pigs	kidney, abdominal or subcutaneous fat cut from one animal	<b>0.5 kg</b>
2.2 <b>Small mammals, at slaughter, whole or half carcass</b> <10 kg		abdominal or subcutaneous fat from one or more animals	<b>0.5 kg</b>
2.3 <b>Mammal meat parts</b>	legs chops steaks	<b>either</b> visible fat, trimmed from unit(s) <b>or</b> whole unit(s) or portions of whole unit(s), where fat is not trimmable	<b>0.5 kg</b> <b>2 kg</b>
2.4 <b>Mammal bulk fat tissue</b>	-	units taken with a sampling device from at least 3 positions	<b>0.5 kg</b>
<b>Class B, primary food commodities of animal origin</b>			
3. <b>Mammalian offals</b> , type 06, group 032			
3.1 <b>Mammal liver</b> , fresh/chilled/frozen	-	whole liver(s), or part of liver	<b>0.4 kg</b>
3.2 <b>Mammal kidney</b> , fresh/chilled/frozen	-	1 or both kidneys from 1 or more animal	<b>0.2 kg</b>
3.3 <b>Mammal heart</b> , fresh/chilled/frozen	-	Whole heart(s), or ventricle portion only, if large	<b>0.4 kg</b>

Commodities are classified according to the Codex Alimentarius<sup>6</sup>  
Refer to Table 1 to determine the number of primary samples required.

Commodity classification	Examples	Nature of primary sample to be taken	Minimum size of each laboratory sample
3.4 <b>Other mammal offal,</b> fresh/chilled/frozen	intestines brains	Part or whole unit from 1 or more animals, or a cross-section taken from bulk frozen product	<b>0.5 kg</b>
4. <b>Poultry meats, type 07, group 036</b> Note: for enforcement of MRLs for fat soluble pesticides samples must be taken according to section 5 below.			
4.1 <b>Bird, large-sized carcass</b> >2 kg	turkey goose mature chicken	thighs, legs and other dark meat	<b>0.5 kg</b> after removal of skin and bone
4.2 <b>Birds, medium-sized carcass</b> 500 g-2 kg	duckling guinea fowl young chicken	thighs, legs or other dark meat from at least 3 birds	<b>0.5 kg</b> after removal of skin and bone
4.3 <b>Birds, small-sized carcass</b> <500 g carcass	quail pigeon	carcasses from at least 6 birds	<b>0.2 kg</b> of muscle tissue
4.4 <b>Bird parts</b> fresh/chilled/frozen, retail or wholesale packaged	legs quarters	packaged units, or individual parts	<b>0.5 kg</b> (after removal of skin and bone)
<b>Class B, primary food commodities of animal origin</b>			
5. <b>Poultry fats, including carcass fat, type 07, group 037</b> Note: samples of fat taken as described in 5.1 and 5.2 may be used to determine compliance of the fat, or the whole product, with the corresponding MRLs			
5.1 <b>Birds, at slaughter, whole or part-carcass</b>	chickens turkeys	units of abdominal fat from at least 3 birds	<b>0.5 kg</b>
5.2 <b>Bird meat parts</b>	legs breast muscle	<b>either</b> visible fat, trimmed from unit(s)  <b>or</b> whole unit(s) or portions of whole unit(s), where fat is not trimmable	<b>0.5 kg</b>  <b>2 kg</b>
5.3 <b>Bird fat tissue in bulk</b>	-	units taken with a sampling device from at least 3 positions	<b>0.5 kg</b>
6. <b>Poultry offals, type 07, group 038</b>			
6.1 <b>Edible bird offal, except goose and duck fat liver and similar high value products</b>		units from at least 6 birds, or a cross-section from a container	<b>0.2 kg</b>
6.2 <b>Goose and duck fat liver and similar high value products</b>		unit from 1 birds or container	<b>0.05 kg</b>

Commodities are classified according to the Codex Alimentarius<sup>6</sup>  
Refer to Table 1 to determine the number of primary samples required.

Commodity classification	Examples	Nature of primary sample to be taken	Minimum size of each laboratory sample	
<b>Class E, processed foods of animal origin</b>				
7.	<b>Secondary food commodities of animal origin</b> , type 16, group 080 dried meats <b>Derived edible products of animal origin</b> , type 17, group 085 processed animal fats <b>Manufactured food (single ingredient) of animal origin</b> , type 18 <b>Manufactured food (multi-ingredient) of animal origin</b> , type 19			
7.1	<b>Mammal or bird, comminuted, cooked, canned, dried, rendered, or otherwise processed products,</b> including multi-ingredient products	ham sausage minced beef chicken paste	packaged units, <b>or</b> a representative cross-section from a container, <b>or</b> units (including juices, if any) taken with a sampling device	<b>0.5 kg</b> or <b>2 kg</b> if fat content <5%

Commodities are classified according to the Codex Alimentarius<sup>6</sup>  
 Refer to Table 1 to determine the number of primary samples required.

**Table 4. Plant products: description of primary samples and minimum size of laboratory samples**

Commodity classification	Examples	Nature of primary samples to be taken	Minimum size of each laboratory sample
<b>Class A, primary food commodities of plant origin</b>			
1. <b>All fresh fruits</b> , type 1, groups 001-008 <b>All fresh vegetables</b> , type 2, groups 009-019, <b>except</b> group 015 (dry pulses)			
1.1 <b>small sized fresh products</b> units generally < 25 g	berries peas olives	whole units, or packages, or units taken with a sampling device	<b>1 kg</b>
1.2 <b>medium sized fresh products</b> units generally 25-250 g	apples oranges	whole units,	<b>1 kg</b> <b>(at least 10 units)</b>
1.3 <b>large sized fresh products</b> units generally > 250 g	cabbages cucumbers grapes(bunches)	whole units	<b>2 kg</b> <b>(at least 5 units)</b>
2. <b>Pulses</b> , type 2, group 015 <b>Cereal grains</b> , type 3, group 020 <b>Tree nuts</b> , type 4, group 022  <b>Oilseeds</b> , type 4, group 023 <b>Seeds for beverages and sweets</b> , type 4, group 024	soya beans rice, wheat except coconuts coconuts peanuts  coffee beans		<b>1 kg</b> <b>1 kg</b> <b>1 kg</b> <b>5 units</b> <b>500 g</b> <b>500 g</b>
3. <b>Herbs</b> , type 5, group 027  <i>(for dried herbs see: Class D, type 12, in section 5 of this Table)</i>  <b>Spices</b> , type 5, group 028	fresh parsley others, fresh  dried	whole units  whole units or taken with a sampling device	<b>0.5 kg</b> <b>0.2 kg</b>  <b>0.1 kg</b>
<b>Class C, primary animal feed commodities</b>			
4. <b>Primary feed commodities of plant origin</b> , type 11			
4.1 <b>Legume animal feeds, and other forages and fodders</b>		whole units, or units taken with a sampling device	<b>1 kg</b> <b>(at least 10 units)</b>
4.2 <b>Straw, hay and other dried products</b>		units taken with a sampling device	<b>0.5 kg</b> <b>(at least 10 units)</b>

Commodities are classified according to the Codex Alimentarius<sup>6</sup>  
Refer to Table 1 to determine the number of primary samples required.

Commodity classification	Examples	Nature of primary samples to be taken	Minimum size of each laboratory sample
<b>Class D, processed foods of plant origin</b>			
5.	<b>Secondary food commodities of plant origin</b> , type 12, dried fruits, vegetables, herbs, milled cereal products <b>Derived products of plant origin</b> , type 13, teas, vegetable oils, juices, by-products for animal feed and miscellaneous products <b>Manufactured foods (single ingredient) of plant origin</b> , type 14 <b>Manufactured foods (multi-ingredient) of plant origin</b> , type 15, including products with ingredients of animal origin where the ingredient(s) of plant origin predominate(s), and group 078, breads		
5.1	<b>Products of high unit value</b>	packages or units taken with a sampling device	<b>0.1 kg*</b>
5.2	<b>Solid products of low bulk density</b>	hops tea	<b>0.2 kg</b>
5.3	<b>Other solid products</b>	bread flour apple pomace dried fruit	<b>0.5 kg</b>
5.4	<b>Liquid products</b>	vegetable oils juices	<b>0.5 l or 0.5 kg</b>
* A smaller laboratory sample may be taken from a product of exceptionally high value but the reason for doing so should be noted in the sampling record.			



**Table 5. Egg and dairy products: description of primary samples and minimum size of laboratory samples**

Commodity classification	Examples	Nature of primary samples to be taken	Minimum size of each laboratory sample
<b>Class B, primary food commodities of animal origin</b>			
1. <b>Poultry eggs</b> , type 7, group 039			
1.1 <b>Eggs, except quail and similar</b>		whole eggs	<b>12 whole chicken eggs, 6 whole goose or duck eggs</b>
1.2 <b>Eggs, quail and similar</b>		whole eggs	<b>24 whole eggs</b>
2. <b>Milks</b> , type 6, group 033		whole unit(s), or unit(s) taken with a sampling device	<b>0.5 l</b>
<b>Class E, processed foods of animal origin</b>			
3. <b>Secondary food commodities of animal origin</b> , type 16, group 082 skimmed milks, evaporated milks and milk powders <b>Derived edible products of animal origin</b> , type 17, group 086 milkfats, group 087 butters, butteroils, creams, cream powders, caseins, etc. <b>Manufactured food (single ingredient) of animal origin</b> , type 18, group 090 <b>Manufactured food (multi-ingredient) of animal origin</b> , type 19, group 092 (including products with ingredients of plant origin where the ingredient(s) of animal origin predominates(s))			
3.1 <b>Liquid milks, milk powders, evaporated milks and creams, creams, dairy ice creams, yoghurts</b>		packaged unit(s), or unit(s) taken with a sampling device	<b>0.5 l (liquid) or 0.5 kg (solid)</b>
<i>Notes. (i) Evaporated milks and evaporated creams in bulk must be mixed thoroughly before sampling, scraping adhering material from the sides and bottom of containers and stirring well. About 2-3 l should be removed and again stirred well before removing the laboratory sample. (ii) Milk powders in bulk should be sampled aseptically, passing a dry borer tube through the powder at an even rate. (iii) Creams in bulk should be mixed thoroughly with a plunger before sampling but foaming, whipping and churning must be avoided.</i>			
3.2 <b>Butter and butteroils</b>	butter, whey butter, low fat spreads containing butter fat, anhydrous butteroil, anhydrous milkfat	whole or parts of packaged unit(s), or unit(s) taken with a sampling device	<b>0.2 kg or 0.2 l</b>
3.3 <b>Cheeses, including processed cheeses</b>			
units 0.3 kg or greater		Whole unit(s) or unit(s) cut with a sampling device	<b>0.5 kg</b>
units < 0.3 kg		whole unit(s), or unit(s) cut with a sampling device	<b>0.3 kg</b>
<i>Note. Cheeses with a circular base should be sampled by making two cuts radiating from the centre. Cheeses with a rectangular base should be sampled by making two cuts parallel to the sides.</i>			

Commodities are classified according to the Codex Alimentarius<sup>6</sup>  
Refer to Table 1 to determine the number of primary samples required.

	Commodity classification	Examples	Nature of primary samples to be taken	Minimum size of each laboratory sample
3.4	<b>Liquid, frozen or dried egg products</b>		unit(s) taken aseptically with a sampling device	<b>0.5 kg</b>

## **ANNEX I. DEFINITION OF TERMS**

### **Analytical portion**

A representative quantity of material removed from the analytical sample, of proper size for measurement of the residue concentration.

*Note.* A sampling device may be used to withdraw the analytical portion.

### **Analytical sample**

The material prepared for analysis from the laboratory sample, by separation of the portion of the product to be analysed<sup>5,6</sup> and then by mixing, grinding, fine chopping, etc., for the removal of analytical portions with minimal sampling error.

*Note.* Preparation of the analytical sample must reflect the procedure used in setting Codex MRLs and thus the portion of the product to be analysed may include parts that are not normally consumed.

### **Bulk sample**

For products other than meat and poultry, the combined and well mixed aggregate of the primary samples taken from a lot. For meat and poultry, the primary sample is considered to be equivalent to the bulk sample.

*Notes.* (a) The primary samples must contribute sufficient material to enable all laboratory samples to be withdrawn from the bulk sample.

(b) Where separate laboratory samples are prepared during collection of the primary sample(s), the bulk sample is the conceptual sum of the laboratory samples, at the time of taking the samples from the lot.

### **Laboratory sample**

The sample sent to, or received by, the laboratory. A representative quantity of material removed from the bulk sample.

*Notes.* (a) The laboratory sample may be the whole or a part of the bulk sample.

(b) Units should not be cut or broken to produce the laboratory sample(s), except where subdivision of units is specified in Table 3.

(c) Replicate laboratory samples may be prepared.

### **Lot**

A quantity of a food material delivered at one time and known, or presumed, by the sampling officer to have uniform characteristics such as origin, producer, variety, packer, type of packing, markings, consignor, etc. A suspect lot is one which, for any reason, is suspected to contain an excessive residue. A non-suspect lot is one for which there is no reason to suspect that it may contain an excessive residue.

*Notes.* (a) Where a consignment is comprised of lots which can be identified as originating from different growers, etc., each lot should be considered separately.

(b) A consignment may consist of one or more lots.

(c) Where the size or boundary of each lot in a large consignment is not readily established, each one of a series of wagons, lorries, ship's bays, etc., may be considered to be a separate lot.

(d) A lot may be mixed by grading or manufacturing processes, for example.

### **Primary sample**

One or more units taken from one position in a lot.

*Notes. (a) The position from which a primary sample is taken in the lot should preferably be chosen randomly but, where this is physically impractical, it should be from a random position in the accessible parts of the lot.*

*(b) The number of units required for a primary sample should be determined by the minimum size and number of laboratory samples required.*

*(c) For plant, egg and dairy products, where more than one primary sample is taken from a lot, each should contribute an approximately similar proportion to the bulk sample.*

*(d) Units may be allocated randomly to replicate laboratory samples at the time of collecting the primary sample(s), in cases where the units are of medium or large size and mixing the bulk sample would not make the laboratory sample(s) more representative, or where the units (e.g. eggs, soft fruit) could be damaged by mixing.*

*(e) Where primary samples are taken at intervals during loading or unloading of a lot, the sampling "position" is a point in time.*

*(f) Units should not be cut or broken to produce the primary sample(s), except where sub-division of units is specified in Table 3.*

### **Sample**

One or more units selected from a population of units, or a portion of material selected from a larger quantity of material. For the purposes of these recommendations, a representative sample is intended to be representative of the lot, the bulk sample, the animal, etc., in respect of its pesticide residue content and not necessarily in respect of other attributes.

### **Sampling**

The procedure used to draw and constitute a sample.

### **Sampling device**

(i) A tool such as a scoop, dipper, borer, knife or spear, used to remove a unit from bulk material, from packages (such as drums, large cheeses) or from units of meat or poultry which are too large to be taken as primary samples. (ii) A tool such as a riffle box, used to prepare a laboratory sample from a bulk sample, or to prepare an analytical portion from an analytical sample.

*Notes. (a) Specific sampling devices are described by ISO<sup>1,2,3</sup> and IDF<sup>4</sup> standards.*

*(b) For materials such as loose straw or leaves, the hand of the sampling officer may be considered to be a sampling device.*

### **Sampling officer**

A person trained in sampling procedures and, where required, authorised by the appropriate authorities to take samples.

*Note. The sampling officer is responsible for all procedures leading to and including preparation, packing and shipping of the laboratory sample(s). The officer must understand that consistent adherence to the specified sampling procedures is necessary, must provide complete documentation for samples, and should collaborate closely with the laboratory.*

### **Sample size**

The number of units, or quantity of material, constituting the sample.

## **Unit**

The smallest discrete portion in a lot, which should be withdrawn to form the whole or part of a primary sample.

*Note. Units should be identified as follows.*

*(a) **Fresh fruit and vegetables.** Each whole fruit, vegetable or natural bunch of them (e.g. grapes) should form a unit, except where these are small. Units of packaged small products may be identified as in (d), below. Where a sampling device may be used without damaging the material, units may be created by this means. Individual eggs, fresh fruit or vegetables must not be cut or broken to produce units.*

*(b) **Large animals or parts or organs of them.** A portion, or the whole, of a specified part or organ should form a unit. Parts or organs may be cut to form units.*

*(c) **Small animals or parts or organs of them.** Each whole animal or complete animal part or organ present may form a unit. Where packaged, units may be identified as in (d), below. Where a sampling device may be used without affecting residues, units may be created by this means.*

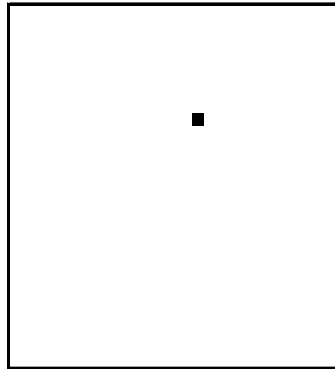
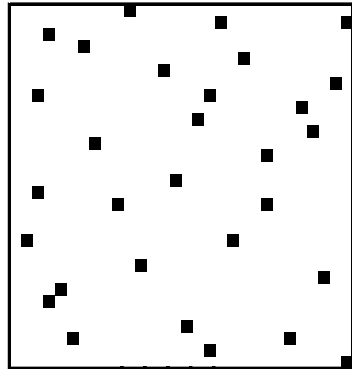
*(d) **Packaged materials.** The smallest discrete packages should be taken as units. Where the smallest packages are very large, they should be sampled as bulk, as in (e), below. Where the smallest packages are very small, a pack of packages may form the unit.*

*(e) **Bulk materials and large packages** (such as drums, cheeses, etc.) which are individually too large to be taken as primary samples. The units are created with a sampling device.*

### ANNEX II.A SCHEMATIC REPRESENTATION OF SAMPLING: MEAT AND POULTRY

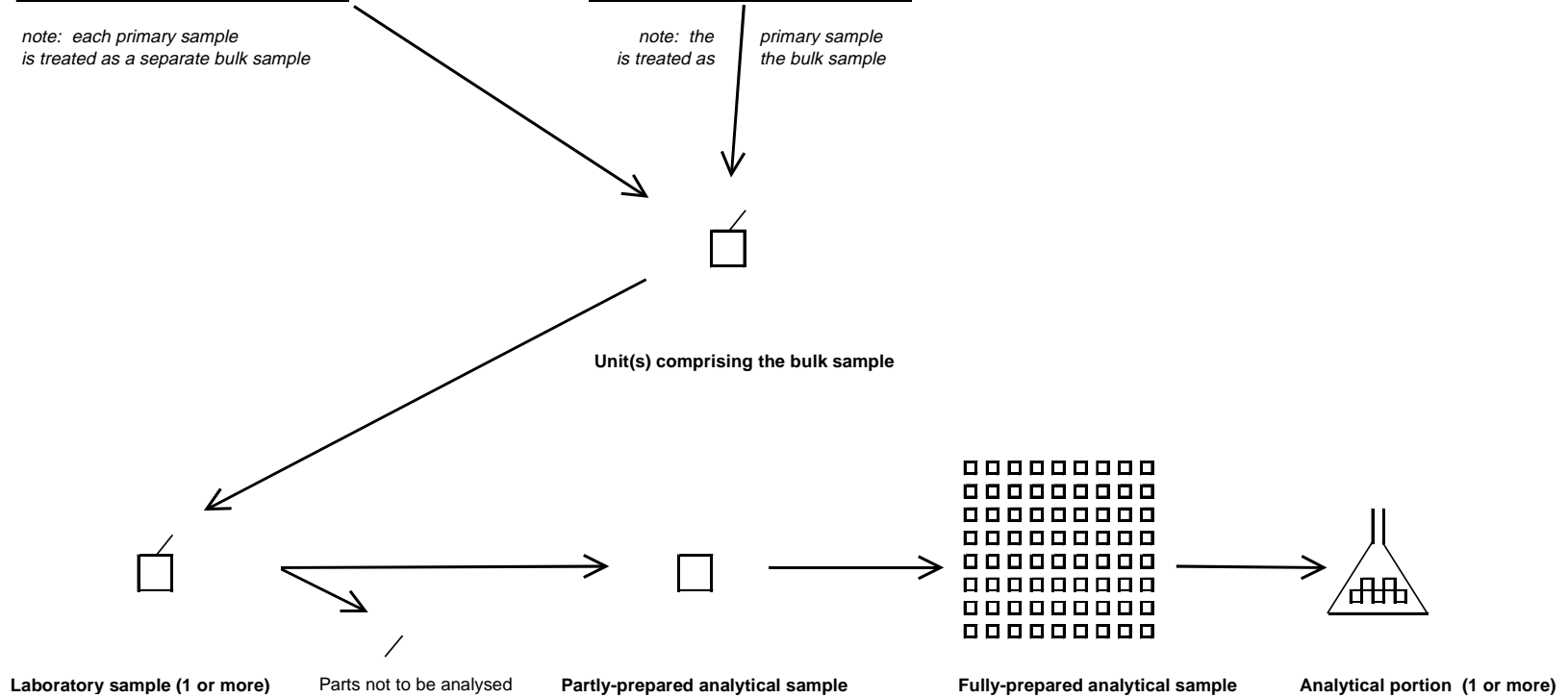
**Lot and primary samples of suspect meat or poultry:**  
primary samples taken from a number  
of randomly chosen positions  
(see Tables 1, 2 and 3)

**Lot and primary samples of non-suspect meat or poultry**  
1 primary sample taken from  
a randomly chosen position  
(see Tables 1 and 3)



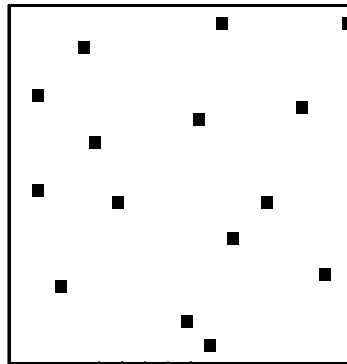
*note: each primary sample  
is treated as a separate bulk sample*

*note: the  
is treated as  
primary sample  
the bulk sample*

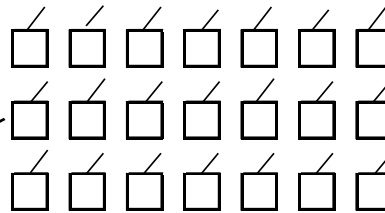


### ANNEX II.B SCHEMATIC REPRESENTATION OF SAMPLING: PRODUCTS OTHER THAN MEAT AND POULTRY

**Lot and primary samples of any other product**  
1, 3, 5, 10 or 15 primary samples taken from  
an equal number of randomly chosen positions  
(see Tables 1, 4 and 5)

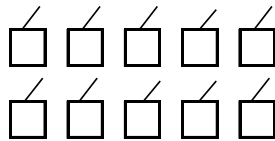


*note: primary samples are combined  
to form the bulk sample*

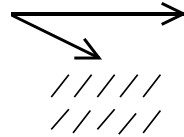


**Units comprising the bulk sample**

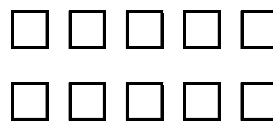
*note: where laboratory samples are prepared directly from the lot,  
the bulk sample is the conceptual sum of the laboratory samples*



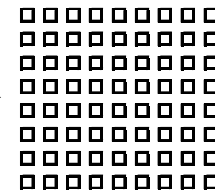
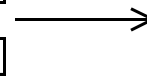
**Laboratory sample (1 or more)**



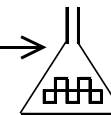
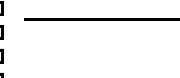
Parts not to be analysed



**Partly-prepared analytical sample**



**Fully-prepared analytical sample**



**Analytical portion (1 or more)**

### **ANNEX III. EXAMPLES**

Notes. (i) These examples are provided only as illustrations, they do not form part of the recommendations. (ii) Decisions as to whether or not an MRL is exceeded should be based on the analytical data available but decisions on the consequent action are a matter for the authorities involved.

#### **Example A.**

The assumed facts:

1. A 500 t consignment of imported frozen animal carcasses, 300 t labelled as producer A and 200 t labelled as producer B, is to be checked for residues.
2. The carcasses are from an exporter whose products have recently been associated with excessive residues of permethrin (fat-soluble) and diflubenzuron (non-fat-soluble).
3. Carcasses in lot A have trimmable fat, whereas those in lot B do not.
4. The sampling plan is to provide a 95% probability of detection if 10% of the carcasses contain excessive residues.
5. There is no legal requirement to prepare replicate laboratory samples.
6. Sampling records are in hard copy form.
7. Rendering of fat tissue for extraction of lipid is acceptable under national law.

Consequent actions and decisions:

1. The consignment is sampled as 2 separate, suspect lots, A and B.
2. Table 2 shows that 29 laboratory samples should be taken and therefore, as far as practicable, 29 carcasses are selected at random from each lot.
3. From each selected carcass in lot A, a minimum of 0.5 kg of adhering fat tissue is taken as a (primary) laboratory sample and a minimum of 0.5 kg of meat (meat does not include bone) is taken as a separate (primary) laboratory sample.
4. The carcasses in lot B have no trimmable fat and 29 samples of 2 kg meat are taken.
5. As each laboratory sample is taken, it is placed in a new polythene bag, securely labelled and sealed, and the sample record completed. The samples are sent to the laboratory, ensuring that they do not thaw. Copies of the sample records are given to the owner/custodian of the consignment. Copies are sent with the samples and also retained by the sampling officer.
6. Fat tissue laboratory samples from lot A are rendered, the lipid collected and aliquots (analytical portions) analyzed for permethrin residues. The results are expressed on a whole fat tissue basis.
7. Bones, if any, are removed from the meat laboratory samples, which are minced before the determination of diflubenzuron residues in analytical portions. The results are expressed on the basis of whole meat without bone.
8. If meat samples from both lots contain diflubenzuron  $\leq 0.05$  mg/kg and all samples from lot A contain  $< 1$  mg/kg permethrin, lot B is acceptable and lot A is acceptable with respect to diflubenzuron residues.
9. If 3 of the 29 fat samples of lot A contain permethrin  $> 1$  mg/kg, replicate analytical portions of fat from these 3 laboratory samples are analyzed. Taking into account the analytical uncertainty, if the results confirm that the MRL is exceeded, the 3 carcasses do not comply with the MRL, whereas the other 26 do comply with the MRL.
10. If the entire lot is not to be rejected on this basis, laboratory samples of fat tissue from the remaining carcasses in lot A may be taken for analysis, in order to separate the acceptable carcasses from those that are unacceptable.

#### **Example B.**

The assumed facts:

1. A consignment of 60 t of apples in 12 kg cartons (each containing approximately 100 apples) is to be checked for residues.



2. All cartons have the same grower code and date marks.
3. Triplicate laboratory samples are required by national law.
4. The sampling officer is unsure of the degree of mixing that has occurred during packing and grading.
5. Sampling records are in hard copy form.
6. A replicate laboratory sample is held by the monitoring laboratory, until required for analysis by the referee laboratory.

Consequent actions and decisions:

1. The consignment is sampled as a single lot.
2. As far as practicable, 10 cartons are selected at random and 3 new polythene bags provided for the laboratory samples.
3. From each carton, apples are taken and placed in each of the bags (1-2 in each), ensuring that in each bag there is a minimum of 10 apples, weighing a total of  $\geq 1$  kg. The bags are then securely labelled and sealed, and the sample records completed and attached.
4. Two of the laboratory samples are sent to the monitoring laboratory and the third laboratory sample is given to the owner/custodian of the lot.
5. At the monitoring laboratory, the first laboratory sample is prepared and processed and an analytical portion analyzed. The second laboratory sample is retained without further processing.
6. If the results show the confirmed presence of iprodione in excess of the MRL of 10 mg/kg, one or more replicate analytical portion are analyzed.
7. If the results indicate that the MRL is exceeded, the authorities notify the owner/custodian of the consignment (who may arrange independent analysis of the laboratory sample provided) and send the remaining sealed laboratory sample to a reference laboratory.
8. Taking into account the analytical uncertainty at both laboratories, if the results from the reference laboratory indicate residues of iprodione  $\geq 10$  mg/kg, the MRL is considered to be exceeded.

## REFERENCES

1. **International Organisation for Standardization**, 1979. International Standard ISO 950: Cereals – Sampling (as grain).
2. **International Organisation for Standardization**, 1979. International Standard ISO 951: Pulses in bags – Sampling.
3. **International Organisation for Standardization**, 1980. International Standard ISO 1839: Sampling – Tea.
4. **International Dairy Federation**, 1995. International IDF Standard 50C: Milk and milk products – methods of sampling.
5. **Joint FAO/WHO Food Standards Programme** (1993). “Portion of commodities to which Codex Maximum Residue Limits apply and which is analyzed”. Codex Alimentarius, Volume 2, Section 4.1, 389-404. FAO Rome. ISBN: 92-5-103271-8.
6. **Joint FAO/WHO Food Standards Programme** (1993). “Codex classification of foods and animal feeds”. Codex Alimentarius, Volume 2, Section 2, 147-366. FAO Rome. ISBN: 92-5-103271-8.

**PROPOSED DRAFT AND PROPOSED DRAFT REVISED  
MAXIMUM RESIDUE LIMITS FOR PESTICIDES**

(Advanced to Step 5 of the Codex Procedure with  
Omission of Steps 6 and 7 for Adoption at Step 8)

<b>Commodity</b>		<b>MRL (mg/kg)<sup>1</sup></b>		
<b>8</b>	<b>CARBARYL<sup>2</sup></b>			
AL 1021	Alfalfa forage (green)	100	T	(a)
FP 226	Apple	5	T	(a)
FS 240	Apricot	10	T	(a)
VS 621	Asparagus	10	T	(a)
FI 327	Banana	5	T	(a)
GC 640	Barley	5	Po T	(a)
AL 1030	Bean forage (green)	100	T	(a)
VR 574	Beetroot	2	T	(a)
FB 264	Blackberries	10	T	(a)
FB 20	Blueberries	7	T	(a)
VB 41	Cabbages, Head	5	T	(a)
VR 577	Carrot	2	T	(a)
MM 812	Cattle meat	0.2		(a)
FS 13	Cherries	10	T	(a)
FC 1	Citrus fruits	7	T	(a)
AL 1023	Clover	100	fresh wt T	(a)
VP 526	Common bean (pods and/or immature seeds)	5	T	(a)
SO 691	Cotton seed	1	T	(a)
VD 527	Cowpea (dry)	1	T	(a)
FB 265	Cranberry	7	T	(a)
VC 424	Cucumber	3	T	(a)
FB 266	Dewberries (including boysenberry and loganberry)	10	T	(a)
VO 440	Egg plant	5	T	(a)
PE 112	Eggs	0.5	T	(a)
MM 814	Goat meat	0.2	T	(a)
FB 269	Grapes	5	T	(a)
AS 162	Hay or fodder (dry) of grasses	100	T	(a)
FI 341	Kiwifruit	10	fresh wt T	(a)
VL 53	Leafy vegetables	10	T	(a)
AF 645	Maize forage	100	T	(a)
VC 46	Melons, except watermelon	3	T	(a)
AO3 1	Milk products	0.1	(*) T	(a)
ML 106	Milks	0.1	(*) T	(a)
FS 245	Nectarine	10	T	(a)
AO51900	Nuts (whole in shell)	10	T	(a)

<sup>1</sup> (\*): At or about the limit of determination;  
Po: The MRL accommodated post-harvest treatment of the commodity;  
PoP: The MRL accommodates post-harvest treatment of the commodity;  
T: The MRL is temporary, irrespective of the status of the ADI;  
V: The MRL accommodates veterinary uses;  
(a): Draft Revised Maximum Residue Limit.

<sup>2</sup> Temporary MRLs for carbaryl: 1999-2003.

Commodity		MRL (mg/kg) <sup>1</sup>		
GC 647	Oats	5	Po T	(a)
VO 442	Okra	10	T	(a)
FT 305	Olives	10	T	(a)
DM 305	Olives, Processed	1	T	(a)
VR 588	Parsnip	2	T	(a)
AL 528	Pea vines (green)	100	fresh wt T	(a)
FS 247	Peach	10	T	(a)
AL 697	Peanut fodder	100	T	(a)
SO 703	Peanut, Whole	2	T	(a)
AL 697	Peanut fodder	100	T	(a)
FP 230	Pear	5	T	(a)
VP 63	Peas (pods and succulent=immature seeds)	5	T	(a)
VO 51	Peppers	5	T	(a)
FS 14	Plums (including prunes)	10	T	(a)
VR 589	Potato	0.2	T	(a)
PM 110	Poultry meat	0.5	V T	(a)
PO 113	Poultry skin	5	V T	(a)
VC 429	Pumpkins	3	T	(a)
VR 494	Radish	2	T	(a)
FB 272	Raspberries, Red, Black	10	T	(a)
GC 649	Rice	5	PoP T	(a)
CM 649	Rice, Husked	5	Po T	(a)
GC 650	Rye	5	Po T	(a)
MM 822	Sheep meat	0.2	T	(a)
GC 651	Sorghum	10	Po T	(a)
AF 651	Sorghum forage (green)	100	fresh wt T	(a)
VD 541	Soya bean (dry)	1	T	(a)
AL 1265	Soya bean forage (green)	100	fresh wt T	(a)
VC 431	Squash, Summer	3	T	(a)
FB 275	Strawberry	7	T	(a)
VR 596	Sugar beet	0.2	T	(a)
AV 596	Sugar beet leaves or tops	100	T	(a)
VR 497	Swede	2	T	(a)
VO 1275	Sweet corn (kernels)	1	T	(a)
VO 448	Tomato	5	T	(a)
TN 85	Tree nuts	1	T	(a)
GC 654	Wheat	5	Po T	(a)
CM 654	Wheat bran, Unprocessed	20	PoP T	(a)
CF 1211	Wheat flour	0.2	PoP T	(a)
CF 1212	Wheat wholemeal	2	PoP T	(a)
VC 433	Winter squash	3	T	(a)
<b>65</b>	<b>THIABENDAZOLE</b>			
FI 327	Banana	5	Po	(a)
VR 589	Potato	15		(a)
PM 110	Poultry meat	0.05		
VS 469	Witloof chicory (sprouts)	0.05	(*)	
<b>81</b>	<b>CHLOROTHALONIL</b>			
VD 71	Beans (dry)	0.2		
HH 624	Celery leaves	3		

<b>Commodity</b>		<b>MRL (mg/kg)<sup>1</sup></b>		
FB 21	Currants, Black, Red, White	5		(a)
HH 740	Parsley	3		
VO 445	Peppers, Sweet	7		
VO 447	Sweet corn (corn-on-the-cob)	0.01	(*)	
<b>96</b>	<b>CARBOFURAN</b>			
AL 1020	Alfalfa fodder	10		(a)
SB 716	Coffee beans	1		(a)
VR 589	Potato	0.1	(*)	(a)
SO 702	Sunflower seed	0.1	(*)	
<b>158</b>	<b>GLYPHOSATE</b>			
SO 691	Cotton seed	10		(a)
OC 691	Cotton seed oil, Crude	0.05	(*)	
OR 691	Cotton seed oil, Edible	0.05	(*)	
GC 645	Maize	1		(a)
AF 645	Maize forage	1		
GC 651	Sorghum	20		(a)
<b>178</b>	<b>BIFENTHRIN</b>			
CM 654	Wheat bran, Unprocessed	2	PoP	
CF 1211	Wheat flour	0.2	PoP	
CF 1212	Wheat wholemeal	0.5	PoP	
<b>181</b>	<b>MYCLOBUTANIL</b>			
FB 278	Currant, Black	0.5		
VO 448	Tomato	0.3		
<b>189</b>	<b>TEBUCONAZOLE</b>			
FI 327	Banana	0.05		
VC 424	Cucumber	0.2		
GC 647	Oats	0.05	(*)	
FS 247	Peach	1		
VO 445	Peppers, Sweet	0.5		
FP 9	Pome fruits	0.5		
<b>196</b>	<b>TEBUFENOZIDE</b>			
FI 341	Kiwifruit	0.5		
<b>197</b>	<b>FENBUCONAZOLE</b>			
FI 327	Banana	0.05		
FS 13	Cherries	1		
VC 424	Cucumber	0.2		
FB 269	Grapes	1		
VC 46	Melons, except watermelon	0.2		
TN 672	Pecan	0.05	(*)	
FP 9	Pome fruits	0.1		
GC 650	Rye	0.1		
VC 431	Squash, Summer	0.05		
SO 702	Sunflower seed	0.05	(*)	
GC 654	Wheat	0.1		
AS 654	Wheat straw and fodder, Dry	3		

**PROPOSED DRAFT AND PROPOSED DRAFT REVISED  
MAXIMUM RESIDUE LIMITS FOR PESTICIDES AND  
PROPOSED DRAFT REVISED EXTRANEEOUS MAXIMUM RESIDUE LIMIT**  
(Advanced to Step 5 of the Codex Procedure)

	<b>Commodity</b>	<b>MRL (mg/kg)<sup>1</sup></b>		
<b>7</b>	<b>CAPTAN</b>			
FP 226	Apple	20		
AB 226	Apple pomace, Dry	2		
FS 13	Cherries	40		
DF 269	Dried grapes (=currants, raisins and sultanas)	50		
FB 269	Grapes	25		
FS 245	Nectarine	5		
FP 230	Pear	10		
FS 14	Plums (including prunes)	5		
FB 275	Strawberry	30		
VO 448	Tomato	2		
<b>53</b>	<b>MEVINPHOS</b>			
VB 41	Cabbages, Head	0.05		(a)
VP 526	Common bean (pods and/or immature seeds)	0.05		(a)
VA 384	Leek	0.02	(*)	
<b>65</b>	<b>THIABENDAZOLE</b>			
MM 812	Cattle meat	0.05		(a)
ML 812	Cattle milk	0.05		(a)
MO 812	Cattle, Edible offal of	0.1		(a)
<b>81</b>	<b>CHLOROTHALONIL</b>			
FI 327	Banana	0.01	(*)	(a)
<b>96</b>	<b>CARBOFURAN</b>			
AL 1021	Alfalfa forage (green)	10		(a)
VC 4199	Cantaloupe	0.2		
AB 1	Citrus pulp, Dry	2		
VC 424	Cucumber	0.3		
FC 4	Oranges, Sweet, Sour	0.5		
GC 651	Sorghum	0.1		
AF 651	Sorghum forage (green)	2		
AS 651	Sorghum straw and fodder, Dry	0.5		
VC 431	Squash, Summer	0.3		
VO 447	Sweet corn (corn-on-the-cob)	0.1		

<sup>1</sup> (\*): At or about the limit of determination;  
(fat): The MRL applies to the fat of the meat;  
V: The MRL accommodates veterinary uses;  
(a); Proposed Draft Revised Maximum Residue Limit or Proposed Draft Revised Extraneous Maximum Residue Limit.

	<b>Commodity</b>	<b>MRL (mg/kg)<sup>1</sup></b>	
<b>103</b>	<b>PHOSMET</b>		
FS 240	Apricot	10	(a)
SO 691	Cotton seed	0.05	
VR 589	Potato	0.05	(*) (a)
<b>145</b>	<b>CARBOSULFAN</b>		
AB 1	Citrus pulp, Dry	0.1	
FC 4	Oranges, Sweet, Sour	0.1	
<b>177</b>	<b>ABAMECTIN</b>		
AM 660	Almond hulls	0.1	
TN 660	Almonds	0.01	(*)
FP 226	Apple	0.02	
MF 812	Cattle fat	0.1	V
MO 1280	Cattle kidney	0.05	V
MO 1281	Cattle liver	0.1	V
DH 1100	Hops, Dry	0.1	
VL 483	Lettuce, Leaf	0.05	
VC 46	Melons, except watermelon	0.01	(*)
VR 589	Potato	0.01	(*)
VC 431	Squash, Summer	0.01	(*)
TN 678	Walnuts	0.01	(*)
VC 432	Watermelon	0.01	(*)
<b>181</b>	<b>MYCLOBUTANIL</b>		
FS 12	Stone fruits	2	(a)
FB 275	Strawberry	1	
<b>187</b>	<b>CLETHODIM</b>		
AL 1020	Alfalfa fodder	10	
VP 61	Beans, except broad bean and soya bean	0.5	(*)
AM 1051	Fodder beet	0.1	(*)
VA 381	Garlic	0.5	
VA 385	Onion, Bulb	0.5	
SO 697	Peanut	5	
VO 448	Tomato	1	
<b>189</b>	<b>TEBUCONAZOLE</b>		
FS 13	Cherries	5	
DF 269	Dried grapes (=currants, raisins and sultanas)	3	
<b>197</b>	<b>FENBUCONAZOLE</b>		
FS 240	Apricot	0.5	
GC 640	Barley	0.2	
AS 640	Barley straw and fodder, Dry	3	
MF 812	Cattle fat	0.05	(*)
MO 1280	Cattle kidney	0.05	(*)
MO 1281	Cattle liver	0.05	
MM 812	Cattle meat	0.05	(*)
ML 812	Cattle milk	0.05	(*)
PE 112	Eggs	0.05	(*)
FS 247	Peach	0.5	
PF 111	Poultry fats	0.05	(*)

<b>Commodity</b>		<b>MRL (mg/kg)<sup>1</sup></b>	
PM 110	Poultry meat	0.05	(*)
PO 111	Poultry, Edible offal of	0.05	(*)
SO 495	Rape seed	0.05	(*)

**198 AMINOMETHYLPHOSPHONIC ACID (AMPA)**

GC 645	Maize	2	
AS 645	Maize fodder	5	
AF 645	Maize forage	2	

<b>Commodity</b>		<b>EMRL (mg/kg)</b>		
<b>Code</b>	<b>Name</b>			

**21 DDT**

MM 95	Meat (from mammals other than marine mammals)	5	(fat)	(a) <sup>2</sup>
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<sup>2</sup> The Codex Committee on Pesticide Residues at its 31st Session confirmed its previous decision to advance it to Step 5.

**CODEX MAXIMUM RESIDUE LIMITS RECOMMENDED FOR REVOCATION**

<b>Commodity</b>		<b>MRL (mg/kg)<sup>1</sup></b>	
<b>14</b>	<b>CHLORFENVINPHOS</b>		
VB 400	Broccoli	0.05	
VS 624	Celery	0.4	
FC 1	Citrus fruits	1	
SO 691	Cotton seed	0.05	
VO 440	Egg plant	0.05	
VR 583	Horseradish	0.1	
VA 384	Leek	0.05	
GC 645	Maize	0.05	
MM 95	Meat (from mammals other than marine mammals)	0.2	(fat) V
ML 107	Milk of cattle, goats & sheep	0.008	F V
VO 450	Mushrooms	0.05	
VA 385	Onion, Bulb	0.05	
SO 697	Peanut	0.05	
VR 589	Potato	0.05	
VR 494	Radish	0.1	
GC 649	Rice	0.05	
CM 1205	Rice, Polished	0.05	
VR 497	Swede	0.05	
VR 508	Sweet potato	0.05	
VO 448	Tomato	0.1	
VR 506	Turnip, Garden	0.05	
GC 654	Wheat	0.05	
<b>26</b>	<b>DICOFOL</b>		
AO2 2	Fruits (except as otherwise listed)	5	
<b>53</b>	<b>MEVINPHOS</b>		
FP 226	Apple	0.5	
FS 240	Apricot	0.2	
VR 577	Carrot	0.1	
FS 13	Cherries	1	
VL 480	Kale	1	
VL 482	Lettuce, Head	0.5	
VA 385	Onion, Bulb	0.1	
FS 247	Peach	0.5	
FP 230	Pear	0.2	
VR 589	Potato	0.1	
VR 506	Turnip, Garden	0.1	

<sup>1</sup> (\*): At or about the limit of determination;  
 F: The residue is fat soluble and MRLs for milk and milk products are derived as explained in the introductions to Volume 2B of the *Codex Alimentarius*;  
 (fat): The MRL applies to the fat of the meat;  
 Po: The MRL accommodated post-harvest treatment of the commodity;  
 PoP: The MRL accommodates post-harvest treatment of the commodity;  
 V: The MRL accommodates veterinary uses:



<b>Commodity</b>		<b>MRL (mg/kg)<sup>1</sup></b>	
<b>56</b>	<b>2-PHENYLPHENOL</b>		
FP 226	Apple	25	Po
<b>60</b>	<b>PHOSALONE</b>		
FC 1	Citrus fruits	1	
FB 269	Grapes	5	
VR 589	Potato	0.1	(*)
<b>65</b>	<b>THIABENDAZOLE</b>		
GC 80	Cereal grains	0.2	
VA 385	Onion, Bulb	0.1	
VR 596	Sugar beet	5	
AV 596	Sugar beet leaves or tops	10	
DM 596	Sugar beet molasses	1	
AB 596	Sugar beet pulp, Dry	5	
VO 448	Tomato	2	
<b>76</b>	<b>THIOMETON</b>		
FP 226	Apple	0.5	
FS 240	Apricot	0.5	
VB 41	Cabbages, Head	0.5	
VR 577	Carrot	0.05	(*)
VS 624	Celery	0.5	
GC 80	Cereal grains	0.05	(*)
FS 244	Cherry, Sweet	0.5	
VL 469	Chicory leaves	0.5	
VP 526	Common bean (pods and/or immature seeds)	0.5	
OC 691	Cotton seed oil, Crude	0.1	(*)
VO 440	Egg plant	0.5	
VL 476	Endive	0.5	
AM 1051	Fodder beet	0.05	(*)
AV 1051	Fodder beet leaves or tops	0.05	(*)
FB 269	Grapes	0.5	
DH 1100	Hops, Dry	2	
VL 482	Lettuce, Head	0.5	
AF 645	Maize forage	0.1	(*) fresh wt
SO 90	Mustard seeds	0.05	(*)
HH 740	Parsley	0.5	
FS 247	Peach	0.5	
SO 703	Peanut, Whole	0.5	
FP 230	Pear	0.5	
VP 63	Peas (pods and succulent=immature seeds)	0.5	
VO 51	Peppers	0.5	
FS 14	Plums (including prunes)	0.5	
VR 589	Potato	0.05	(*)
FP 231	Quince	0.5	
SO 495	Rape seed	0.05	(*)
AS 81	Straw and fodder (dry) of cereal grains	0.1	(*)
FB 275	Strawberry	0.5	
VR 596	Sugar beet	0.05	(*)
AV 596	Sugar beet leaves or tops	0.05	(*)
VO 448	Tomato	0.5	

Commodity		MRL (mg/kg) <sup>1</sup>	
<b>90</b>	<b>CHLORPYRIFOS-METHYL</b>		
GC 645	Maize	10	Po
<b>96</b>	<b>CARBOFURAN</b>		
GC 640	Barley	0.1	(*)
VB 402	Brussels sprouts	2	
VB 41	Cabbages, Head	0.5	
VB 404	Cauliflower	0.2	
DH 1100	Hops, Dry	5	
VB 405	Kohlrabi	0.1	(*)
VL 482	Lettuce, Head	0.1	(*)
SO 90	Mustard seeds	0.1	(*)
FS 247	Peach	0.1	(*)
FP 230	Pear	0.1	(*)
FB 275	Strawberry	0.1	(*)
<b>103</b>	<b>PHOSMET</b>		
FI 335	Feijoa	2	
FI 341	Kiwifruit	15	
<b>112</b>	<b>PHORATE</b>		
GC 640	Barley	0.05	
SO 495	Rape seed	0.1	
VO 448	Tomato	0.1	
<b>114</b>	<b>GUAZATINE</b>		
GC 80	Cereal grains	0.1	(*)
FC 1	Citrus fruits	5	Po
VC 46	Melons, except watermelon	5	Po
FI 353	Pineapple	0.1	(*)
VR 589	Potato	0.1	(*)
GS 659	Sugar cane	0.1	(*)
<b>117</b>	<b>ALDICARB</b>		
FI 0327	Banana	0.5	
<b>128</b>	<b>PHENTHOATE</b>		
MM 812	Cattle meat	0.05	(*)
FC 1	Citrus fruits	1	
PE 112	Eggs	0.05	(*)
ML 106	Milks	0.01	(*)
CM 649	Rice, Husked	0.05	
<b>141</b>	<b>PHOXIM</b>		
VB 403	Cabbage, Savoy	0.05	(*)
MM 812	Cattle meat	0.2	(fat) V
VB 404	Cauliflower	0.05	(*)
GC 80	Cereal grains	0.05	(*)
VP 526	Common bean (pods and/or immature seeds)	0.05	(*)
SO 691	Cotton seed	0.05	(*)
VL 482	Lettuce, Head	0.1	
ML 106	Milks	0.05	F V
VA 385	Onion, Bulb	0.05	(*)

	<b>Commodity</b>	<b>MRL (mg/kg)<sup>1</sup></b>
VR 589	Potato	0.05 (*)
MM 822	Sheep meat	0.5 (fat) V
VO 447	Sweet corn (corn-on-the-cob)	0.05 (*)
VO 448	Tomato	0.2

**CODEX MAXIMUM RESIDUE LIMITS TO BE SUPERCEDED BY REVISED MAXIMUM RESIDUE LIMITS**

	<b>Commodity</b>	<b>MRL (mg/kg)</b>
<b>8</b>	<b>CARBARYL</b>	
AL 1021	Alfalfa forage (green)	100
FP 226	Apple	5
FS 240	Apricot	10
VS 621	Asparagus	10
FI 327	Banana	5
GC 640	Barley	5 Po
AL 1030	Bean forage (green)	100
VR 574	Beetroot	2
FB 264	Blackberries	10
FB 20	Blueberries	7
VB 41	Cabbages, Head	5
VR 577	Carrot	2
MM 812	Cattle meat	0.2
FS 13	Cherries	10
FC 1	Citrus fruits	7
AL 1023	Clover	100 fresh wt
VP 526	Common bean (pods and/or immature seeds)	5
SO 691	Cotton seed	1
VD 527	Cowpea (dry)	1
FB 265	Cranberry	7
VC 424	Cucumber	3
FB 266	Dewberries (including boysenberry and loganberry)	10
VO 440	Egg plant	5
PE 112	Eggs	0.5
MM 814	Goat meat	0.2
FB 269	Grapes	5
AS 162	Hay or fodder (dry) of grasses	100
FI 341	Kiwifruit	10 fresh wt
VL 53	Leafy vegetables	10
AF 645	Maize forage	100
VC 46	Melons, except watermelon	3
AO3 1	Milk products	0.1 (*)
ML 106	Milks	0.1 (*)
FS 245	Nectarine	10
AO51900	Nuts (whole in shell)	10
GC 647	Oats	5 Po
VO 442	Okra	10
FT 305	Olives	10
DM 305	Olives, Processed	1
VR 588	Parsnip	2
AL 528	Pea vines (green)	100 fresh wt

	<b>Commodity</b>	<b>MRL (mg/kg)</b>	
FS 247	Peach	10	
AL 697	Peanut fodder	100	
SO 703	Peanut, Whole	2	
AL 697	Peanut fodder	100	
FP 230	Pear	5	
VP 63	Peas (pods and succulent=immature seeds)	5	
VO 51	Peppers	5	
FS 14	Plums (including prunes)	10	
VR 589	Potato	0.2	
PM 110	Poultry meat	0.5	V
PO 113	Poultry skin	5	V
VC 429	Pumpkins	3	
VR 494	Radish	2	
FB 272	Raspberries, Red, Black	10	
GC 649	Rice	5	PoP
CM 649	Rice, Husked	5	Po
GC 650	Rye	5	Po
MM 822	Sheep meat	0.2	
GC 651	Sorghum	10	Po
AF 651	Sorghum forage (green)	100	fresh wt
VD 541	Soya bean (dry)	1	
AL 1265	Soya bean forage (green)	100	fresh wt
VC 431	Squash, Summer	3	
FB 275	Strawberry	7	
VR 596	Sugar beet	0.2	
AV 596	Sugar beet leaves or tops	100	
VR 497	Swede	2	
VO 1275	Sweet corn (kernels)	1	
VO 448	Tomato	5	
TN 85	Tree nuts	1	
GC 654	Wheat	5	Po
CM 654	Wheat bran, Unprocessed	20	PoP
CF 1211	Wheat flour	0.2	PoP
CF 1212	Wheat wholemeal	2	PoP
VC 433	Winter squash	3	
<b>65</b>	<b>THIABENDAZOLE</b>		
FI 327	Banana	3	
VR 589	Potato	5	Po
<b>81</b>	<b>CHLOROTHALONIL</b>		
FB 21	Currants, Black, Red, White	25	
FS 247	Peach	25	
<b>96</b>	<b>CARBOFURAN</b>		
AL 1020	Alfalfa fodder	20	
SB 716	Coffee beans	0.1	(*)
VR 589	Potato	0.5	
<b>105</b>	<b>DITHIOCARBAMATES</b>		
FP 226	Apple	3	
FI 327	Banana	1	
VR 577	Carrot	0.5	

	<b>Commodity</b>	<b>MRL (mg/kg)</b>	
VC 424	Cucumber	0.5	
FB 21	Currants, Black, Red, White	5	
VL 482	Lettuce, Head	5	
VC 46	Melons, except watermelon	1	
FP 230	Pear	3	
VR 589	Potato	0.1	
VO 448	Tomato	3	
GC 654	Wheat	0.2	
<b>158</b>	<b>GLYPHOSATE</b>		
SO 691	Cotton seed	0.5	
GC 645	Maize	0.1	(*)
GC 651	Sorghum	0.1	(*)

**PRIORITY LIST OF COMPOUNDS SCHEDULED FOR EVALUATION OR  
REEVALUATION BY JMPR**

The following is the final or tentative lists of compounds to be considered by the FAO/WHO Joint Meeting of Pesticide Residues (JMPR) from 1999 – 2004 (as of 17 April 1999):

**AGENDA OF THE 1999 JMPR**

<b>Toxicological evaluations</b>	<b>Residue evaluations</b>
<p><b>NEW COMPOUNDS</b> pyriproxyfen</p> <p><b>PERIODIC REEVALUATIONS</b></p> <p>chlorpyrifos (017) dimethipin (151) ethoprophos (149)</p> <p>2-phenylphenol (056) permethrin (120) propargite (113) pyrethrins (063)</p> <p><b>EVALUATIONS</b></p> <p>N-acetyl glufosinate (NAG)</p> <p>PTU (150)</p>	<p><b>NEW COMPOUNDS</b> pyriproxyfen</p> <p><b>PERIODIC REEVALUATIONS</b> bitertanol (144)</p> <p>ethoxyquin (035) fenamiphos (085) malathion (049) methiocarb (132) 2-phenylphenol (056)</p> <p><b>EVALUATIONS</b> buprofezin (173) clethodim (187) diazinon (022) dinocap (087) ethephon (106) fenpropimorph (188) fenpyroxymate (193) folpet (041) glufosinate ammonium (175) phosalone (060)</p>

**TENTATIVE AGENDA OF THE 2000 JMPR**

<b>Toxicological evaluations</b>	<b>Residue evaluations</b>
<p><b>NEW COMPOUNDS</b> chlorpropham</p> <p><b>PERIODIC REEVALUATIONS</b> acephate (95)</p> <p>deltamethrin (135)</p> <p>dodine (084) fenitrothion (037) imazalil (110) methamidiphos (100)</p> <p>thiodicarb (154) vamidothion (078)</p> <p><b>EVALUATIONS</b></p> <p>carbaryl (008)</p> <p>chlormequat (015) – acute RfD DDT (21)</p> <p>fipronil</p>	<p><b>NEW COMPOUNDS</b> fipronil</p> <p><b>PERIODIC REEVALUATIONS</b> amitraz (122) captan (007) chlorpyrifos (017) cypermethrin (118)*</p> <p>diphenylamine (030)</p> <p>parathion (058) parathion-methyl (059) piperonyl butoxide (62) pyrethrins (063)</p> <p><b>EVALUATIONS</b> aldicarb (117)</p> <p>chlorfenvinphos (14) chlormequat (15) DDT (21) fenthion (039)</p> <p>mevinphos (053) thiabendazole (065)</p>

\* JMPR to determine if both cypermethrin and alpha-cypermethrin are to be reviewed. Will be dependent upon whether separate residue definitions are set.

**TENTATIVE AGENDA OF THE 2001 JMPR**

<b>Toxicological evaluations</b>	<b>Residue evaluations</b>
<p><b>NEW COMPOUNDS</b></p> <p>imidacloprid spinosad</p> <p><b>PERIODIC REEVALUATIONS</b></p> <p>lindane (048) mecarbam (124)</p> <p>methoprene (147) oxamyl (126)</p> <p>prochloraz (142)</p> <p>triazophos (143)</p> <p><b>EVALUATIONS</b></p> <p>diflubenzuron (130)</p> <p>guazatine (114) methomyl (094)</p>	<p><b>NEW COMPOUNDS</b></p> <p>chlorpropham imidacloprid spinosad</p> <p><b>PERIODIC REEVALUATIONS</b></p> <p>carbaryl (008) diflubenzuron (130) dimethipin (151) dodine (084) ethoprophos (149) fenitrothion (037) imazalil (110)</p> <p>methomyl (094)/thiodicarb (154)</p> <p>permethrin (120)</p> <p>propargite (113)</p> <p><b>EVALUATIONS</b></p> <p>diquat (031) guazatine (114)</p>



**TENTATIVE AGENDA OF THE 2002 JMPR**

<b>Toxicological evaluations</b>	<b>Residue evaluations</b>
<p><b>NEW COMPOUNDS</b>                      esfenvalerate*                      flutolanil</p> <p><b>PERIODIC REEVALUATIONS</b></p> <p>metalaxyl-M**</p> <p>propamocarb (148)                      tolyfluanid (162)                      triadimefon (133)</p> <p><b>EVALUATIONS</b>                      carbofuran (096)</p>	<p><b>NEW COMPOUNDS</b>                      esfenvalerate*                      flutolanil</p> <p><b>PERIODIC REEVALUATIONS</b></p> <p>acephate (095)                      deltamethrin (135)                      methamidophos (100)</p> <p>oxamyl (126)                      pirimiphos-methyl (086)                      prochloraz (142)</p> <p>tolylfluanid (162)</p> <p>triazophos (143)                      vamidothion (078)</p> <p><b>EVALUATIONS</b>                      carbofuran (096)                      dithiocarbamates (105)                      phosmet (103)</p>

\*Replacement chemical for fenvalerate

\*\* Whether it is a replacement chemical for metalaxyl needs to be confirmed

**TENTATIVE AGENDA OF THE 2003 JMPR**

<b>Toxicological evaluations</b>	<b>Residue evaluations</b>
<p><b>NEW COMPOUNDS</b>                      quinclorac</p> <p><b>PERIODIC REEVALUATIONS</b></p> <p>bendiocarb (137)                      cyhexatin (067)</p>	<p><b>NEW COMPOUNDS</b>                      quinclorac</p> <p><b>PERIODIC REEVALUATIONS</b></p> <p>cyhexatin (067)                      endosulfan (032)                      lindane (048)                      mecarbam (124)                      metalaxyl-M                      methoprene (147)                      propamocarb (148)                      propineb                      triadimefon (133)</p>

**TENTATIVE AGENDA OF THE 2004 JMPR**

<b>Toxicological evaluations</b>	<b>Residue evaluations</b>
<b>NEW COMPOUNDS</b>	<b>NEW COMPOUNDS</b>
<b>PERIODIC REEVALUATIONS</b>	<b>PERIODIC REEVALUATIONS</b>
clofentezine (156)	bendiocarb (137) clofentesine (156)

**CANDIDATE COMPOUNDS FOR PERIODIC REVIEW  
NOT YET SCHEDULED**

anilazine <sup>2</sup>	phorate <sup>1</sup>
benalaxyl <sup>2</sup>	pirimicarb <sup>4</sup>
cyhalothrin <sup>3</sup>	procymidone <sup>2</sup>
flucythrinate <sup>4</sup>	propiconazole <sup>2</sup>
glyphosate <sup>1</sup>	propoxur <sup>2</sup>
metalaxyl <sup>3</sup>	terbufos <sup>2</sup>
paclobutrazol <sup>2</sup>	triforine (residues) <sup>4</sup>
paraquat <sup>1</sup>	

- <sup>1</sup> Availability of adequate data package to be confirmed
- <sup>2</sup> New candidate compound for periodic review
- <sup>3</sup> Not supported for periodic reevaluation. However, there is support for MRLs based on the use of specific enantiomers/isomers
- <sup>4</sup> Awaiting scheduling date for review in the European Community

## AGREED CCPR POSITIONS ON ESTIMATION OF EMRLS

### CCPR RISK MANAGEMENT ISSUES

1. Candidates for EMRLs - Should EMRL estimation be restricted only to pesticides for which uses are no longer registered or approved by a national authority (completely banned, banned on foods, restricted uses)?

CCPR requests for JMPR estimation of EMRLs are to be limited to those pesticides (including metabolites, reaction products and accompanying contaminants of pesticide production and use) and pesticide-commodity combinations for which uses are no longer registered or approved at the national level for food/feed purposes, **or for which the CCPR concludes that public health concerns have not been relieved in the absence of EMRLs.** (Bolded text is intended to allow the CCPR, as a risk management decision option, to request JMPR estimation of EMRLs in cases where one or two countries insist on continued use of a pesticide which has been banned in most countries.)

2. Environmental Persistence - Should EMRLs be estimated only for chemicals which are persistent in the environment? If so, by what measure should that be defined?

EMRLS should be estimated only for discontinued pesticides (as defined in 1 above) which are persistent in the environment. It is suggested as a guide that EMRL consideration be given to former pesticides for which it is anticipated that residual residues of regulatory concern will likely occur for a period of 3 or more years after discontinuation of the use (under ideal conditions approximately the minimum time for an EMRL candidate to be scheduled, reviewed, recommended and adopted).

3. Residues in food/feed - Should residues need first to be found at some level of regulatory significance in foods/feeds in trade? If so, what kinds of measures of regulatory significance should be considered?

Yes, residues of regulatory significance should be occurring in food/feeds in trade. Measures of regulatory significance may include, but not be limited to, a potential health concern and/or other regulatory concerns such as environmental concerns which may be monitored with EMRLs in food/feed.

4. Trade issue - Should there be a trade problem (reported to CCPR) before EMRLs are estimated for a pesticide/commodity combination, or should it be based on the potential for a trade problem, because of its persistence and the presence of measurable residues.

Either condition is a basis for considering a request for JMPR EMRL estimation. A greater burden of proof would be expected when no trade problem has been occurring, perhaps based on a history of monitoring data.

5. Proof of source of residues - Should the country requesting EMRL estimation be requested/required to provide proof or some credible evidence or rationale that reported residues (the data base) are not the result of purposeful uses?

Yes, the requesting country has an obligation to provide some credible assurance that residues in a data base to support EMRL estimates do not result from intentional use. For example, in some cases it may be possible to document when a national use(s) was discontinued and/or in some cases possibly that monitoring data show residues are less than the norm when the use was approved.

6. Health aspect - related to 3 above, should a health risk concern be a requirement or the only basis for requesting EMRL estimations? This relates to consistency with WTO SPS<sup>1</sup> consistency concerns that have been expressed.

A potential health concern (e.g., possibility of intake exceeding the ADI) may be a major reason for requesting estimation of EMRLs. However, as described in 3 above and in more detail below under “periodic review”, other reasons may also qualify. For example, just the lack of a trading standard can create trade problems, even if there is no health concern *per se*. As long as EMRLs are not established so low as to create significant trade barriers, the Committee does not consider concerns other than “ADI exceedances” as a basis for requesting an EMRL estimate inconsistent with WTO SPS principles.

7. CCPR Priorities - Should the CCPR use the same criteria for scheduling JMPR review as used for MRLs? If not, how should it differ?

If the CCPR decides to develop criteria for EMRLs this question will need to be referred to a working Group on Priorities or to whatever working group is formed to develop the criteria.

8. Periodic reviews of EMRLs - Should the CCPR support a periodic JMPR re-evaluation of EMRLs?

The CCPR supports the concept of a periodic review of EMRLs with reevaluations approximately every 5 years if it can be scheduled. In no case should it be greater than 8 years. While a periodic review of all EMRLs for given chemicals at regular intervals is recommended, reconsideration of individual EMRLs may be considered outside a periodic review if extraordinary circumstances require it. If the EMRLs do not significantly restrict trade the CCPR does not consider periodic review of EMRLs inconsistent with WTO SPS principles.

9. CCPR Data Issue - Location/amount - Should the CCPR specify that a minimum data base (e.g., minimum number of countries, minimum number of samples/commodity?) be committed before requesting the JMPR to conduct EMRL estimates or should a request and data commitment from one country with a problem/concern suffice (meaning if other countries have a different opinion on the need they have the opportunity to submit data to support their view)?

The CCPR should leave to the JMPR whether data are adequate to make an EMRL estimate. The country making a request normally has a valid reason from its perspective for doing so. It has an obligation to provide good supporting documentation and the CCPR has an obligation to consider its concern, whether other countries have a similar problem or not.

### **JMPR RISK ASSESSMENT ISSUES**

10. Types of data - What types of data should be provided for estimation of EMRLs? - The same toxicology data requirements as for MRLs? Routine random monitoring data? targeted monitoring data? Multi-year monitoring data? Other than toxicology and residue data what other data should data submitters be requested to provide, the same as for MRLs or just those related to the integrity of the residue data (e.g., analytical methodology, storage stability, sampling)?

The CCPR supports the JMPR practice of estimating EMRLs on the basis of random monitoring data. It does not consider “targeted” monitoring data in most cases to be appropriate for that purpose, recognising that it is useful for other purposes, including possible development of residue mitigation strategies.

If the CCPR concludes as a risk management decision, that a JMPR EMRL estimate based on random monitoring data would result in an unacceptable economic disruption and is convinced that residue reduction strategies are not possible, it may request the JMPR to consider re-estimating an EMRL on the basis of other than random monitoring data and request a new risk assessment based on that new estimate.

The CCPR leaves other data type requirement issues to the JMPR.

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<sup>1</sup> Agreement of the Application of Sanitary and Phytosanitary Measures.

11. Standard format - Should data submissions be required or requested to be in a standard format? If so, which formats should be recommended?

The CCPR recommends that the JMPR specify what standard format they would prefer for EMRL data submissions if something more than guidance in the FAO Manual is needed.

12. Statistical treatment - Should data submitters be required or requested to provide a statistical treatment of the data in addition to the “raw” data provided? If so, what information should be requested (e.g., number of samples analyzed, number of samples found with residues, number within residue ranges, number with no detections (what level?), limit of detection/determination, percentile figures)?

Countries requesting EMRL estimations should be referred to JMPR general guidance for EMRLs provided in the 1997 FAO Manual on the Submission and Evaluation of Pesticide Residues Data for the Estimation of Maximum Residue Levels in Food and Feed. They should be encouraged to provide all of the information listed above, but it should be required only if the JMPR requires it.

13. Limits of Determination - It has been recommended that the JMPR should continue to recommend suitable limits of determination for EMRLs.

The CCPR supports that recommendation as long as there is a reasonable expectation that residues may occur in a given commodity (or commodity group). Revocation of EMRLs should be considered, once there is no longer evidence that residues are likely to occur in practice.

14. Commodity Group EMRLs - One country recommends that EMRLs be estimated for commodity groups where possible.

The Committee endorses this recommendation.

15. Outliers - The JMPR and some countries do not consider the frequently used term to be appropriate for EMRL situations. Some prefer the term “extreme values”.

The CCPR accepts the principle that there may be sound reasons for excluding extreme values when estimating an EMRL. The CCPR accepts that the JMPR will need to determine inclusion or exclusion of extreme values on a case-by-case basis and that in accordance with 10 above, under certain circumstances the CCPR may request the JMPR to consider the use of data other than random monitoring data. The CCPR recognizes that the JMPR must retain the flexibility to consider various factors or approaches for exclusion of extreme values (including percentile approaches, violation rates or others) according to the circumstances of a given data base. The CCPR recognizes the need for such judgements to be based on sound science and for the scientific and other bases to be well documented.

16. Violation rates - The JMPR has described its practice of using likely violation rates as one tool for helping it arrive at an EMRL recommendation. It assumes 0.5 to 1% violation rates would be unacceptable to most countries, but invites countries to express a view on this topic.

The Committee accepts that any EMRL must be protective of the public health in the first instance. Once this criteria is fully met the Committee supports analyzes which result in EMRLs which are not so low as to be readily indistinguishable from background and not so low as to result in unnecessary trade disruption. At the same time the Committee supports EMRLs that are not so high that they will not detect continued uses of discontinued products, localised hot spots or do not reflect evidence of the expected continued decline of contaminants resulting from former pesticide uses.

The CCPR recognizes that an arbitrary violation rate or range would not be applicable to every situation. However, the CCPR accepts that the taking into account by the JMPR of violation rates which are consistent with actual enforcement practices of importing countries can be a useful tool to augment other tools in the exclusion of extreme values in submitted monitoring data. The CCPR recommends that the JMPR, in applying any violation rates to the setting of EMRLs, document the scientific and other bases on which the violation rate was set, in accord with CAC decisions and taking into account relevant WTO rulings. The CCPR encourages countries to submit violation rates with respect to incidences of trade disruption.