

codex alimentarius commission

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD HEALTH
ORGANIZATION

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ALINORM 89/24A

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

Eighteenth Session
Geneva, 3-12 July 1989

REPORT OF THE TWENTY-FIRST SESSION OF
THE CODEX COMMITTEE ON PESTICIDE RESIDUES
The Hague, 10-17 April 1989

NOTE: This document incorporates Codex Circular Letter CL 1989/22-PR

NB: Please note that there has been an error in the numbering of the paragraphs (para. 257 is followed by para. 278). There are no missing paragraphs in the report.

CX 4/40.2
CX 2/7.2

CL 1989/22-PR
May 1989

TO : - Codex Contact Points
- Participants at the 21st Session of the Codex Committee on Pesticide Residues
- Interested International Organizations

FROM : Chief, Joint FAO/WHO Food Standards Programme, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy

SUBJECT : Report of the Twenty-first Session of the Codex Committee on Pesticide Residues

The report of the 21st Session of the Codex Committee on Pesticide Residues (CCPR) (Ref. ALINORM 89/24A) will be considered by the 18th Session of the Codex Alimentarius Commission to be held in Geneva from 3-12 July 1989.

PART A **MATTERS OF INTEREST TO THE CODEX ALIMENTARIUS COMMISSION**

- (1) Draft MRLs and draft amendments to Codex MRLs at Steps 5 and 8 - these will be included in document ALINORM 69/24A-Add.1 and distributed separately prior to the Commission's session.
- (2) Proposed non-substantial changes to Codex Maximum Residue Limits - these will be included in document ALINORM 89/24A-Add.1 and distributed separately prior to the Commission's session.
- (3) Draft Recommended Method of Sampling for the Determination of Pesticide Residues in Meat and Poultry Products for Control Purposes at Step 5 (Appendix II, ALINORM 89/24A)
- (4) Other matters requiring action by the Commission will be included in document ALINORM 89/21 to be distributed prior to the Commission's session.

PART B **COMMENTS AND/PR INFORMATION REQUESTED FROM GOVERNMENTS AND INTERESTED INTERNATIONAL ORGANIZATIONS**

- (1) Draft MRLs and draft amendments to Codex MRLs at Step 6
These will be issued following the 18th Session of the Commission with a request for comments and information.
- (2) Re-evaluation of Pesticides evaluated prior to 1976 (paras. 297-302)
Governments are requested to inform the Chairman of the Working Group on Priorities of any registered uses in their countries for the pesticides listed in group B(3), Appendix V, ALINORM 89/24A. Governments and companies are requested to provide information on data availability to Dr. J. Taylor, Pesticides Directorate, Agriculture Canada, SBI Building, 2nd Floor, 2323 Riverside Drive, Ottawa, Ontario K1A 0C6, Canada, not later than 30 September 1989, with a copy to this office.
- (3) Inclusion of further pesticides in the Codex Priority Lists (paras. 303-304, ALINORM 89/24A)

Governments wishing to propose the pesticides mentioned in para. 303, ALINORM 89/24A for inclusion in the Codex Priority List or other pesticides are requested to contact Dr. J. Taylor, Pesticides Directorate, Agriculture Canada, SBI Building, 2nd Floor, 2323 Riverside Drive, Ottawa, Ontario K1A 0C6, Canada, with a copy to this office.

(4) Specific Requests for residues and toxicological data

Information on use patterns, good agricultural practices, residues data, national MRLs etc. should be sent to Dr. F.-W. Kopisch-Obuch, AGP, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Toxicological data should be sent to Dr. J.L. Herrman, International Programme on Chemical Safety, World Health Organization, 1211 Geneva 27, Switzerland.

(i) Pesticides for which MRLs are being elaborated

CAPTAN (007)	- data for review of captan on cherries and potatoes by the 1990 JMPR and any other relevant data (para. 79, ALINORM 89/24A)
DIMETHOATE (027)	- data on current GAP and analytical methods for review of dimethoate on apples, pears and apricots (paras. 83-84, ALINORM 89/24A) - full data for setting MRL in unprocessed olives (para. 86, ALINORM 89/24A)
OMETHOATE (055)	- residue data for omethoate alone resulting from current GAP (para. 99, ALINORM 89/24A)
ORTHO-PHENYLPHENOL (056)	- GAP data in support of existing Codex MRL (para. 106, ALINORM 89/24A)
CARBENDAZIM (072)	- data on the basis of which individual MRLs for cereals can be estimated by the JMPR (para. 110, ALINORM 89/24A)
ACEPHATE (095)	- up-to-date GAP data (para. 126, ALINORM 89/24A) and information on residues in processed citrus products (para. 128, ALINORM 89/24A)
METHAMIDOPHOS (100)	- residues and GAP data on head lettuce (para. 138, ALINORM 89/24A)
DITHIOCARBAMATES (105)	- Residues and GAP data (para. 143, ALINORM 89/24A)
ETHYLENETHIOUREA (108)	- new residue data and methods of analysis in apples, common bean, pears and tomatoes (para. 145, ALINORM 89/24A)
IMAZALIL (110)	- new GAP data on potatoes intended for human consumption (para. 147, ALINORM 89/24A)
FENVALERATE (119)	- recent GAP data on Brussels sprouts (para. 155, ALINORM 89/24A)
ETRIMFOS (123)	- residue data in grapes and wine and GAP data (para. 163, ALINORM 89/24A)
METHACRIFOS (125)	- information on GAP (para. 168, ALINORM 89/24A)
BENDIOCARB (137)	- information on GAP and residues data (para. 186, ALINORM 89/24A)
METALAXYL (138)	- residues data in wine grapes (para. 190, ALINORM 89/24A)
FLUCYTHRINATE (152)	- data on cattle meat, cattle milk, poultry eggs, goat meat (para. 212, ALINORM 89/24A)
CLOFENTAZINE (156)	- use patterns on currants (para. 215, ALINORM 89/24A)

(ii) Residue Data from Monitoring Programmes

Governments are requested to provide residue data from monitoring programmes on aldrin, dieldrin, DDT and heptachlor in fruits and vegetables on the basis of which appropriate Codex residue limits can be set for individual food commodities, replacing

the existing general MRLs for these classes of commodities (para. 230, ALINORM 89/24A).

(iii) Evaluation of Pesticides for which Guideline Levels have been set

- | | |
|------------------------|---|
| COUMAPHOS (018) | - data on current GAP for evaluation by the 1990 JMPR (para. 233, ALINORM 89/24A) |
| DEMETON-S-METHYL (073) | - information on current use patterns (following toxicological evaluation by the 1989 JMPR) (para. 234, ALINORM 89/24A) |
| DINOCAP (087) | - information on use patterns and methods of analysis for evaluation by the 1989 JMPR (para. 235, ALINORM 89/24A) |
| DIALIFOS (098) | - up-to-date information on agricultural uses (para. 237, ALINORM 89/24A) |
| DAMINOZIDE (104) | - data on current use patterns and GAP for evaluation by the 1989 JMPR (para. 238, ALINORM 89/24A) |

(5) National Maximum Limits for Pesticide Residues

Governments are requested to communicate their national MRLs and to keep this information up-to-date as indicated in para. 229, ALINORM 89/24A.

Information should be sent to:

Chemical Evaluation Division
Bureau of Chemical Safety
Foods Directorate
Health and Welfare Canada
Ottawa, K1A 0L2
Canada

(6) Fumigant Residues in Food

Governments are requested to provide information on the use of fumigants and their residues in food so that the CCPR can review the problem at its next session (para. 246, ALINORM 89/24A).

Information should be sent to Mrs. M. Freund, Head of Pesticide Registration, Department of Plant Protection and Inspection, Ministry of Agriculture, P.O. Box 78, Bet Dagan 50250, Israel, as soon as possible and preferably not later than the end of September 1989, with a copy to this office.

(7) Method of Sampling for the Determination of Pesticide Residues in Fish and Fishery Products and Dairy Products

Governments are requested to note Codex documents on sampling CAC/PR 5-1984 (or CAC/VOL. XIII-Ed.2 and Appendix II, ALINORM 89/24A) and comment on the need or otherwise for developing a separate document on sampling for fishery and dairy products (paras. 247-249, ALINORM 89/24A).

Comments should be sent to Dr. Jan van der Kolk, Foodstuffs Division, Ministry of Welfare, Health and Cultural Affairs, P.O. Box 5406, 2280 HK Rijswijk, The Netherlands, with a copy to this office, preferably not later than the end of October 1989.

SUMMARY AND CONCLUSIONS

The twenty-first session of the Codex Committee on Pesticide Residues (CCPR) reached the following conclusions during its deliberations, presented in order of the Agenda.

1. Any possible contribution to the arsenic content of fruit juices from pesticides is negligible (para. 10).
2. MRLs for tropical fruits and vegetables should be developed through the JMPR/CCPR mechanism (para. 11).
3. The report of the 1988 Joint FAO/WHO Meeting on Pesticide Residues (JMPR) was discussed in detail (paras. 23-34). The CCPR noted that the JMPR had decided to avoid estimating temporary ADIs for new compounds, where possible, but will publish monographs indicating the evaluation status of and data needed for compounds for which ADIs cannot be estimated.
4. The Committee welcomed action by the Codex Committee on General Principles (CCGP) to reconsider ways of accepting Codex MRLs. Governments were requested to reply to the Questionnaire on National Regulatory Practices for Pesticide Residues in Food (CL 1988/47-PR) after the question of acceptance of Codex MRLs has been discussed by the 18th Session of the Codex Alimentarius Commission (CAC). A report on replies received will be made to the 22nd Session of the CCPR. Governments and economic groupings of states were urged to notify their position regarding acceptance of Codex MRLs (paras. 35-42).
5. The Committee received a report from WHO on the Guidelines for Predicting Dietary Intake of Pesticide Residues. WHO was requested to distribute details of the "global" and "cultural" diets to members of the CCPR for information and comments (paras. 43-55). Reports from GEMS/FOOD and from national monitoring programmes were received (paras. 62-68).
6. The Codex Classification of Foods and Animal Feeds was finalized. The CCPR recommended that it should be published as a reference document for use by Codex, JMPR and governments. Discrepancies between this document and the Codex document "Portion of Commodities to which Codex MRLs apply and which is analysed" (CAC/PR 6-1984) should be examined (paras. 72-76).
7. Draft MRLs were considered in the light of comments received. It was decided, as a matter of principle, to replace MRLs for large classes of food commodities by individual or small group MRLs (paras. 77-230).
8. "Guideline levels" (except those for fumigants) were reviewed. Those for fumigants will require further consideration (paras. 231-245).
9. New definitions for "MRL" and "GAP" were adopted for endorsement by the CAC and JMPR. The Codex Committee on Veterinary Drug Residues in Food (CCRVDF) was requested to consider following the same approach (paras. 69-71).
10. Fumigant residues could not be discussed. This important topic will be reconsidered at the next session (para. 246).
11. A recommended method of sampling for the determination of pesticide residues in meat and poultry products for control purposes was submitted to the CAC at

Step 5 of the Procedure (paras. 247-248 and Appendix II).

12. Further methods of analysis for pesticide residues were recommended. Reference to "simple" methods and collaboratively tested methods are no longer made in the listing. The question of analytical quality assurance (AQA) and Good Laboratory Practice (GLP) were considered to be important issues to be discussed and to be taken up in the Codex Guidelines on Good Practice in Pesticide Residue Analysis (paras. 250-256 and Appendix III).
13. The Committee made recommendations concerning pesticide residue problems in developing countries aimed at improving the use of pesticides and, as a result, the control of residues in food. Assistance was requested from UN Agencies, GIFAP and manufacturers of pesticides. The Committee appointed individuals to report back on residue problems in the various Codex Regions. The respective Governments were requested to give assistance to these persons in carrying out their tasks (paras. 257-293 and Appendix IV).
14. Priority lists of pesticides were adopted for the guidance of the JMPR, Governments and the Industry regarding the generation of data and the evaluation of pesticides and their residues. A tentative agenda for the JMPR was drawn up until 1994. The Committee also identified pesticides, evaluated prior to 1976, which should be reevaluated by the JMPR (paras. 294-306 and Appendices V and VI). For a number of pesticides, Governments and other bodies were invited to provide the CCPR and JMPR with additional data on GAP and residues resulting thereof (see under individual pesticides).

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INTRODUCTION

1. The Codex Committee on Pesticide Residues held its 21st Session in The Hague, The Netherlands, from 10-17 April 1989. Mr. J. van der Kolk, Public Health Officer of the Ministry of Welfare, Health and Cultural Affairs, Foodstuffs Division, acted as Chairman. The Session was attended by Government delegates, experts, observers and advisers from the following 43 countries:

Algeria	El Salvador	New Zealand
Argentina	Fed. Rep. of Germany	Nigeria
Australia	Finland	Norway
Austria	France	Poland
Belgium	German Dem. Rep.	Portugal
Brazil	Greece	Republic of Korea
Bulgaria	Hungary	Spain
Canada	India	Swaziland
Chile	Iran	Sweden
China, People's Rep. of	Ireland	Switzerland
Czechoslovakia	Israel	Thailand
Dem. People's Rep. of	Italy	Tunisia
Korea	Japan	United Kingdom
Denmark	Malaysia	United States of America
Egypt	Netherlands	

The following International Organizations were also represented:

Association of Official Analytical Chemists (AOAC)
 Confédération Européenne du Commerce de Détail (CECD)
 European Economic Community (EEC)
 International Federation of National Associations of Pesticide Manufacturers (GIFAP)
 International Organization for Standardization (ISO)
 International Union of Pure and Applied Chemistry (IUPAC)

The list of participants, including officers from FAO and WHO is attached as Appendix I to this Report.

OPENING OF THE SESSION (Agenda Item 1)

2. The Session was opened by Prof. Dr. J. van Londen, Director-General of Public Health, Ministry of Welfare, Health and Cultural Affairs.

3. Dr. van Londen noted that, after 21 sessions, the Committee had become a recognized authority on matters relating to pesticide residues in food as also evidenced by the attention paid by GATT to Codex recommendations. Work of the Committee was closely related to other efforts directed to controlling the effects of pesticides on man and his environment and consumer protection and this was evident from the number of Codex documents to which reference was made under the International Code of Conduct in the Distribution and use of Pesticides. Dr. van Londen stressed that pesticides would continue to receive attention by politicians and the general public as would also good agricultural practice, which depended not only on varying conditions of pest control, but also on changes in the appreciation of the effects of pesticides and their residues. There was a need to be critical in the appraisal of agricultural practices and to ensure that developing countries should be in a position to provide the high quality data

required for evaluation. There was also a need to continue to pay attention to questions of safety and consumer protection, which were essential to guarantee the acceptability of Codex recommendations regarding pesticide residues.

4. Dr. van Londen noted the difficulties which the Secretariat had faced recently as a result of certain budgetary restrictions, but stated that The Netherlands would continue its support of the Committee. He wished the Committee a successful meeting. The Chairman thanked the Director-General for his encouraging words, which brought into perspective several essential aspects of the Committee's work and which confirmed The Netherlands' intention to provide continuing support to the Committee.

ADOPTION OF THE AGENDA, (Agenda Item 2)

5. The agenda and the time schedule for the plenary session and for Working Groups were announced in CX/PR 89/1. With respect to the distribution of the final report of the Committee, the delegation of France requested that the English version be distributed to all Member Nations as soon as it becomes available. The Secretariat took note of this request. The agenda was adopted without change.

APPOINTMENT OF RAPORTEURS (Agenda Item 3)

6. Ms. E. Campbell (United States of America) and Ms. J.K. Taylor (Canada) were appointed to act as rapporteurs to the Committee.

MATTERS OF INTEREST TO THE COMMITTEE (Agenda Item 4)

(a) Matters arising from Codex Committees

7. The Committee considered two working papers (CX/PR 89/4 and CX/PR 89/4-Add.1) on matters of interest.

Coordinating Committee for Africa (8th Session, paras. 26, 71-73, ALINORM 89/28)

8. The Committee was informed that, on the question of marketing of foods containing excessive residues, the Coordinating Committee for Africa had agreed that this problem was mainly due to improper use of pesticides in the African Region itself. It was felt that there was a need for each member nation to control the importation and use of pesticides through sound pesticide registration systems and to monitor their residues. It was also agreed that information should be requested from governments on the sources of such residues in food.

Codex Committee on Residues of Veterinary Drugs in Foods (3rd Session, paras. 42-65, and Appendix III, ALINORM 89/31A)

9. The Committee noted that the CCRVDF had adopted definitions of "maximum residue level" (MRL) and "good practices in the use of veterinary drugs" (GPVD) which differ from those of the CCPR. The definitions developed by the CCPR will be proposed to the CCRVDF as the basis for their work.

Joint ECE/Codex Alimentarius Group of Experts on Standardization of Fruit Juices (18th Session, paras. 9-10, ALINORM 89/14)

10. The Committee was informed about the question of residues of arsenic in fruit juices, arising possibly from the use of arsenical pesticides, which had been referred to the CCPR by the Group of Experts at its 17th Session. For lack of information, this matter could not be considered by the CCPR at its 20th Session. Information had been received from Thailand, USA, Portugal, Canada and the Federal Republic of Germany, An error in document CX/PR 89/4 was noted: sodium arsenite is used in Portugal in

vineyards during winter, not during summer. From the available information it appeared that the amount of arsenic occurring in fruit juice as a result of the use of arsenical pesticides would be negligible.

Codex Committee on Tropical Fresh Fruits and Vegetables (1st Session, para. 64, ALINORM 89/35)

11. This new Committee agreed, at its first Session, that issues relating to use of pesticides on tropical fresh fruits and vegetables would be a matter for discussion by both Committees. The CCPR agreed that these issues should be considered through the JMPR/CCPR mechanism.

Executive Committee (35th Session, ALINORM 89/3)

12. The Committee was informed that reports of Codex Committees would not be adopted by the Commission. A summary list of recommendations and decisions from this Report will, however, be prepared for the use of the Commission.

Codex Committee on Food Additives and Contaminants (21st Session, para. 144, ALINORM 89/12A)

13. The Committee was informed of the decision of the CCFAC to consider PCBs and dioxins as environmental contaminants in food. The CCPR again offered assistance on the analytical methodology of PCBs.

Coordinating Committee for Latin America and the Caribbean (6th Session, paras. 19-20, 146, ALINORM 89/36)

14. The Committee was informed of:

- the need, expressed by Brazil, for validated methods of analysis for meat, fishery, and dairy products;
- the reservation expressed by Argentina regarding the usefulness of "simple" methods of analysis; and
- the suggestions by the Dominican Republic that future programmes include a review of MRLs for tropical products.

The first 2 items were referred to the ad hoc Working Group on Methods of Analysis.

(b) Matters arising from work of FAO

15. The Representative of FAO gave an outline of matters of interest to the Committee.

Prior Informed Consent (PIC)

16. A government consultation where 62 countries and 8 international organizations were represented, met in Rome last January to discuss the incorporation of the principle of Prior Informed Consent (PIC) in the International Code of Conduct on the Distribution and Use of Pesticides. The Consultation discussed in detail the guidelines on the operation of Prior Informed Consent and recommendations to amend Article 9 of the Code as prepared by the expert consultation in March 1988. The Consultation urged that the PIC scheme for pesticides be operated within the FAO framework.

The proposals will be forwarded to the FAO Committee on Agriculture (COAG) for consideration, to the Council, and finally to the next Conference. In the meantime, cooperation between UNEP and FAO is under way to work out procedures for the operation of PIC. FAO will establish a data base on banned and severely restricted pesticides complementary to the existing UNEP data base (IRPTC),

New Guidelines

17. FAO has published seven new guidelines in support of the implementation of the Code of Conduct.

- Retail distribution of pesticides with particular reference to storage and handling at the point of supply to users in developing countries;
- Principles for safeguarding proprietary rights on registration data of pesticides;
- Data requirements to be submitted to the regulatory authority when seeking registration of a pesticide;
- Pictograms for use on agrochemical labels;
- Registration of biological pest control agents;
- Post registration surveillance and other activities;
- Guidelines for legislation on the control of pesticides.

These guidelines are available from FAO upon request.

Specifications

18. FAO Specifications for Plant Protection Products for 25 new compounds were published recently and are available from FAO upon request.

Projects

19. (i) The regional Technical Assistance Project for South-East Asia and the Pacific, "Implementation of the International Code of Conduct on the Distribution and Use of Pesticides", financed through a trust fund by the Government of Japan was started in May 1988. The project covers 29 countries. Two workshops were organized:

- "Regional Workshop on Harmonization of Efficacy Test Protocols for Pesticides" in cooperation with GTZ and the Ministry of Agriculture of Malaysia. Attendance: 24 delegates from 8 countries; and
- "Workshop on Pesticide Regulatory Principles and Procedures for the Asia and Pacific Region" in cooperation with US EPA, GTZ and USAID. Attendance: 22 countries. Objective: to gain a common understanding of principles involved.

(ii) TCP Project for Ghana

"Assistance to establish National Pesticide Registration and Control Scheme". The project will also provide basic equipment for pesticide formulation analysis.

(iii) TCP Project for Somalia

"Pesticide Management and Disposal of Old Pesticides". The project envisages elaboration of disposal procedures under local conditions and provides training on pesticide storage management.

(iv) A pesticide residue laboratory is being implemented within an operational project in Vietnam.

(v) Approval for a regional project on the implementation of the International Code of Conduct on the Distribution and Use of Pesticides for Africa is expected during the next few months. The project is expected to start towards the end of 1989.

- (vi) Two TCP projects to improve pesticide application in Zimbabwe and in Cameroon and one TCP project for the Gambia "Assistance to Implement National Registration and Control Scheme" are subject to approval. All three are expected to start later in 1989. The project for Gambia will also provide some laboratory facilities for pesticide formulation control.

Future Workshops

20. A regional workshop in Accra, Ghana, 4-8 September 1989 for 14 West African countries on pesticide management is in the planning stage.

(c) Matters arising from International Organizations

European Economic Community (EEC)

21. The Representative of the EEC informed the Committee of the appearance in May 1988 and January 1989 of two Directives on maximum residue limits for vegetables. The EEC was examining an improved framework for MRLs for fruits and vegetables and planned to extend the work to pulses, oilseeds and potatoes. It would incorporate a classification system based largely on the Codex system and group tolerances.

Nordic Council of Ministers

22. The Council was undertaking to harmonize pesticide MRLs. The first limits, on potatoes and cereals, would be published soon.

CONSIDERATION OF THE REPORT OF THE 1988 JOINT FAO/WHO MEETING ON PESTICIDE RESIDUES (JMPR) (Agenda Item 5)

23. In introducing agenda item 5, the Chairman congratulated the JMPR Secretariat on the timely publication of the 1988 JMPR report and residue evaluations, FAO Plant Production and Protection Papers 92 and 93/1. A pre-publication copy of the Evaluations 1988, Part II: Toxicology, was distributed during this Session. The report was briefly described by the JMPR Joint Secretaries, Mr. F.-W. Kopisch-Obuch (FAO) and Mr. J.L. Herrman (WHO).

24. The Committee noted that the agenda of the 1988 JMPR had had to be modified. The re-evaluation of carbosulfan had been postponed until the 1989 JMPR. Most of the matters referred to the JMPR by the 20th Session of the CCPR had been considered. The questions on bendiocarb, chlorpyrifos, fenitrothion, imazalil, permethrin and 2-phenylphenol could not be considered owing to lack of data. Dietary intakes of certain compounds could not be predicted since information on diets was lacking and the mechanism for making the calculations had not been fully developed. The Draft Guidelines for Developing Data on Pesticide Residues in Food as Consumed had been discussed and the Meeting had suggested that the Guidelines should be finalized by the FAO and published within the framework of the International Code of Conduct on the Distribution and use of Pesticides.

25. The JMPR had discussed in detail the definitions by the 20th Session of the CCPR of GAP and MRL. The Meeting had thought that the definitions were complex and needed to be expressed more simply, and had proposed some changes. Both definitions are discussed in paras. 69-71. The Meeting had reviewed the expression of residue limits as defined at the JMPR 1973 and had considered the errors involved in both sampling and analysis of samples and had recommended the continued use of the existing MRL intervals (see also para. 251).

26. The Committee was informed that matters referred to the JMPR by the CCPR were a point of discussion by the JMPR. Requests from the CCPR for changes in recommendations should be accompanied by a clear statement of the reasons for the referral and must be supported by data necessary for the JMPR to reconsider the issue.

27. Twelve compounds had been evaluated toxicologically. For most of them ADIs had been established or continued but in some cases at different levels from those estimated before. The WHO Expert Group had been of the opinion that temporary ADIs for new substances should not be allocated. No figures would be allocated unless the data base was sufficient for establishing a full ADI (see also para. 32). Extensions of temporary ADIs and the evaluation of anticholinesterase pesticides were considered by the WHO Expert Group.

28. The JMPR had recommended that ETU, PTU, amitrole and other possible goitrogens should be evaluated together to review the mechanisms of the production of thyroid follicular cell adenomas and carcinomas.

29. The representative of the EEC informed the Committee that the Commission of the EEC would, in principle, follow the progression of numbers for setting MRLs suggested by the JMPR. It was noted that it would be more appropriate to show the progression of numbers as 1, 2 etc. rather than 1.0, 2.0 etc., in order not to imply a level of accuracy which did not exist.

30. A discussion took place on the reasons for evaluating ETU and PTU together and whether toxicological data would be extrapolated from one degradation product to the other. It was explained that the toxic effects were very complex but showed certain similarities. It was practical to consider them at the same session, albeit on the basis of separate toxicological data. The Committee was informed that toxicological studies were in progress on ETU and PTU which would be completed in 1992 and could be submitted to the JMPR for evaluation in 1993.

31. It was pointed out that, because of the re-evaluation of acephate by the 1988 JMPR, there is now a 50-fold difference in the ADIs between acephate and methamidophos. The difference in toxicity on the basis of animal studies would appear to be less than this. The WHO Secretariat stated that methamidophos would be placed on the agenda of a future JMPR, using as a basis of the re-evaluation the studies in humans with acephate/methamidophos mixtures that were used as the basis for the ADI for acephate. It would be helpful if other data on methamidophos, particularly in humans, could be submitted for evaluation.

32. GIFAP asked for clarification and amplification of the position of JMPR regarding temporary ADIs. The Secretariat stated that the word "should", not "must", was used in the report and that the JMPR had been moving in the direction of establishing fewer temporary ADIs during the past years. In the opinion of the Secretariat the new policy forced tough decisions upon the WHO Expert Group in that the easy procedure of establishing temporary ADIs would not be used in the future. Recent experience showed that many substances that previously would have been given temporary ADIs were now given full ADIs.

33. The new policy is to publish monographs after review of new compounds, even if an ADI is not established. Thus, summaries of the data that were considered, will be available to governments, and the JMPR will make clear why an ADI could not be established.

34. In this regard, the delegation of the Federal Republic of Germany commented that "relevant data" referred to in paragraph 2 of Section 2.6 of the 1988 JMPR report should include not only toxicological data, but also findings derived from other sources.

REPORT ON ACCEPTANCES BY GOVERNMENTS OF CODEX MRLS (Agenda Item 6)

Questionnaire on National Regulatory Practices

35. The Committee received a verbal report from Mr. J. Wessel (United States of America) on replies received in response to the questionnaire on national regulatory practices (CL 1988/35-PR). As only twenty-two countries had responded, Mr. Wessel suggested that any analysis of the replies received should wait until at least fifty countries had sent information to the Secretariat.

36. The Committee was informed that the Codex Committee on General Principles and the Commission would discuss the question of acceptance of Codex MRLs in 1989. It noted that the Secretariat was proposing a simple system of acceptance notification involving only "full acceptance" (as currently defined) and "free entry", involving an undertaking that products conforming with Codex MRLs may be distributed freely in the country concerned (see CX/GP 89/11, para. 10). Declarations of "limited acceptance", "target acceptance" and "non-acceptance" should be deleted.

37. The delegation of the USA was in favour, in principle, of the concept of free entry, but considered that the term "free distribution" would be more appropriate. However, deletion of non-acceptance notifications would deprive governments of useful information. The delegation had reservations about such a deletion and also stressed the need to speed up progress in the acceptance of Codex MRLs in order not to lose the support of governments and pesticide registrants.

38. The Committee was in agreement with the views expressed by the delegation of the USA. Noting that the Codex Committee on General Principles and the Commission would discuss the acceptance of Codex MRLs, including the question of notification of acceptances by economic groupings such as the EEC, the Committee agreed that further enquiry through the questionnaire on regulatory practices should be postponed until after the 18th Session of the Commission. At that time the questionnaire may have to be modified to take account of the conclusions of the Commission. It was agreed that countries be urged to respond to the questionnaire following the Commission's session. Any countries which had already responded were invited to send to the Secretariat any additional information.

39. The Committee thanked Mr. Wessel for his valuable collaboration and requested him to continue to receive information and to report back to the 22nd Session of the Committee.

Summary of Acceptances Received since the 20th Session

40. The Committee received a report on acceptance notifications received from Bulgaria, Malaysia, Portugal, New Zealand and the United States of America. The Committee noted that, although only very few notifications had been received, the replies were positive. It also noted that "limited acceptance" and "free distribution" were being used increasingly by governments.

41. The delegation of Bulgaria informed the Committee that, in the future, Bulgaria would give "full acceptance" or "free distribution" to Codex MRLs in respect to imported foods, including those pesticides not registered in Bulgaria. It would use either Codex or

EEC limits for foods produced domestically and moving in national trade or destined for export, as appropriate.

42. The Committee urged governments and economic groupings to notify their acceptances of Codex MRLs.

CONSIDERATION OF INTAKE OF PESTICIDE RESIDUES (Agenda Item 7)

(a) Progress report by WHO on Guidelines for Predicting Dietary Intake of Pesticide Residues

43. The Guidelines for Predicting Dietary Intake of Pesticide Residues just published by WHO were presented to the Committee. Work on the Guidelines was initiated in 1986 when the ad hoc Working Group on Regulatory Principles under the Chairmanship of Mr. John Wessel issued a discussion paper on "Codex limits for pesticide residues in food and consumer safety". The Guidelines were finalized under the auspices of the Joint FAO/WHO Food Monitoring Programme. The Working Group outlined principles for predicting the intake of pesticide residues and recommended that guidelines be developed by FAO and WHO for predicting such intakes. The Guidelines were finalized under the auspices of the Joint FAO/WHO/UNEP Food Contamination Monitoring Programme. The Guidelines are being translated into Spanish and French and these translations should be available in about six months time. The steps in the development of these Guidelines are described in ALINORM 89/24, paras. 24-47 and 243.

44. Progress on the application of the Guidelines and examples of such application were presented to the Committee in a paper prepared by Drs. Galal-Gorchev and Herrman, WHO.

45. Nine "cultural" diets are being developed using the most recent FAO Food Balance Sheets. These diets are not necessarily geographical in nature but are based instead on similarities in dietary patterns. The cultural diets are used for calculating Estimated Maximum Daily Intakes (EMDIs).

46. A "global" diet based on the nine cultural diets has been developed, and this global diet has been used for estimating Theoretical Maximum Daily Intake (TMDIs). The global diet was calculated using the highest average food consumption value for individual commodities from each cultural diet, normalized to a 1.5 kg/day total food consumption.

47. Codex Maximum Residue Limits (MRLs) were used in these calculations as well as recommended MRLs which have not yet gone through the complete Codex acceptance procedure (see CAC/PR 2-1988). In the case of MRLs which are not yet under consideration by Codex, the MRLs recommended by JMPR were used.

48. As many of the commodities for which MRLs have been established or recommended are not listed individually in the present food consumption data base, many assumptions were made which resulted in vast overestimates of the intake. However, this is only a screening mechanism to eliminate the need for further consideration of the intake of a pesticide.

49. In order to improve the food consumption data base the Committee agreed to renew the request to countries for food intake data. Only Czechoslovakia had provided information in response to CL 1988/35-PR, Part B, item 9.

50. In order to illustrate the use of the Guidelines, TMDIs had been calculated for several pesticides identified at the Twentieth Session of the CCPR as being of special concern. These were paclobutrazol, parathion-methyl, permethrin, pirimiphos-methyl,

tolyfluanid, triazophos and vamidothion. Except for pirimiphos-methyl and triazophos, the TMDIs were below the ADIs. Preliminary EMDI calculations were made for pirimiphos-methyl and triazophos using the European-type diet, which is the only diet for which sufficiently detailed data were available. Maximum residue figure's likely to be present in the edible portion were used, and corrections were made for changes in residue levels due to processing and cooking. These factors were taken from JMPR publications. Preliminary EMDIs calculated for pirimiphos-methyl (see also para. 65) and triazophos exceeded the ADIs for these substances and pointed to the need for individual countries to calculate Estimated Daily Intakes (EDIs) which would be more realistic estimates of intake, using known residue levels and national food consumption data.

51. It was emphasized, once again, as stressed in the Guidelines, that TMDI and EMDI calculations give only very rough estimates of maximum potential intake, and do not represent actual intake figures. Better estimates of intake can be calculated solely at the national level and through actual dietary intake studies. Whenever such studies are available, they should outweigh TMDI and EMDI predictions.

52. It was agreed that the information on the global and cultural diets would be sent as soon as possible by WHO to the Codex Secretariat in Rome, for further distribution to CCPR participants.

53. The Secretariat emphasized that prediction of intakes should be considered in conjunction with the Guidelines, which clearly explain the limitations and significance of such predictions. For example, in EMDI calculations assumptions are made that a) all foods for which MRLs have been established contain the pesticide at the level of the MRL and b) 100% of the crop is treated with the pesticide.

54. The delegation of India enquired whether TMDI and EMDI calculations take into account various income levels, an important consideration for developing countries. The diets developed by WHO were based on national averages. It was pointed out that studies involving this kind of information could only be carried out at the national level.

55. The Committee commended WHO for initiating this work, recognized that it was at a preliminary stage and recommended that it be pursued further. The Committee further recognized that as recommended by the Executive Committee, the Guidelines had now been given wide distribution, and recommended that they be referred to in the Guide to Codex Recommendations Concerning Pesticide Residues in Food to increase the awareness of Governments of their availability.

(b) Report on pesticide residue intake studies through the Joint UNEP/FAO/WHO Food Contamination Monitoring Programme (or GEMS/Food)

56. The report "Assessment of Chemical Contaminants in Food" (UNEP/FAO/WHO, 1988) was presented to the Committee by the WHO representative Dr. Galal-Gorchev. The report contains an assessment of data on the dietary intake of pesticide residues collected through GEMS/Food as well as the open literature. Unfortunately, very little information is available from developing countries, and as a result the conclusions drawn are tentative.

57. In countries where the use of organochlorine pesticides are restricted or banned altogether, these compounds occur in fat-containing foods of animal origin. With the exception of human milk, the levels of these compounds are low, show a decreasing

trend and are well below established MRLs. The dietary intakes of these pesticides seldom exceed 1% of the ADI.

58. Organophosphorus pesticides are seldom detected in dietary intake studies. However, sporadic occurrence of higher levels in cereal products, fruit and vegetables indicate that contamination of crops can occur under certain conditions of use. Intake of these pesticides is extremely low, in the region of 0.1% of the relevant ADI.

59. The next GEMS/Food data collection cycle will be initiated in about three months, when 1986-88 data will be collected from the 37 institutions participating in the Programme. Pesticides included in GEMS/Food have been selected by the Technical Advisory Committee. Any pesticide which the CCPR would like to select can be included in the Programme. Data made available to CCPR by participants are, whenever possible, included in the GEMS/Food data base.

60. The contribution of drinking water to the total intake of pesticides is included in total diet studies since such studies normally include measurements of pesticide levels in food, beverages, and drinking water. Guideline levels have been established for a number of pesticides in the WHO Guidelines for Drinking-Water Quality, which were published in 1984. These Guidelines are being revised. Additional pesticides are being considered in the revision.

61. The delegation of Egypt drew attention to the fact that levels of organochlorine pesticides are highest in mother's milk. Exposure of infants continues beyond mother's milk since the milk of cattle is also found to contain measurable levels of these pesticides, although at lower levels than human milk. As far as fish is concerned, it would be desirable that Codex establishes ERLs for certain pesticide residues since wide differences in national limits have been observed and this could constitute an impediment to trade. The representative of the AOAC noted that very few data were available to the JMPR on pesticide levels in fish, and such data were needed to establish ERLs.

(c) Reports on pesticide residue intake studies in various countries

62. United States of America: The Food and Drug Administration continues to carry out dietary intake studies. The most recent 1987 results show again that residues of pesticides are very low, generally less than 1% of the ADIs. These results have been published in the December 1988 issue of the JAOAC.

63. United Kingdom: A total diet study was carried out in 1984-85. Intakes were low in comparison with the ADIs. Results of the study have been published. A new study will be performed during 1989-90.

64. Finland: A report on the 1982-88 intake studies is in preparation. The report will be published in a few weeks and the data will be made available to GEMS/Food.

65. Australia: The National Health Medical Research Council has published its 1986 Market Basket Survey for heavy metals, aflatoxins and pesticide residues. Results are in general accord with previous studies in Australia as well as those of other countries. EDI predictions for pirimiphos-methyl were carried out for a worst-case situation (infants). The EDI amounted to 1% of the ADI, clearly indicating that TMDI and EMDI predictions at the international level are overestimates of the actual situation.

66. Federal Republic of Germany: A monitoring system was established last October. The study will last five years. It is hoped that preliminary results can be made available to the next Session of the CCPR.

67. Bulgaria provided data on pesticide residues in food. These data will be included in the GEMS/Food data base. Residues of chlorinated pesticides were very low in food with the exception of residues of hexachlorocyclohexanes in milk and milk products, where the levels approached the MRL of lindane.

68. A Symposium on monitoring dietary intake will be held in June in Helsinki. The delegation of Finland warmly welcomed the attendance of CCPR participants at this Symposium, which is highly relevant to the work of the CCPR.

DEFINITION OF "GOOD AGRICULTURAL PRACTICE IN THE USE OF PESTICIDES" AND "MAXIMUM RESIDUE LIMITS" (Agenda Item (8))

69. The Committee had before it document CX/PR 89/8 and 89/8-Add.1, which contained the revised definitions of "Good Agricultural Practice" (GAP) and "Maximum Residue Limit" (MRL) as proposed by the CCPR during its 20th Session as well as the consideration by the JMPR and some government comments.

70. After discussion the Committee decided to amend the proposed definition of GAP and MRL to take account of the comments made by the JMPR and delegations. In order to ensure that the explanatory notes would be regarded as part of the MRL definition the Committee decided to delete the words "explanatory notes" and to take them up in the definition. The agreed definitions are as follows:

Good agricultural practice in the use of pesticides (GAP) includes the nationally authorised safe uses of pesticides under actual conditions necessary for effective and reliable pest control. It encompasses a range of levels of pesticide applications up to the highest authorised use, applied in a manner which leaves a residue which is the smallest amount practicable.

Authorized safe uses are determined at the national level and include nationally registered or recommended uses, which take into account public and occupational health and environmental safety considerations.

Actual conditions include any stage in the production, storage, transport, distribution and processing of food commodities and animal feed.

Maximum Residue Limit (MRL) is the maximum concentration of a pesticide residue (expressed as mg/kg), recommended by the Codex Alimentarius Commission to be legally permitted in or on food commodities and animal feeds. MRLs are based on GAP data and foods derived from commodities that comply with the respective MRLs are intended to be toxicologically acceptable.

Codex MRLs, which are primarily intended to apply in international trade, are derived from estimations made by the JMPR following:

- a) toxicological assessment of the pesticide and its residue; and
- b) review of residue data from supervised trials and supervised uses including those reflecting national good agricultural practices. Data from supervised trials conducted at the highest nationally recommended, authorized or registered uses are included in the review. In order to accommodate variations in national pest control requirements, Codex MRLs take into account the higher levels shown to arise in such supervised trials, which are considered to represent effective pest control practices.

Consideration of the various dietary residue intake estimates and determinations both at the national and international level in comparison with the ADI, should indicate that foods complying with Codex MRLs are safe for human consumption.

71. It was decided that the revised definitions should be brought before the Commission for endorsement, with the request that the proposed definitions of the CCRVDF be aligned with those proposed by the Committee. . The JMPR would also be requested to endorse these definitions.

THE CODEX CLASSIFICATION OF FOODS AND ANIMAL FEEDS (CAC/PR 4-1989)
(Agenda Item 9.1(a))

72. The Committee decided to recommend deletion of CXLs for hydrogen phosphide (046) in "breakfast cereals", "dried foods" and "flour and other milled cereal products" and for dichlorvos in "miscellaneous food items not otherwise specified" and "milled products from raw grain".

73. In relation to deltamethrin (135), "oilseed" will be replaced by "oilseed, except peanut" and "legume oilseeds" will be replaced by "peanut". These will be proposed at Step 3.

74. Discrepancies between this document and the document on portions of commodities to be analyzed will be resolved by the Secretariat, which will report its conclusions to this Committee.

75. The document is now finalized and will be included in the Guide as Codex publication CAC/PR 4-1989. It will be recommended as a reference document for use by the CCPR, the JMPR and other Codex Committees, such as the Codex Committee on Residues of Veterinary Drugs in Food.

76. On behalf of the Committee the Chairman expressed his thanks to Mr. Besemer for his outstanding work on this subject for many years.

CONSIDERATION OF MAXIMUM RESIDUE LIMITS (Agenda Item 9.1(b),(c),(d),(e))

77. The Committee had before it the following documents:

- CX/PR 89/2 containing MRLs at Step 3 and 6;
- CAC/PR 2-1989, Part 2 of the "Guide to Codex Recommendations Concerning Pesticide Residues" in which MRLs are listed;
- CX/PR 89/9 containing government comments on the MRLs under discussion;
- CX/PR 89/10 containing MRLs at Step 7.

In the interest of economy the following paragraphs refer only to those MRLs and ERLs on which there was detailed discussion, where delegations expressed reservations, or where relevant information had to be recorded. The Step in the Codex Procedure to which the Committee advanced or returned individual MRLs or ERLs or at which limits were held is indicated for each pesticide as follows:

<u>Step</u>	<u>Action</u>
5	The draft MRL is submitted to the CAC for consideration and advancement to Step 6 for comments.
5/8	The draft MRL is submitted to the CAC at Steps 5 and 8, because the CCPR has recommended the omission of Steps 6 and 7.
7A	The draft MRL is held at Step 7 only because the ADI is temporary. It is submitted by the Secretariat to the Commission at Step 8 as soon as a full ADI is estimated.
7B	The draft MRL is held at Step 7 pending further consideration by the JMPR. Immediately after such consideration it is returned to Step 6 by the Secretariat for comments by Governments.
7C	The draft MRL is held at Step 7 to await developments (other than review by the JMPR) on which further action by the CCPR is contingent. After such developments it is returned to Step 6 by the CCPR.
8	The draft MRL is submitted to the CAC for adoption as a Codex MRL ("CXL").
(a) (following Step number)	The MRL is a proposed amendment to a Codex MRL (CXL).

ALDRIN AND DIELDRIN (001)

78. The Committee noted that the agricultural uses of the compounds had virtually ceased, but that it was not possible to propose ERLs in the absence of appropriate data. The Committee agreed to take no action.

CAPTAN (007)

Cherries; Potato

79. The Committee noted that captan was due for review by the 1990 JMPR and agreed to retain the proposals at Step 7C. Governments were requested to provide data.

Status of MRLs

At Step 7C: cherries, potato.

CHLORPYRIFOS (017)

Dried Grapes

80. The Committee noted that there was no prospect of additional data being provided. The proposal was advanced.

Status of MRLs

At Step 8: dried grapes.

2,4-D (020)

Maize; Rice; Sorghum

81. It appeared that additional data could not be expected. The Committee concluded that 0.05 mg/kg was a more realistic limit of determination than 0.02 mg/kg, and advanced 0.05 mg/kg to Step 8.

Status of MRLs

At Step 8 : maize; rice; sorghum.

DICHLORVOS (025)

82. See para. 72.

DIMETOATE (027)

Apple; Pear

83. The 1988 JMPR had received data for review. Several delegations advocated a limit of 1 mg/kg. Noting that most of the existing data were old, the Committee returned 1 mg/kg to Step 6 with a request for data on current GAP and analytical methods. The delegation of Hungary hoped to provide such data.

Apricot

84. There was no general agreement on an appropriate limit, with some delegations supporting the proposed 2 mg/kg and others preferring 1 mg/kg- There was concern that the GAP data on which the 2 mg/kg were based was so old that it was no longer accurate. New GAP data were requested. The delegation of Hungary undertook to provide data on stone fruits (excluding apricots) to support a limit of 2 mg/kg.

Carrot; Cherries; Kale Onion, Bulb

85. The proposed limits were confirmed by the 1988 JMPR.

Olives

86. After some discussion of the need for an MRL for unprocessed olives, the proposal was advanced. The delegation of France was of the opinion that an MRL should be established for virgin olive oil.

Potato; Sugar beet

87. The Committee concluded that 0.05 mg/kg was above the limit of determination for these commodities.

Tomato

88. The Committee concluded that post-harvest treatment was current GAP.

Other commodities

89. All other commodities were retained at Step 7B with the request that data be sent to the JMPR.

Status of MRLs

At Step 5 : wheat

At Step 5/8 : olive oil, refined; olives, processed

At Step 6 : apple; pear

At Step 8 : beetroot; carrot; cherries; kale; olives; onion, bulb; peas; potato; sugar beet; sugar beet leaves or tops; turnip; witlook chicory (sprouts)

At Step 7B : all other commodities

ENDOSULFAN (032)

Meat; Milks

90. The Committee noted that the compound was on the agenda of the 1989 JMPR and retained the proposals at Step 7B.

Status of MRLs

At Step 7B : meat; milks

ETHION (034)

91. The Committee noted that the compound was scheduled to be reviewed toxicologically in 1989, but that the data required would not then be available. The manufacturer expected to provide the data in 1990.

FENITROTHION (037)

Wheat flour

92. The proposal was retained at its present Step.

Status of MRLs

At Step 7C(a) : wheat flour

HYDROGEN PHOSPHIDE (046)

93. See para. 72.

INORGANIC BROMIDE (047)

94. The Committee noted that in the 1988 meeting of the JMPR a full ADI of 1 mg/kg had been confirmed for inorganic bromide. Furthermore, a redefinition of the residue as "bromide ion" had been proposed. Several delegations expressed their reservations against the change in the residue definition, upon which the Committee decided not to adopt the proposal of the JMPR on this point.

Cabbages, Head

95. Several delegations expressed their reservation against the proposed MRL because the level was too high.

Cattle milk

96. The delegation of the Netherlands doubted whether there is a justification for establishing an ERL for bromide in milk, because it was regarded as evident that the residue mainly originates from natural sources. The Committee agreed to delete cattle milk from the list.

Celery

97. The CCPR proposed MRL of 100 mg/kg was supported by a number of countries. The delegation of the Netherlands would prefer a lower limit of 30 mg/kg, while the delegation of the USA was of the opinion that the 300 mg/kg proposed by the JMPR was fully supported by the data examined by the JMPR. The Committee decided to send the proposal to the Commission at Step 5.

Cucumber; Lettuce, Head; Tomato

98. The Committee agreed to review these proposals at its next Session.

Status of MRLs

Deleted : cattle milk

At Step 5 : celery

At Step 6 : all other proposals

OMETHOATE (055)

99. Delegations were urgently requested to provide data on residues of omethoate alone resulting from current GAP and using up-to-date analytical methods, enabling a full separation of all MRLs between omethoate and dimethoate,

100. The WHO Joint Secretary agreed to calculate a TMDI and EMDI for this compound, and to consider the implications of certain MRLs possibly exceeding the no-effect levels in animal studies.

Apple; Grapes; Pear

101. The manufacturer hoped to provide data on these commodities (and also on citrus fruits, olive oil, processed olives, and tomatoes) for review by the 1990 JMPR. The proposals were retained at Step 7B.

Artichoke, globe

102. The proposed limit had been confirmed by the 1988 JMPR. It was returned to Step 6 to allow further comment.

Hops, dry

103. The committee noted that further information could not be expected. The proposal was returned to Step 6.

Carrot; Cereal grains; Potato; Sugar beet

104. The Committee noted that the proposed limit of 0.05 mg/kg for these commodities was above the limit of determination. The proposals were advanced.

Status of MRLs

Withdrawn : olives

At Step 6 : artichoke, globe; hops, dry

At Step 7B : apple; apricot; cherries; grapes; peach; pear; plums (including prunes); sugar beet, leaves or tops; witloof chicory (sprouts)

At Step 8 : all other commodities

ORTHO-PHENYLPHENOL (056)

105. The Committee noted that the compound would be reviewed toxicologically in 1989, but additional data for review were expected in 1990. The 1989 JMPR will decide whether to extend the TADI and to what date.

Melons, except watermelon

106. The Committee was informed that the qualification of the CXL "(edible portion)" could not be deleted. Information was urgently needed to determine whether the CXL was supported by current GAP.

PARAQUAT (057)

Soya bean (dry)

107. The Committee noted that additional information could be expected.

Status of MRL

At Step 7C : soya bean (dry)

CYHEXATIN (067)

108. The Committee noted that cyhexatin would be reviewed toxicologically by the 1989 JMPR, and noted further that many countries had withdrawn or suspended the use of the compound.

Status of MRLs

At Step 7B : common bean; kiwifruit; peach; plums (including prunes); strawberry

CARBENDAZIM (072)

109. The Committee noted the outcome of the evaluation of this compound (together with benomyl and thiophanate-methyl) by the 1988 JMPR, resulting in a revised list of MRLs (from any source). Several countries expressed their concern with regard to the

toxicity of the compound, for which reason they could not accept MRLs of 5 mg/kg or higher.

Cereal grains

110. A number of countries were of the opinion that this group limit should be replaced by individual MRLs. It was agreed to request the JMPR to reevaluate this proposal on the basis of data to be forwarded.

Status of MRLs

At Step 5 : berries and other small fruits; cereal grains; pome fruits; rape seed tree nuts

At Step 6 : all other proposals

THIOMETON (076)

111. The Committee agreed with the proposed non-substantial amendment to the description of chicory.

THIOPHANATE-METHYL (077)

112. The Committee noted that the 1988 JMPR had proposed that all the CXLs should be withdrawn and that residues arising from the use of thiophanate-methyl should be covered by MRLs for carbendazim. The Committee will make a recommendation to that effect when the proposals for carbendazim reach Step 8.

VAMIDOTHION (078)

113. Several delegations expressed their concern about the persistence of the compound in plant material and its toxicological properties. There was need for data on the fate of the residue during processing of the various commodities and on the effect of cooking. The manufacturer's representative stated that data on the fate of the residue would be available for the 1990 JMPR.

Grapes; Peach; Pome fruits

114. The delegation of Italy expressed a reservation on the proposals for grapes, peach and pome fruits, stating inter alia that, in practice, residues were very low and did not justify such high levels. The delegation of Italy would request the manufacturer to provide additional data on grapes to the JMPR.

Status of MRLs

At Step 7B : cereal grains; grapes; pome fruits; rice, husked

At Step 8 : peach; sugar beet

CHLOROTHALONIL (081)

115. The Committee noted that the 1988 JMPR had not been able to re-evaluate residue levels in grapes as no data from governments had been submitted to the meeting. The delegation of France would undertake to make available additional data on grapes to the JMPR.

Status of MRLs

At Step 7B : grapes

DICHLLOFLUANID (082)

116. The Committee agreed with the recommendation of the 1985 JMPR and proposed as a non-substantial amendment the replacement of the CXL for cereal grains by separate CXLs for barley, oats, rye and wheat at the same level.

DICLORAN (083)

Onion, bulb

117. Several delegations objected to the proposal for bulb onion. On the basis of the 1977 JMPR Evaluations an MRL of 10 mg/kg would be appropriate for this post-harvest application. The Committee agreed to advance the proposal to Step 5 at 10 mg/kg Po.

Status of MRLs

At Step 5 : onion, bulb; Witloof chicory (sprouts)

PIRIMIPHOS-METIHYL (086)

Peanut oil, edible

118. The Committee noted the statement of the delegation of the USA that it is not clear whose good agricultural practice the peanut or peanut oil limits are intended to accommodate since they are based on trials in the USA which had neither registered uses nor national tolerances for peanuts. The Committee was informed of uses on peanuts in several African countries.

Status of MRLs

At Step 5 : peanut oil, edible

METHOMYL (094)

119. Methomyl is on the agenda of the 1989 JMPR for both toxicology and residue evaluation. Countries were requested to forward updated GAP and residue data to the JMPR. The delegation of the Federal Republic of Germany expressed a general reservation on the basis of toxicology and agreed to provide further details on concerns to the JMPR. In view of the forthcoming evaluation a number of proposals were held at Step 7B.

Barley; Barley straw and fodder, dry; Oats; Oats straw and fodder, dry; Wheat; Wheat straw and fodder, dry

120. The delegation of the USA supported 1 mg/kg for all small grains, especially barley, based on data already supplied to the JMPR in 1985, 1987 and 1988.

Cabbages, head

121. The level of 5 mg/kg was confirmed by the 1988 JMPR. *The* delegation of the Netherlands considered 2 mg/kg from earlier evaluations to be adequate.

Celery; Citrus fruits; Tomatoes

122. Reductions in MRLs estimated by the 1988 JMPR were opposed by the delegation of the USA which supported 3, 2 and 1 mg/kg respectively. MRLs estimated by the 1988 JMPR and established in the USA were based on data supplied to the 1975 JMPR. GAP in the USA requires a 7 day PHI for celery and multiple applications for both citrus and tomatoes.

Grapes

123. Two delegations preferred 1 mg/kg- The delegation of France will try to make data available to the JMPR although they date from 1975.

Hops, dry

124. New residue data have recently been submitted to the JMPR. Some of these data were used in the USA to support a 7 mg/kg TMRL.

Lettuce, Head; nectarine

125. The delegation of the Netherlands proposed MRLs of 2 and 1 mg/kg, respectively, based on the Evaluations, although the 1988 JMPR had confirmed the previously estimated MRLs.

Status of MRLs

At Step 5 : pome fruits

At Step 7B : all other proposals

ACEPHATE (095)

126. Several delegations wished to study the results of the toxicological evaluations of the 1988 JMPR before considering the proposed MRLs. Some delegations expressed a general reservation regarding MRLs, especially those greater than 3 mg/kg. Reservations were based on toxicological concerns, on the basis of GAP and on the interpretation of data in the Evaluations. The manufacturer will provide new residue data for the 1990 JMPR. As residue and GAP data are generally from 1976 and earlier, countries are requested to provide updated information to the JMPR. In view of the reservations expressed and the possibility of the availability of new residue data, a number of commodities were held at Step 7B.

Broccoli; Brussels sprouts; Cabbage, Head; Cauliflower; Tomatoes

127. Several delegations were of the opinion that MRLs of 5 mg/kg were too high on the basis of GAP, toxicological concerns and on the basis of the information in the Evaluations. The delegations of France, the Federal Republic of Germany and Italy undertook to provide data on cabbages. The delegation of France also undertook to provide data on tomatoes.

Citrus fruits

128. Several delegations considered the proposed MRL to be too high in view of current GAP. The delegation of the Federal Republic of Germany requested information on residues in processed citrus products.

Lettuce, Head

129. Owing to the lack of data to support 10 mg/kg the proposed MRL was reduced to 5 mg/kg in accordance with the recommendation of the 1979 JMPR and advanced to Step 8.

Status of MRLs

At Step 7B : Broccoli; Brussels sprouts; cabbages, head; cauliflower; citrus fruits; tomato

At Step 8 : all other proposals

METHAMIDOPHOS (100)

130. Some delegations indicated that the very low ADI gave problems in relation to the intake of residues of methamidophos. The delegation of Egypt drew attention to questions relating to the toxicity (eg. delayed neurotoxicity) of methamidophos. Methamidophos will be on the agenda for the 1990 JMPR. Submission of residue, GAP and toxicological data was encouraged.

131. The delegation of the USA indicated that US tolerances would probably be established for acephate and methamidophos separately and recommended that Codex distinguish methamidophos limits which result from the use of acephate from other methamidophos limits. This will be done in the next issue of the Guide.

132. In view of the numerous reservations expressed and the forthcoming evaluation by the JMPR, most MRLs were held at Step 7B.

Broccoli; Brussels sprouts; Cabbages, Head; Cauliflower

133. Some delegations suggested that the MRLs could be lower on the basis of GAP and the data in the Evaluations. The manufacturer's representative indicated that residue data were available supporting an MRL of 1 mg/kg for cabbage. The Committee agreed to hold these MRLs pending review by the JMPR on the basis of residue data to be submitted.

Celery; Cucumber; Egg plant

134. The delegation of the USA undertook to supply residue data to JMPR on cucumbers to support an MRL of 1 mg/kg. The delegation of the Federal Republic of Germany will do the same to support a 0.5 mg/kg MRL for egg plant. The USA supported a 1 mg/kg limit for celery based on the Florida data reviewed by the 1976 JMPR. Other US celery data do not reflect US GAP.

Citrus fruits

135. The Committee decided to hold the MRL at Step 7B in conformity with its decision concerning acephate in citrus fruits (see para. 128).

Cotton seed; Soya bean (dry)

136. The delegation of the USA indicated that an MRL of 0.5 mg/kg for cotton seed and 0.2 mg/kg for soya bean would be needed in view of the respective MRLs for acephate and the expected conversion (ca. 25%) of acephate into methamidophos. The JMPR was requested to reconsider the MRLs on the basis of data submitted in 1976 and other residues information which could be made available by the USA.

Hops, dry

137. The delegation of France indicated that it wished to review the older Evaluations.

Lettuce, Head

138. Several delegations expressed reservations regarding the MRL of 1 mg/kg in view of the low ADI. Countries were requested to provide residues and GAP data to the JMPR.

Potato

139. The delegation of the United Kingdom was concerned that, if residues were present in potatoes at the proposed MRLs, predicted intakes might exceed the ADI. Several delegations indicated that, on the basis of information on GAP, a lower MRL could be set. The delegation of Italy informed the Committee that residue data based on agricultural trials conducted by the manufacturer over several years justified very low MRLs at the limit of determination. The delegation of Italy undertook to ask the manufacturer to provide residues information to the JMPR.

Tomato

140. The manufacturer's representative indicated that new residue data would be submitted to the 1989 JMPR. US GAP supported a 1 mg/kg MRL. The delegation of the UK had a similar view as that previously expressed on potatoes.

Status of MRLs

At Step 6 : hops, dry
At Step 8 : alfalfa forage (green); rape seed; tree tomato
At Step 7B : all other proposals

PHOSMET (103)

Maize; Sweet corn

141. The delegation of the USA indicated that its present use pattern permits multiple applications. For this reason, and the extremely limited data reflecting GAP, the US did not support a reduction of the previously proposed 0.5 mg/kg to 0.05 mg/kg.

Peas, dry

142. It was confirmed that 0.02 mg/kg is the limit of determination.

Status of MRLs

At Step 8 : maize; sweet corn

DITHIOCARBAMATES (105)

143. Data including residues and GAP should be sent to the JMPR for reconsideration, as the limits were considered to be temporary by the JMPR, pending the receipt of additional data.

ETHYLEHETHIOUREA (ETU) (108)

144. New toxicological data will be supplied to the JMPR for 1993.

Apple; Common bean; Pear; Tomato

145. MRLs for these commodities were estimated when the limit of determination was higher. All will remain at Step 7B awaiting new residue data. Delegations were requested to forward new residue data and methods of analysis to the JMPR. In response to a concern of the delegation of Greece the Working Group on Methods of Analysis was asked to recommend a reliable limit of determination for regulatory purposes. The Secretariat undertook to provide a footnote stating that the limits applied at harvest and did not include ETU formed during processing.

Status of MRLs

At Step 7B : all proposals

FENBUTATIN OXIDE (109)

146. The residue definition will be changed to "fenbutatin oxide", as a non-substantial amendment.

IMAZALIL (110)

Potato

147. The temporary limit was estimated by the JMPR on data from seed potatoes in the expectation that use on ware potatoes (ie. potatoes for human consumption) would become GAP. As this use was about to be registered in The Netherlands and some other countries, new GAP information on ware potatoes was requested for the JMPR.

Strawberry

148. The-1985 Evaluation was based on pre-harvest treatment. Reference to post-harvest treatment will be deleted.

Status of MRLs

At Step 6 : potato

At Step 8 : strawberry

PHORATE (112)

Carrot

149. Several delegations considered 0-5 mg/kg in carrot too high taking into consideration the ADI. In many countries the product was not registered. The delegation of the UK confirmed that phorate is registered for use on this crop and would investigate the situation. The matter was referred to the JMPR.

Maize fodder; Peanut; Potato; Sugar beet; Sugar beet leaves or tops

150. The delegation of the USA believed that the proposed MRLs were all too low in view of US GAP and undertook to make data available to the JMPR.

Milks

151. The delegation of the USA believed that 0.02 mg/kg was more appropriate. The question was referred to the Working Group on Methods of Analysis.

Status of MRLs

At Step 7B : carrot; maize fodder; peanut; potato; sugar beet; sugar beet leaves or tops

At Step 7C : milks

At Step 8 : all other proposals

TECNAZENE (115)

152. The Committee agreed to request the Commission to delete "Vegetables (except chicory, lettuce)".

ALDICARB (117)

Citrus fruits

153. The delegation of Portugal informed the Committee that new data had been submitted to the JMPR to support an increase in the MRL.

Status of MRLs

At Step 7B : citrus fruits

At Step 8 : maize forage

CYPERMETHRIN (118)

Berries and other small fruits

154. The Committee was informed by the manufacturer's representative that new residue data would be made available to the JMPR for 1989.

Status of MRLs

At Step 7B : berries and other small fruits

FENVALERATE (119)

Brussels sprouts

155. The delegations of Finland, the Netherlands and the Federal Republic of Germany questioned the need for a 3-day PHI and therefore an MRL of 5 mg/kg. The 3-day PHI probably came from a proposed use in the USA which had not become GAP. The delegations were therefore asked to provide updated GAP to the JMPR.

Cabbages, Head

156. The delegation of the USA indicated that the current US tolerance is 10 mg/kg, but they would give consideration to 5 mg/kg. Several other delegations supported the current 3 mg/kg proposal. The US reservation was noted.

Status of MRLs

At Step 7B : Brussels sprouts

At Step 8 : cabbages, head

PERMETHRIN (120)

Lettuce, Head

157. As a limit of 2 mg/kg was found to reflect GAP in most countries, the Committee decided to adopt a limit of 2 mg/kg. The reservation of the delegation of the USA regarding 2 mg/kg was noted.

Spring onion

158. On the basis of new data the 1988 JMPR had estimated a limit of 0.5 mg/kg which was advanced to Step 8.

Wheat bran, unprocessed; Wheat flour; Wheat wholemeal

159. The delegation of Australia informed the Committee that data (including data on wholemeal and bread) would be provided to the JMPR for evaluation in 1990.

Status of MRLs

At Step 7B : wheat bran, unprocessed; wheat flour; wheat wholemeal

At Step 8 : lettuce, head; spring onion; tomato

ETRIMFOS (123)

160. The Committee agreed to adopt the new residue definition of the 1988 JMPR, and proposed to regard it as a non-substantial amendment. The Committee noted that the residue as now defined should be regarded as fat-soluble.

Apple

161. The delegation of the Federal Republic of Germany indicated that it had a national limit of 2 mg/kg which included the EEHP metabolite, and agreed to re-examine its position in time for the 1990 meeting.

Barley; Maize; Wheat; Wheat bran, unprocessed; Wheat flour; Wheat wholemeal

162. Several delegations were opposed to the post-harvest use of etrimfos on cereals because of the low ADI. The delegation of the UK confirmed a national tolerance of 10 mg/kg and agreed to re-examine its data.

Grapes

163. As the MRL was generally considered too high, countries, especially those that grow grapes, were invited to supply new data, including residues in grapes and wine and GAP, to the JMPR.

Lettuce, Head

164. Several delegations opposed the proposed MRL in view of the low ADI. As the proposal was based on GAP from the Federal Republic of Germany, that delegation agreed to re-examine its position. The Committee noted (1) that the proposal was temporary because of wide variation in the residue levels found, and (2) that the results of a collaborative trial were awaited.

Tomato

165. The Committee was informed that the proposal of 0.5 mg/kg had been recorded in error. The intended figure was 0.2 mg/kg. The Committee advanced 0.2 mg/kg to Step 8.

Kale

166. The increase in the MRL from 0.1 to 0.5 mg/kg proposed by the 1988 JMPR was not explained in the report or evaluations. The limit of 0.1 mg/kg was returned to Step 6.

Limit of determination

167. The question of the limit of determination attainable in regulatory analysis was referred to the Working Group on Methods of Analysis for future consideration.

Status of MRLs

At Step 6 : apple; barley; kale; maize; wheat; wheat bran, unprocessed;
wheat flour; wheat wholemeal

At Step 7B : grapes; lettuce, head

At Step 8 : all other commodities

METHACRIFOS (125)

168. The 1988 JMPR had increased the TADI for this compound (valid until 1990). Reservations were expressed in previous meetings against some post-harvest uses, together with uncertainty concerning use patterns and registered uses. Some delegations informed the Committee on registered (post-harvest) uses in their countries. Information on GAP was requested from countries and the manufacturer for review by the JMPR.

Status of MRLs

At Step 7B : all proposals

OXAMYL (126)

169. The Committee agreed to make an editorial amendment to correct the residue definition.

170. The Committee noted that in the new classification watermelon was not included in the group "melons". This explained why watermelons were listed separately.

PHENOTHRIN (127)

171. Several delegations informed the Committee that they were reluctant to accept the results of the toxicological evaluation made by the 1988 JMPR without being able to study it. The delegation of Finland expressed a general reservation against post-harvest uses leading to residues on basic food. It was agreed that wheat germ may be moving in international trade and therefore the proposal was retained.

Status of MRLs

At Step 5 : rice, husked; wheat flour; wheat germ; wheat wholemeal

At Step 6 : barley; sorghum; wheat; wheat bran, unprocessed

AZOCYCLOTIN (129)

172. The representative of WHO informed the Committee that the compound was on the agenda of the 1989 JMPR for toxicological evaluation. The representative of the manufacturer announced that residue data on apples, wine and table grapes (including processing studies for wine grapes), peaches and nectarines could also be made available to the 1989 JMPR.

ISOFENPHOS (131)

Onion, bulb; Potato

173. As there were no objections against these proposals, the Commission was requested to omit Steps 6 and 7.

Status of MRLs

At Step 5/8 : onion, bulb; potato

METHIOCARB (132)

174. The Committee agreed to advance two proposals to Step 5 and recommend omission of Step 6 and 7.

Status of MRLs

At Step 5/8 : artichoke, globe; hazelnuts

TRIADIMEFON (133)

175. The Committee noted the statement by the delegations of Canada and the USA which preferred a residue definition including triadimefon and its metabolites, as opposed to triadimefon and triadimenol only. This preference was based on data which showed that metabolites other than triadimenol could be a significant part of the residue. This was especially applicable to some animal tissues, where other metabolites could be a major or even predominant proportion of any residue.

Barley

176. The delegation of the USA was of the opinion that data in the 1984 Evaluations supported an MRL of 1 mg/kg. It was agreed to refer the matter to the JMPR for clarification.

Grapes

177. The Committee had a detailed discussion on the difference in GAP between table and wine grapes. As wine grapes are not a commodity in international trade, the Committee agreed to ask the JMPR to re-evaluate the data in relation to table grapes and to consider if in the future it might be necessary to establish separate limits for wine and table grapes.

Raspberries, red, black

178. The delegation of the USA could not support the current MRL of 0.2 mg/kg because its current use pattern required a limit of 2 mg/kg and undertook to request the manufacturer to provide additional residue and GAP data to the JMPR.

Wheat

179. The delegation of the USA did not support the proposal because its current use pattern required a limit of 1 mg/kg.

Status of MRLs

At Step 5/8 : mango

At Step 6 : oats; oats straw and fodder, dry; rye; rye straw and fodder, dry

At Step 7B : barley; barley straw and fodder, dry; grapes; raspberries, red, black; wheat; wheat straw and fodder, dry

At Step 8 : peppers, sweet

DELTAMETHRIN (135)

180. The Committee agreed to describe the residue as fat-soluble as a non-substantial amendment. The Working Group on Methods of Analysis confirmed that 0.01 mg/kg was a reasonable limit of determination for all commodities.

Assorted fruits - edible peel

181. As the proposals for fig and olives had been recommended as replacements for the CXL for assorted fruits - edible peel, the Committee agreed to recommend that the Commission delete the CXL for assorted fruits - edible peel.

Beans (dry); field pea (dry); lentil (dry)

182. The delegation of the Federal Republic of Germany expressed a reservation because in the 1987 Evaluation the exact data on the registered uses on these commodities were missing.

Milks

183. There was concern that the figure was too low in the light of the use of the compound in veterinary practice. One delegation preferred 0.02 mg/kg. The representative of the manufacturer agreed to provide data to the 1990 JMPR on animal products, including veterinary uses and post-harvest treatments.

Wheat bran, unprocessed; Wheat flour; Wheat wholemeal

184. Some delegations believed that the figure for wheat bran was too high. The Committee was informed that the data reviewed by the JMPR supported 5 mg/kg and that the residue was normally reduced during processing. The representative of the manufacturer undertook to provide data on the fate of residues during processing in all three commodities.

Legume oilseeds; Oilseed

185. See para. 73.

Status of MRLs

- At Step 3 : oilseed except peanut; peanut
- At Step 5 : beans (dry); field pea (dry); lentil (dry); milks
- At Step 5/8 : olives
- At Step 7B : wheat bran, unprocessed; wheat flour; wheat wholemeal
- At Step 8 : brassica vegetables; cereal grains

BENDIOCARB (137)

186. The Committee agreed to make a non-substantial amendment to the residue definition by adding the phrase, "expressed as bendiocarb". The Committee noted that all MRLs except those for maize, sugar beets, maize fodder and forage, sugar beet tops and potato were regarded as temporary by the JMPR until the required information nationally approved agricultural practice was provided. Countries were encouraged to provide residue data.

METALAZIL (138)

Definition of Residue

187. The delegation of the USA, supported by the delegation of Canada, expressed the opinion that the definition of the residue should include metabolites containing the 2,6-dimethylaniline moiety since these metabolites could exceed the parent compound several fold. The USA also included the N-hydroxy metabolite.

Cacao beans; Carrot

188. The delegation of the Netherlands was of the opinion that a limit of 0.05 mg/kg (at the limit of determination) would be sufficient on the basis of available data for these commodities.

Broccoli; Brussels sprouts; Cabbages, head; Cauliflower; Cucumber; Gherkin; Lettuce, Head; Onion, bulb; Spinach; Strawberry

189. In view of the written comments received, objections raised by delegations during the Session and the indication by the manufacturer that data on some of these commodities would be available, the Committee agreed to hold the MRLs for these

commodities. Governments and the manufacturer were requested to make residue data and information on GAP available to the JMPR.

Grapes

190. The delegation of the Federal Republic of Germany stated that a higher MRL existed in its country. Following a discussion of whether the MRL applied to wine grapes or table grapes, it was agreed that the proposed MRL applied to both types of grape. Any country wishing to set a specific MRL for wine grapes should supply residues data on both grapes and wine to the JMPR.

Apples

191. The delegation of the United Kingdom indicated that the United Kingdom had registered post-harvest uses on apples and pears and undertook to make appropriate residues data available to the JMPR so that MRLs could be elaborated.

Status of MRLs

At Step 5 : cacao beans; carrot; raspberries, red, black

At Step 7B : broccoli; Brussels sprouts; cabbages, head; cauliflower;
cucumber; gherkin; lettuce, head; onion, bulb; spinach; strawberry

At Step 8 : avocado; grapes

PHOXIM (141)

192. The manufacturer informed the Committee that all data on this pesticide had been submitted to the JMPR and that no further data were available.

Lettuce, Head

193. The delegation of the Netherlands was of the opinion that data in the Evaluations supported a limit of 0.05 mg/kg at the limit of determination.

Sheep meat

194. The Committee was informed that the higher MRL for sheep meat than cattle meat was based on the veterinary practice of using sheep dips for the control of ectoparasities.

Tomatoes

195. The delegation of Italy noted that the limited data in the 1988 Evaluations supported an MRL of 0.05 mg/kg which is the MRL in Italy. The manufacturer indicated that the 1988 data were from Spain and that 1983 JMPR data from Egypt supported an MRL of 0.2 mg/kg. The delegation of Italy was of the opinion that the 1983 data were also limited.

Status of MRLs

At Step 5/8 : cabbage, Savoy; onion, bulb

At Step 8 : lettuce, head; sheep meat; tomato

PROCHLORAZ (142)

Cattle, Edible offal of; Cattle fat; Cattle meat; Citrus fruits; Milks; Papaya; Stone fruits

196. The Committee noted that the proposed temporary MRLs for these commodities were still pending review by the JMPR of data to be supplied by the manufacturer.

Status of MRLs

At Step 7B : cattle, edible offal of; cattle fat; cattle meat; citrus fruits; milks;
papaya; stone fruits

At Step 8 : avocado

TRIAZOPHOS (143)

197. It was noted that the pesticide and the proposed MRLs were awaiting review by the 1990 JMPR.

Status of MRLs

At Step 7B : all proposals

BITERTANOL (144)

198. The Committee noted that no analytical methods were available for animal products. The Committee referred this matter to the Working Group on Methods of Analysis.

Bean forage; Peanut forage

199. The delegation of the Netherlands was of the opinion that the MRLs should be expressed on the fresh products rather than on dry weight. The Committee requested the JMPR to clarify the matter.

Pome fruits

200. The delegation of the Federal Republic of Germany indicated that residues data had been made available to the JMPR supporting an MRL of 2 mg/kg.

Stone fruits

201. The delegation of France indicated that data in the JMPR Evaluations did not appear to support an MRL of 1 mg/kg and wished to have a further opportunity to reconsider the matter.

Status of MRLs

At Step 5 : bean forage (green); cherries; common bean; cucumber; peanut forage

(green); plums (including prunes); pome fruits

At Step 5/8 : peanut

At Step 6 : stone fruits, except cherries and plums

At Step 8 : all other proposals

CARBOSULFAN (145)

202. The Committee noted that the temporary MRL for citrus fruits was still awaiting re-evaluation by the JMPR on the basis of information to be provided by the manufacturer.

METHOPRENE (147)

Cereal grains and by-products of wheat

203. The Committee noted that the MRLs (at Step 7) for these commodities, which were deleted by the last Session of the CCPR, had been confirmed by the 1988 JMPR. The Committee decided to advance them to Step 8. The delegation of Australia suggested that, as a matter of principle, draft MRLs should not be withdrawn without first having obtained comments from Governments. The Committee agreed with this view.

Edible offal (Mammalian); Eggs; Meat; Peanut

204. The Committee noted that the basis for the temporary nature of these MRLs was somewhat unclear. The representative of the manufacturer indicated that additional data had not been generated. The Committee decided to keep the draft MRLs at Step 7B.

Status of MRLs

At Step 5/8 : maize oil, edible

At Step 7B : edible offal (mammalian); eggs; meat; peanut

At Step 8 : all other proposals

PROPAMOCARB (148)

Cabbages, head; cauliflower

205. The Committee noted that no new data would be forthcoming on these commodities.

Status of MRLs

At Step 8 : cabbages, head; cauliflower

PROPYLENETHIOUREA (PTU) (150)

206. The Committee noted that the JMPR had deleted the Guideline Levels. The question was raised whether the Committee should do likewise. The delegation of Australia was of the opinion that, as PTU and ETU were toxicologically related, Guideline Levels for ETU should also be deleted if this is done for PTU (see also para. 244).

207. The representative of the manufacturer informed the Committee that toxicological studies on the effects on propineb, PTU and ETU on the thyroid would be made available to the JMPR. The 63-day study on rats involved the use of radio-labelled iodine and the examination of relevant parameters at 7, 21 and 63 days following application.

DIMETHIPIN (151)

Milk

208. The Committee agreed to change the commodity description from "Milk of cattle, goats and sheep" to "Milks".

Status of MRLs

At Step 5/8 : all proposals

FLUCYTHRINATE (152)

Cabbages, head; maize forage

209. Regarding cabbages, the representative of the manufacturer informed the Committee that data had been provided to the JMPR supporting an MRL of 2 rag/kg. The delegation of the USA noted that existing US tolerances took into account residue dissipations during storage amounting to 20-30%, as well as maximum seasonal rates, neither of which had been taken into account by the JMPR.

210. The representative of the manufacturer informed the Committee that data on maize storage had been submitted to the JMPR and that it could be re-submitted if necessary.

211. The Committee agreed to await evaluation by the JMPR before considering the MRLs any further.

Cattle meat; Cattle Milk; Eggs; Goat meat

212. As the JMPR had not yet confirmed the temporary MRLs for these commodities on the basis of data requested as desirable, the matter was referred to the JMPR and the Committee agreed to hold them at Step 7.

Status of MRLs

At Step 7B : all proposals

CLOFENTEZINE (156)

213. The delegation of the USA was unlikely to be able to accept limits for clofentezine based on the parent compound for animal products since the concentrations of metabolites can equal or exceed those of clofentezine.

Citrus fruits; Cucumber

214. The proposals were retained at Step 7B until more data are available and can be reviewed by the JMPR.

Currants, black, red, white

215. The Committee note that the registration for currants only exists in New Zealand and Chile. The residue data on which the MRL is based, however, are from France, the Netherlands and the United Kingdom. The delegation of New Zealand, supported by the delegation of Chile, stated that the proposed MRL of 0.1 mg/kg did not reflect current GAP because early applications resulted in residues below 0.05 mg/kg. The Committee noted that more information was needed about use patterns.

Status of MRLs

At Step 5 : currants, black, red, white

At Step 7B : citrus fruits; cucumber

CYFLUTHRIN (157)

216. JMPR proposals for MRLs are expected next year.

GLYPHOSATE (158)

Limit of determination

217. The Working Group on Methods of Analysis had concluded that a level of 0.1 mg/kg was a reasonable limit of determination for all commodities, 0.05 mg/kg being attainable in favourable circumstances. The Committee agreed to change all proposals currently shown as 0.05(*) mg/kg to 0.1(*) mg/kg.

Definition of the residue

218. The delegation of the USA could not accept a definition based on the parent compound alone. It was pointed out that in almost all commodities the metabolites constituted only a very small proportion of the residue and that the inclusion of metabolites made the analysis substantially more difficult.

Wheat; Wheat bran, unprocessed; Wheat flour; Wheat wholemeal

219. The delegations of France and the Federal Republic of Germany considered the proposals to be inconsistent with one another, and the proposal for unprocessed bran to be too high. The latter delegation stated that the residues shown in the 1987 JMPR Evaluations which were from trials in the Federal Republic of Germany, were higher than those in the raw data. It was pointed out that the JMPR proposal made allowance for analytical recoveries, which averaged 75% and could be as low as 56%. The delegation of the Federal Republic of Germany undertook to supply full details of the studies in question to the JMPR.

Status of MRLs

At Step 5 : soya bean (dry); soya bean fodder; soya bean forage (green);
wheat bran, unprocessed; wheat flour; wheat wholemeal

At Step 5/8 : kiwifruit

At Step 8 : all other proposals

VINCLOZOLIN (159)

220. The Committee noted that the TADI of 0.04 mg/kg body-weight had been replaced by an ADI of 0.07 mg/kg body-weight. The delegation of the Federal Republic of Germany expressed a reservation because of a need to further evaluate the toxicity of the compound. The manufacturer was conducting new toxicological studies on rats. When finalized the data would be sent to the JMPR for evaluation.

Apricot

221. The delegation of the USA could not support the proposal of 5 mg/kg Po but recommended consideration by the JMPR of estimating a limit for stone fruit, taking into account data and GAP information already provided, which supported the US tolerance of 25 mg/kg.

Blueberries

222. The delegation of Hungary noted that the proposal of 5 mg/kg seemed to be higher than necessary according to Hungarian GAP, and the JMPR was requested to review the GAP data. The delegation of Hungary undertook to provide data on GAP to the JMPR.

Lettuce, Head

223. The delegation of the USA supported 10 mg/kg on the basis of data provided, and recommended asking the JMPR to review the available data.

Status of MRLs

At Step 5 : apricot; blueberries

At Step 7B : lettuce, head

At Step 8 : peppers, sweet

PROPICONAZOLE (160)

224. Several delegations expressed a reservation concerning the residue definition. The USA did not support limits expressed as propiconazole per se at this time. US propiconazole tolerances are for propiconazole and its metabolites determined as 2,4-dichlorobenzoic acid.

225. Concerning the MRL of 0.05 mg/kg for animal products at or about the limit of determination, the Committee noted that a lower level was attainable for plant products. The representative of AOAC, speaking as a former member of the JMPR, explained that the asterisk against the MRLs for meat products (except edible offal) was intended to imply a no-residue situation regarding meat products (except edible offal), while the same figure without asterisk for the plant commodities reflected GAP. The Secretariat was requested to provide information in the Guide to clarify this for the reader.

Cereal grains (except rice)

226. On the basis of the written comment of the delegation of Hungary, the proposal was changed to the earlier level of 0.1 mg/kg.

Status of MRLs

At Step 5 : all proposals

PACTOBUTRAZOL (161)

227. Several delegations were of the opinion that GAP resulted in a wide variation of residues up to 0.5 mg/kg. The Committee agreed to advance the proposal to Step 5 and to refer the matter to the JMPR for clarification.

Status of MRLs

At Step 5 : apple; stone fruits

TOLYFLUANID (162)

Currants, black, red, white

228. The delegation of the Federal Republic of Germany considered the data to be insufficient for setting an MRL. The manufacturer hoped to make data available in 1990.

Status of MRLs

At Step 5 : all proposals

LIST OF NATIONAL MAXIMUM LIMITS FOR PESTICIDES

229. The delegation of Canada drew attention to the publication, issued by the Department of Health and Welfare, Canada, containing a survey of maximum residue limits in a number of countries. The delegation requested countries to provide regular updates of their maximum residue limits. Countries were requested to assist Canada by indicating changes since their last communication rather than just providing a copy of the national regulations.

CODEX GENERAL MAXIMUM RESIDUE LIMITS FOR FRUITS AND VEGETABLES **(Agenda Item 9.1(e))**

230. The Committee considered the compounds listed in CL 1988/35-PR for which Codex MRLs for the general groups "fruit" or "vegetables" (with or without specified exceptions) exist, and concluded as follows. No action can be taken until more information from monitoring programmes becomes available for:

Aldrin and dieldrin (001)

DDT (021)

Heptachlor (043)

The following compounds are due for review by the JMPR during the next few years. The Committee agreed to await the outcome of the reviews for:

Azinphos-methyl (002)

Diazinon (022)

Diquat (031)

Endosulfan (032)

Piperonyl butoxide (062)

Bromopropylate (070)

Disulfoton (074)

The following compounds are also due for review, but additional information has been requested from the manufacturers. The Committee agreed to reconsider these at its next Session:

Dichlorvos (025)

Dicofol (026)

Parathion (058)

Pyrethrins (063)

Chlordane (012): The Committee noted that all limits for this compound were ERLs at the limit of determination and agreed that no action was required.

Paraquat (057): Noting that the Codex MRL for vegetables is at the limit of determination, the Committee agreed to take no action. The delegation of the USA noted that US tolerances for several commodities were 0.5 mg/kg and not at the limit of determination. It was noted that additional data had been submitted to the JMPR.

Parathion-methyl (059): The Committee was informed that additional information on residues in stone and pome fruits would be provided in 1990 or 1991, and agreed to maintain the Codex MRL for fruit until this had been evaluated. Information on current registered uses would be requested in a circular letter to governments.

Dimethoate (027) and omethoate (055): The Codex MRLs for "vegetables (not otherwise listed)" have been withdrawn.

Tecnazene (115): The Commission is requested to withdraw the Codex MRL for "vegetables (except chicory, lettuce)" (see para. 152).

CONSIDERATION OF GUIDELINE LEVELS (Agenda Item 9.2)

231. The Committee had before it the Guide to Codex Maximum Limits for Pesticide Residues - Part 3 (Index of Pesticide Chemicals for which Guideline Levels Have Been or May Be Set).

CARBON DISULPHIDE (009), CARBON TETRACHLORIDE (010), 1,2-DIBROMOETHANE (023), 1,2-DICHLOROETHANE (024), METHYL BROMIDE (052)

232. As these compounds are fumigants they were referred to that agenda item (see para. 246).

COUMAPHOS (018)

233. It was noted that the compound was on the agenda of the 1990 JMPR. Countries were urgently requested to provide data on current GAP to the JMPR. The delegation of Bulgaria informed the Committee of possible residues in honey resulting from the use of this compound on bees. It was decided to inform the Codex Committee on Residues of Veterinary Drugs in Food of this. The GLs were maintained.

DEMETON-S-MEIHYL (073)

234. The Committee noted that the compound was on the agenda of the 1989 JMPR for toxicological evaluation. Additional data on current use patterns would be requested after this review. The GLs were maintained.

DINOCAP (087)

235. The Committee was informed that the compound was on the agenda of the 1989 JMPR for toxicological evaluation. Countries were requested to provide the JMPR with current information on use patterns and methods of analysis. The GLs were maintained.

BIORESMETHRIN (093)

236. The representative of the manufacturer informed the Committee that toxicological data could not be provided before the end of 1990. The GLs were maintained.

DIALIFOS (098)

237. The availability of data for a toxicological evaluation of the compound by the 1991 JMPR could not be confirmed. Also, it was found that the available data base on agricultural uses needed to be updated. The GLs were maintained.

DMINOZIDE (104)

238. It was recalled that the compound was on the agenda of the 1989 JMPR, for both toxicological and agricultural evaluation. Countries were requested to submit any (additional) data on current use patterns and GAP as soon as possible to the JMPR. Several delegations expressed their concern about the high levels of many of the proposed limits in relation to the toxicity of the compound and its metabolite. The representative of the manufacturer informed the Committee that three toxicological studies with the metabolite UDMH were in progress and would be available at the end of 1989 and/or the beginning of 1990.

239. The delegation of Chile mentioned that the use of the compound was restricted to red apples (one application with a PHI of about 10 weeks), resulting in residues at harvest of 2.5-4 mg/kg (active ingredient only). It stated that hydrolysis of daminozide to UDMH occurred only as a result of processing of the fruit. However, the representative of the manufacturer noted that UDMH residues did occur in treated fresh apples at low ppb levels (less than 10 ppb).

240. The GLs were maintained.

ETHEPHON (106)

241. The representative of the US manufacturer informed the Committee that a complete new data base on toxicology would be available in 1992 for evaluation by the 1993 JMPR. The GLs were maintained.

PROCYMIDONE (136)

242. This compound was on the agenda of the 1989 JMPR, for both toxicological and agricultural evaluation. The GLs were maintained.

BUTOCARBOKIM (139)

243. The GLs were maintained because the compound was on the agenda of the 1991 JMPR.

PROPYLENE1HIIOUREA (PTU) (150)

244. The representative of the manufacturer informed the Committee that toxicological investigations (63-day studies on rats) on ETU, PTU and propineb were scheduled and that the results could be made available for evaluation by the 1993 JMPR. The GLs were maintained (see also paras. 206-207).

PYRAZOPHOS (153)

245. The GLs were maintained because the compound was on the agenda of the 1991 JMPR.

FUMIGANT RESIDUES IN FOOD (Agenda Item 9.3)

246. Owing to a breakdown in communication the delegation of Israel received almost no information and had not yet prepared a document. The delegation confirmed its willingness to continue the work on this subject. The Chairman emphasized the urgency of the review of fumigant residues in food by this Committee and urged delegations to send any available additional data to Mrs. Freund of the delegation of Israel with a copy to FAO (see CL 1989/22-PR).

RECOMMENDED METHOD OF SAMPLING FOR TOE DETERMINATION OF PESTICIDE RESIDUES IN MEAT AND POULTRY PRODUCTS FOR CONTROL PURPOSES (Agenda Item 10)

247. The Committee had before it document CX/PR 89/13 which was introduced by Mr. S.N. Fertig (USA) and which had been prepared by Ms. M. Cordle (USA). The Committee was informed that only six countries had responded to the request for comments on the document and that the comments were for the most part positive. Ms. Cordle offered her services to the Committee should there be a need for further assistance in final revision.

248. Several delegations were of the opinion that it might be necessary in the future to add a third part to deal with milk and dairy products, and fish, which are at the moment covered by CAC/FR 5-1984. The Chairman invited delegations to comment on the necessity of a separate part for these products. There did not appear to be any major issues of controversy, but some delegations wished to have another round of comments. The Committee endorsed the recommendations in document CX/PR 89/13 and agreed to advance the proposal to Step 5 (see Appendix II).

249. The Committee expressed its sincere thanks to Ms. Cordle for the excellent work she had done.

CONSIDERATION OF THE REPORT OF THE AD HOC WORKING GROUP ON METHODS OF ANALYSIS (Agenda Item 11)

250. The report was introduced by the Chairman of the Working Group, Mr. P.A. Greve (The Netherlands). The report with an appendix: Recommendations for Methods of Analysis (1989), was presented to the Committee. Only the report is reproduced as Appendix III to this report.

251. Mr. Greve informed the Committee that the revision of the list of recommendations for methods of analysis would include full titles of the papers in its final version. Regarding the topics of Good Laboratory Practice (GLP) and Analytical Quality Assurance (AQA) the Committee was informed that the document published as Part 7 of the Guide was still valid, but would be updated in the near future. The Group had endorsed the views of the JMPR on the "geometric" expression of residue limits and on the definition of the residue of methomyl, and the editorial changes to the definitions of fenbutatin oxide and oxamyl. The Group proposed reasonable limits of determination for 2,4-D, phosmet, deltamethrin and glyphosate, but it could not propose a general limit of determination for the pyrethroids. The Committee was informed that the collaborative study on PCBs under the auspices of AOAC and NMKL will start in the autumn of this year.

Discussion by the Committee

252. The Committee was informed that a Congress on Analytical Quality Assurance of Laboratories for Pesticide Control would be held this year, supported by IUPAC and AOAC.

253. The delegation of Ireland expressed its appreciation of the activities of the Working Group and drew attention to the need for information on compounds recovered by multiresidue methods and validation of methods in relation to substrates.

254. The delegation of the People's Republic of China drew attention to the necessity to support the participation of the developing countries in programmes of collaborative studies in order to increase the expertise of their laboratories in pesticide residues

control. The Chairman of the Working Group agreed to consider the matter and volunteered to give advice on any specific problems that were brought to his attention.

255. The Committee endorsed the conclusions in the report of the Working Group (see Appendix III).

Appointment of an ad hoc Working Group on Methods of Analysis

256. The Committee noted that Mr. Greve would retire before the next Session and unanimously expressed its deep appreciation of his outstanding contribution to its work in his role as Chairman of the Working Group on Methods of Analysis. It was decided to set up a new ad hoc Working Group under the Chairmanship of Mr. L.G.M.Th. Tuinstra and Vice-chairmanship of Mr. P. van Zoonen.

PESTICIDE RESIDUE PROBLEMS IN DEVELOPING COUNTRIES (Agenda Item 12)

257. The report of the ad hoc Working Group on Pesticide Residue Problems in Developing Countries was introduced by its Chairman Ms. Salva Dogheim (Egypt). She expressed disappointment that not all developing countries attending the Session of the Committee had participated in the Working Group. The Group had met twice and had drawn up recommendations directed to developing countries, UN Agencies and the Industry, aimed at action leading to better control of the use of pesticides and, as a result, to the production of good quality, safe food acceptable on the world markets (see Appendix IV).

278. The recommendations of the Working Group addressed the following 8 areas:

- (1) Strengthening of regulatory infrastructures to control the supply and use of pesticides;
- (2) The need to implement the FAO Code of Conduct on the Distribution and Use of Pesticides;
- (3) Strengthening monitoring of foods through participation in GEMS/Food;
- (4) Survey by the CCPR of pesticide/food combinations of interest to developing countries with the assistance of GIFAP;
- (5) Generation of residues data to support uses in developing countries;
- (6) Consideration of pesticide residue questions, as a matter of priority, at various regional meetings;
- (7) Continued assistance by FAO and WHO to strengthen residue analytical capabilities of developing countries; and
- (8) JMPR to consider how MRLs of interest to developing countries can be set given the technical problems created by differing agricultural conditions.

279. The Committee discussed in detail the recommendations of the Working Group. The following comments were made.

Recommendation 1

280. The Committee agreed with the suggestion by the Delegation of India that reference should be made to assistance to be provided by FAO, WHO and UNDP in establishing and upgrading regulatory infrastructures.

Recommendation 2

281. The Committee agreed that the implementation of the Code of Conduct was of direct relevance to its work in ensuring a safe food supply and gaining access to world markets in the food trade and in improving participation in the work of the CCPR.

Recommendation 3

282. The Committee noted that, through participation in the Joint FAO/WHO/UNEP Food Contamination Monitoring Programme, developing countries could improve their ability to monitor food leading to better health and environmental protection and better participation in the work of the CCPR.

Recommendation 4

283. The Committee agreed to amend the recommendation, at the suggestion of the representative of GIFAP, to take account of the fact that not all companies or traders in pesticides were members of GIFAP and would, therefore, not respond to a request by GIFAP for information.

Recommendation 5

284. The representative of GIFAP stated that GIFAP had, on many occasions, encouraged the pesticide industry to support the various aspects of the work of the JMPR and CCPR.

With regard to recommendation 5 for residue trials in developing countries, manufacturers were encouraged to help avoid or resolve problems in trade by applying for MRLs in specific importing countries, as part of the registration process, to accommodate residues on commodities from exporting countries. If a JMPR evaluation did not result in a recommendation for an MRL because of insufficient data on an important export commodity, concerned governments might find discussion with basic manufacturers useful, since appropriate data might yet be available. Past experience had also shown that some basic manufacturers were willing to analyse, in their own laboratories, crops which had been treated in government supervised field trials to generate residue data for submission to the JMPR and/or governments of importing countries. Detailed discussions with the manufacturer on the design and conduct of the studies was important before any such programme was initiated. In encouraging governments to maintain a dialogue with manufacturers on such matters, GIFAP also encouraged industry to respond positively to proposals, whenever possible. The GIFAP representative stated that these recommendations were reinforced on page 19 of the GIFAP Manual on Working with JMPR and CCPR, which had been published and made available in time for the 20th Session of the CCPR.

285. The delegation of Australia expressed its appreciation of the valuable assistance provided by GIFAP to the Committee. However, it drew attention to difficulties experienced even by developed countries in obtaining the necessary information for compounds on the basis of which entry of exported produce could be obtained in the importing countries. The delegation of Israel pointed out that in many developing countries which manufactured pesticides, patent regulations were not available to safeguard the interest of the pesticide manufacturer.

Recommendation 6

286. The Committee noted that there were many regional meetings dealing with a variety of questions relating to the use of pesticides where problems concerning residues should be discussed. It agreed to clarify the point that Codex Co-ordinating Committees should also discuss pesticide residue questions.

Recommendation 7

287. The Committee made no changes to this recommendation.

Recommendation 8

288. Following discussion of the possible role of the JMPR in facilitating the establishment of MRLs of interest to developing countries, the Committee noted the problems raised by the use, in developing countries, of older pesticides on which residue and other information might not be adequate or available for registration purposes. The delegation of Ireland was of the opinion that a reconsideration of the feasibility of extrapolation from existing residue data to cover commodities of interest to developing countries might be explored by the JMPR. The delegations of Ireland and the USA also stated that it might be helpful if the previous Canadian exercise of collecting GAP data from various countries could be re-started. Such information would be useful in setting MRLs including those of interest to developing countries.

289. The delegation of Canada stated that the survey of GAP had been a difficult exercise which Canada could probably not offer to continue. It agreed to investigate this matter.

290. The Committee adopted the Recommendations included in Appendix IV.

Appointment of Regional Co-ordinators on Pesticide Residue Matters

291. On the proposal of the Working Group the Committee appointed the following Regional Co-ordinators until the end of the 22nd Session:

- Mr. M.F. Macklad (Egypt)
- Mr. B. Narasimham (India)
- Mr. R.H. Gonzalez (Chile)

292. The Committee also requested Mr. G. Hooper (Australia) to continue as rapporteur on pesticide residue problems in the South-West Pacific Region. The Committee requested the countries concerned to provide the necessary assistance to the co-ordinators and the rapporteur in carrying out their tasks.

293. It was agreed that the Working Group would meet as during the present Session and that Egypt would assume chairmanship in the intervening period. The Committee thanked Dr. Deema, former Chairman, the former Regional Rapporteurs for their contribution and Ms. Dogheim for chairing the present Session of the Working Group.

CONSIDERATION OF THE REPORT OF THE AD HOC WORKING GROUP ON PRIORITIES (Agenda Item 13)

294. The Committee had before it the report of the Working Group which was introduced by its Chairman Ms. J. Taylor (Canada).

Consideration of 1989 Proposals for the Priority list

295. In the light of information on the availability of data, new proposals were prioritized as follows:

<u>Number</u>	<u>Common Name</u>	<u>Country</u>	<u>Data Available</u>	<u>JMPR</u>	<u>Manufacturer</u>
89-01	bentazon	FRG	1990	1991	BASF
89-02	dithianon	Sweden	1991	1992	Shell

Status of compounds Proposed for Evaluation by the Joint FAO/WHO Meeting on Pesticide Residues

296. The proposed schedule for evaluation and re-evaluation of toxicology data by the JMPR was presented by the representative of WHO. The schedule, together with a similar schedule for residue evaluations is attached (see Appendix VI). Companies were

requested to contact the Joint Secretaries as soon as possible if they could not supply data in time for review. The Committee was reminded that toxicological data must be supplied by June of the year preceding the year of review.

Re-evaluation of pesticides (47) evaluated prior to 1976

297. On the basis of information received in response to CL 1988/20-PR the 47 pesticides were divided into four groups (see Appendix V).

298. The first seventeen compounds are widely used and the manufacturers have indicated a willingness to support these uses by providing new data. The list was referred to the JMPR together with the responses to the questionnaire. The JMPR has already tentatively scheduled them for re-evaluation (see Appendix VI).

299. The thirteen compounds in the second group appear to have substantial uses, but the availability of new data is uncertain. The question of the availability of toxicological and residue data will be pursued with the manufacturers by the Chairman of the Working Group.

300. The ten compounds in the third group appear to have few or no remaining food uses and lack continued support from manufacturers. As a result, re-evaluation appears to be impossible. By means of this report countries are asked to inform the Chairman of the Working Group on Priorities by September 1989 of any remaining registered uses in their countries, and companies and countries are once again requested to provide information on the availability of data. If no information is received it will be assumed that there is no further interest and a proposal will be put forward for deletion of Codex MRLs (CXLs) (or conversion to ERLs). If there is an indication that there are still registered uses but that no data will be available, a recommendation will probably be put forward to recommend deletion of Codex MRLs (CXLs), allowing countries some time to adjust GAP. The delegation of the United Kingdom indicated that ethoxyquin was still used in its country.

301. Of the compounds in the fourth group, chlorbenside, chlorfenson and methoxychlor do not have any codex MRLs (CXLs); hydrogen cyanide is already in the fumigant re-evaluation programme and lindane and propoxur are scheduled for review by the 1989 JMPR. Pirimiphos-methyl was referred to the JMPR for re-evaluation, The representative of the manufacturer did not consider re-evaluation to be necessary.

Re-evaluation of Aldicarb

302. The delegation of Sweden, supported by Canada and the USA, requested that aldicarb should be scheduled for re-evaluation. This product was last reviewed in 1982. It has been tentatively scheduled for 1992.

Possible Additions to the Priority List

303. Last year's Working Group had compiled a list of 20 new compounds as possible candidates for the priority list. For five of the compounds (buprofezin, myclobutanil, penconazole, teflubenzuron and ethofenoprox), manufacturers had indicated their willingness to supply data to the JMPR. Any country wishing to propose these pesticides should contact the Chairman of the Working Group.

304. The representative of FAO requested that the second copy of incoming data should be submitted to JMPR on microfiche. The representative of WHO also requested that data should be submitted on microfiche if it is readily available, in addition to the currently required hard copies. This would greatly facilitate data handling and storage.

305. The Committee expressed its appreciation for the work of Mr. Brian Watts of New Zealand who had chaired the Group for some years until his retirement in 1988. It also thanked Ms. Taylor, who had succeeded Mr. Watts last year.

Appointment of a new ad hoc Working Group

306. It was decided to establish a new ad hoc Working Group which would function until the end of the next Session under the Chairmanship of Ms. J. Taylor (Canada).

OTHER BUSINESS (Agenda Item 14)

307. The delegation of France informed the Committee that for pesticides which are mixtures of isomers with differing activities, there is a trend to increased use of formulations containing primarily the more active isomers. This had toxicological implications which the JMPR might consider. The representative of WHO invited the delegation of France to communicate its views directly to WHO so that the matter could be considered.

DATE AND PLACE OF THE NEXT SESSION (Agenda Item 15)

308. The Chairman informed the Committee that the 22nd Session would be held in The Hague from 23-30 April 1990.

VALEDICTION

309. The Committee expressed its deep appreciation to Dr. Lodomery for his outstanding contribution to its work in his role as Secretary of the Committee. His commitment to the goals of the CCPR, his willingness to help and advise delegations, his efforts to involve more countries from distant regions and, of course, the high quality of papers and documentation that came before the Committee had made him a marvellous Ambassador for Codex. The way he had often been able to achieve solutions for difficult situations with just a brief reference to history or the suggestion of a few well-chosen words or phrases reflecting his experience, which he always brought forward in a delicate and diplomatic manner, and, of course, his good sense of humour, will not be forgotten. The Committee wished Dr. Lodomery well for the future in his new career, and presented him with a token of their highest esteem.

SUMMARY STATUS OR WORK

<u>Recommendation</u>	<u>Step</u>	<u>For Action by:</u>	<u>Document Reference</u>
Classification of Foods and Animal Feeds	-	CCPR JMPR Secretariat	paras. 72-76, ALINORM 89/24A
Draft MRLs	5	CAC	ALINORM 89/24A-Add.1
Draft MRLs	8	CAC	
Draft MRLs	6	Governments	CX/PR 90/2
Draft MRLs	7	JMPR Governments	CX/PR 90/3
Proposed non-substantial amendments to Codex MRLS	-	CAC	ALINORM 89/24A-Add.1
Revised definition of "GAP" and "MRL"	-	CAC CCRVDF JMPR	paras. 69-71, ALINORM 89/24A
Draft Recommended Method of Sampling for the Determination of Pesticide Residues in Meat and Poultry Products for Control Purposes	5	CAC Governments CCPR	paras. 247-249 and App. II, ALINORM 89/24A
Recommendations for methods of residue analysis	-	Governments Secretariat	paras. 250-256 and App. III, ALINORM 89/24A
Recommendations concerning Pesticide Residue Problems in Developing Countries	-	CAC Organizations Governments Industry Secretariat	paras. 257-293 and App. IV, ALINORM 89/24A
Re-evaluation of pesticides evaluated prior to 1976	-	Governments Industry JMPR	paras. 297-301 and App. V, ALINORM 89/24A
List of Pesticides for evaluation by the JMPR			
- List of pesticides to be evaluated by the JMPR	-	JMPR Governments Industry	paras. 295-296, 302 and App. VI, ALINORM 89/24A
- Further additions to Priority List	-	Governments Industry	paras. 303-305 ALINORM 89/24A

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DRAFT RECOMMENDED METHOD OF SAMPLING FOR THE DETERMINATION OF
PESTICIDE RESIDUES IN MEAT AND POULTRY PRODUCTS FOR CONTROL
PURPOSES (Advanced to Step 5 of the Procedure)

PART A

INTRODUCTION

1. Basis for the Sampling Principle

Sampling for enforcement should be consistent with principles applied in setting an MRL, and must be practical for the examination of lots in trade.

MRLs for meat and poultry products are developed from experimental residue data obtained in field trials where animals are treated or exposed to the pesticide in accordance with good agricultural practice (GAP). In these experiments various edible tissues from individual livestock and poultry are separately analyzed, except when the combining of tissue from more than one animal is required to obtain an adequate sample size for analysis (e.g., for poultry organs). The Joint Meeting for Pesticide Residues (JMPR) evaluates the residue data and recommends an MRL consistent with national GAPs that is not expected to be exceeded in any animal when marketed for human food.

For most other commodities, including eggs and milk, the recommended sampling for field trials involves collection of a bulk sample made up of a number of primary samples which are combined as the final sample. The final sample, or a representative part, is then analyzed (FAO Plant Protection Bulletin, Vol. 29, pp. 12-27, 1981). The JMPR evaluates these residue data (i.e., data on final samples) and recommends an MRL consistent with GAP that is not expected to be exceeded in the raw agricultural commodity when marketed.

Thus, the principle of applying an MRL for meat and poultry products to the residue concentration found in primary samples, and applying the MRL for most other commodities to the residue concentration found in a "final sample" is consistent with the data evaluation used by the JMPR in recommending MRLs to CCPR.

2. Compatibility with National Residue Control Programs

While the interest of Codex is in the examination of products in international trade (i.e., sampling for enforcement purposes by an importing country), it is desirable for Codex recommendations to be consistent in principle and appropriate for use by countries in their domestic control programs as well. Such consistency as regards sampling avoids the dilemma some countries may face when national legislation requires that the same standards be applied to domestically-produced and imported products.

Many countries sample animals at slaughter for residue testing, and when violative residues are found, they use animal source traceback, quarantine, or other methods to prevent marketing of additional animals until testing indicates the identified problem has been corrected. These very effective control programs are based on testing of primary samples. By adopting the principle of applying the Codex MRL to a primary sample, uniformity can be achieved in the application of MRLs by exporting countries that carry out such testing programs and by the importing country. This uniformity is particularly important for countries that accept imported meat products based in part on the evaluation of the effectiveness of the residue control and testing programs conducted by the exporting country.

It is noted that a European Council Directive (86/469/EEC) concerning the examination of animals and fresh meat for the presence of residues is consistent with the principles recommended in Annex I.

The Codex Committee on Residues of Veterinary Drugs (CC/RVDF) also is developing sampling guidelines. A Working Paper, "Sampling for the Control of Veterinary Drugs in Foods", circulated for comment in CL 1988/42-RVDF proposes a guideline that is consistent with Annex I. The Working Paper acknowledges interest in harmonizing the recommendations and policies on sampling for control purposes of CCPR and CCRVDF.

3. Practical Considerations

CAC/PR 5-1984 is not practical for application to most meat and poultry products in international trade. Sampling of such products to obtain a representative sample of a lot can be difficult, time consuming, and involve substantial cost. Such sampling can result in disfiguring a large amount of product which reduces its value. For example, a lot of frozen beef typically weighing 18,000 kilograms or more may be shipped in cartons each containing 25 to 30 kilograms of bulk frozen product. To collect 15 primary samples from the lot, as recommended in CAC/PR 5-1984, the sampling official would have to cut through 15 cartons, disfiguring about 400 kilograms of product.

The guideline recommended in Annex I provides a practical sampling framework for applying the MRL to primary samples taken from a diversity of commodities (i.e., shipment of live animals for slaughter by the importing country; fresh/chilled or frozen carcasses, sides, quarters and prime pieces; large containers of bulk frozen, fresh/chilled, or processed products packaged for wholesale, and products for retail of unit sizes that may be as large as 30 kilograms).

4. Application of the Sampling Principle

In both Annex I and CAC/PR 5-1984, a lot is defined as, "an identifiable quantity of goods delivered at one time, having or presumed by the sampling officer to have common properties or uniform characteristics such as the same origin, the same variety, the same consignor, the same packer, the same type of packing or the same mark." The sampling officer must determine from information at hand what quantity of material represents a lot. In the absence of producer codes, a consignment frequently is treated as a lot, even though it comprises product from animals raised at different locations under non-uniform conditions of exposure to pesticides. At the 20th Session of CCPR, the ad hoc Working Group on the Development of Residues Data and Sampling recommended that an explanatory note be added to the definition of a lot which says, "The identification of a lot would be greatly facilitated by the use of farmer and packer codes. The change was incorporated in Annex I.

Under the recommended sampling principle, a lot would comply with the MRL if none of the primary samples analyzed contained a residue above the MRL. If some, but not all, of the primary samples complied with the MRL, these results would indicate that some units in the "lot" had been exposed to the pesticide under conditions that did not comply with GAP. Such a "lot" would represent commingling of contaminated and noncontaminated products. While it may be possible by sublotting and additional testing to separate out the parts that complied with the MRL, an importing country should not be required to assume this burden-

a. Sampling design

The proposed guideline recommends that a different approach and level of sampling be used for lots when there is reason to believe that food may not be in compliance with the MRL (i.e., "suspect" lots) from that to be used for lots when there is no reason to believe the food may not be in compliance with the MRL (i.e., "non-suspect" lots). A lot may be "suspect", for example, because it came from a source with a history of non-compliance with MRLs, when there is evidence that contamination during transport may have occurred, when inspection of live animals imported for slaughter reveals signs of toxicosis, or when other relevant information is available to the inspection official.

b. Sampling of non-suspect lots

A statistically-based random sampling program is recommended for non-suspect lots, which typically draws primary samples from many lots throughout the year with a minimum of sampling from any one lot. Examples, which include stratified random sampling, systematic sampling, and biased worst case sampling, are discussed in Annex I. These designs provide a method for testing imported products to identify types of products and sources that do not comply with Codex MRLs and, therefore, may warrant more intensive examination of future shipments or regulatory follow-up if the sampled lot can be located. Some of the designs may allow estimation of the extent to which imported products as a whole comply with Codex MRLs. Table 1 below provides statistical information relevant to deciding the number of samples to select, which national authorities may consider in relation to resource constraints for systematic testing of compliance with Codex MRLs.

TABLE 1. Number of samples required to detect at least one violation with predefined probabilities (i.e., 90, 95 and 99 percent) in a population having a known violation incidence rate			
Violation Incidence (%) in a Population	Minimum number of samples (n_0) required to detect a violation with a confidence of:		
	90%	95%	99%
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	230	299	459
.5	460	598	919
.1	2302	2995	4603

The number of primary samples does not depend on population size, except when the number of samples shown in the table is greater than about 10% of the population size. The following formula can be used to adjust the table values for the minimum number of primary samples (n_0) and compute the required minimum number of primary samples (n) for a given lot size (N):¹

¹ cochran, William G., Sampling Techniques, 2nd ed., 1963, pp. 74-75, John Wiley and Sons, Inc.

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

c. Sampling of suspect lots

The guideline recommends that at least 6 and usually no more than 30 primary samples be analyzed from a suspect lot. The smaller number of samples would be appropriate, for example, when the suspected contamination is likely to occur throughout the lot, or when the location of probable contamination (e.g., surface contamination) is readily identified.

Table 1 provides statistical information that may be helpful in deciding the number of samples to be analyzed in a particular case. The statistical information presented in the Table was considered useful by the CCPR Working Group on the Development of Residues Data and Sampling in considering provisions for the Guideline, but the Working Group felt that it should not be a part of the guideline. Officials responsible for developing sampling programs are familiar with this basic statistical information.

International harmony in control procedures is not dependent on the number of primary samples analyzed because the MRL is applied to each primary sample. However, as shown in Table 1, the larger the number of samples taken, the greater the assurance that product not in compliance will be detected.

5. Selection of commodities, defined in accordance with the Codex Commodity Classification (CAC/PR 4-1988), that are included

a. Class B Primary Food Commodities of Animal Origin

Mammalian meat, fat and edible offal (Type 06 - Nos. 03 0, 031, and 032) and Poultry meats, fat and edible offal (Type 07 -Nos. 036, 037, and 038) are included in Annex I because these are the primary commodities for which residue data from individual animals are used as the basis for setting MRLs. To avoid repetition and to simplify the guideline, these commodities when marketed as fresh/chilled or fresh/frozen products without further processing are listed by their group number as primary food commodities.

b. Class E Processed Foods of Animal Origin

Only Class E Processed Foods of Animal Origin that are derived from the selected Class B commodities were considered for Annex I. When the size and value of the units to be sampled and the form in which they are normally shipped make it more practical to conduct the sampling in accordance with the procedures in Annex I compared to the procedures in CAC/PR 5-1984, those commodities were included. A container or unit size of at least 1 kilogram was considered a reasonable sizing criteria for including the commodity in this guideline.

Annex I

PART B.

RECOMMENDED METHOD OF SAMPLING FOR THE DETERMINATION OF PESTICIDE RESIDUES IN MEAT AND POULTRY PRODUCTS

1. Objective

To provide instructions for sampling a lot of meat and poultry products to determine for control purposes whether it complies with Codex maximum residue limits (MRLs).

2. Definitions

2.1 Lot

An identifiable quantity of food delivered at one time, having or presumed by the sampling officer to have common characteristics, such as the same origin, the same variety, the same packer or consignor, the same type of packing, or the same mark. Several lots may make up a consignment.²

² The identification of a lot would be greatly facilitated by the use of farmer and packer codes.

2.2 Consignment

A quantity of food covered by a particular contractor shipping document. Lots in the consignment may be delivered at different times and have different origins.

2.3 Primary sample

A quantity of food taken from a single animal or place in the lot. Where a single place does not provide a quantity of material adequate for analysis, samples from more than one animal or location are combined for the primary sample (e.g., poultry organs).

2.4 Laboratory sample

Sample intended for the laboratory. The entire primary sample may be used for analysis, or it may be subdivided into representative portions (laboratory samples) if required by national legislation.

3. Commodities to which the guideline applies.

The commodity designations listed in 3.1 and 3.2 are in accordance with the Codex Commodity Classification CAC/PR 4-1988 and its commodity descriptions, except as further defined.

3.1 Selected Class B: Primary Food Commodities of Animal Origin

Type 06 Mammalian Products

- No. 030 Meat (Mammalian)
- No. 031 Fat (Mammalian)
- No. 032 Edible Offal (Mammalian)

Type 07 Poultry Products

- No. 036 Poultry Meats
- No. 037 Poultry Fats
- No. 038 Poultry, Edible Offal

3.2 Selected Class E: Processed Products of Animal Origin made only from Primary Foods Nos. 030, 032, 036, and 038

Type 16 - Secondary Products

Type 18 - Manufactured (single ingredient) products of container or unit size of at least one kilogram

Type 19 - Manufactured (multiple ingredient) products of container or unit size of at least one kilogram

4. Principle applied

The MRL is applied to the residue concentration found in each primary sample taken from a lot for control purposes. A lot complies with a Codex MRL when none of the primary samples contain a residue greater than the MRL.³

³ When some but not all primary samples comply with a Codex MRL, these results indicate that some units of the lot were treated or exposed under conditions that do not comply with good agricultural practice. While it may be possible by sublotting and further testing to separate out the portion of the lot not in compliance, this burden need not be assumed by the importing country.

5. Employment of authorized sampling officers

The samples must be taken by officers authorized for the purpose by appropriate authorities.

6. Sampling procedures

6.1 Material to be sampled

Each lot which is to be examined must be sampled separately.

6.2 Precautions to be taken

In the course of taking the primary samples and in all subsequent procedures, precautions must be taken to avoid contamination of the samples or any other changes which would alter the residue or compromise the analytical determination.

6.3 Collection of a primary sample

Appendix I provides detailed instruction for taking a primary sample of the various commodities. The quantity required for laboratory analysis is method dependent; however, the minimum requirements for the laboratory samples listed in Appendix I should be adequate for most analyses. In addition, the following general instructions are provided.

a. Whenever possible, each primary sample should be taken from a single animal or unit within a lot, using random selection techniques.

b. When a lot derived from imported live animals is sampled on a slaughter line and product from more than one animal is required for adequate sample size, (e.g., for poultry organs) the multiple samples required for the primary sample should be taken as consecutively as practical after random selection of the starting point.

c. Canned or packaged product should not be opened for sampling unless the unit size is so large that it is impractical to send the whole product to the laboratory. When opening is necessary, the sample should contain a representative portion of liquids surrounding the meat. The sample must then be frozen as described in paragraph 6.5.

d. Frozen product should not be thawed before sampling.

e. For large units (e.g., prime cuts) containing bone, only a portion of edible tissue should be taken as the primary sample.

6.4 Number of primary samples to be taken from a lot

It is recommended that a different approach and level of sampling be used for lots when there is reason to believe the food may not be in compliance with MRLs (i.e., "suspect" lots) from that to be used for lots when there is no reason to believe the food may not be in compliance with MRLs (i.e., "non-suspect" lots). A lot may be "suspect", if it originates from a source with a history of non-compliance with MRLs, when there is evidence that contamination during transport may have occurred, when inspection of live animals imported for slaughter reveals signs of toxicosis, or when other relevant information is available to the inspection official.

6.41 Sampling of suspect lots

At least 6 primary samples and usually no more than 30 primary samples should be taken. The smaller number of samples is appropriate, for example, when the suspected contamination is likely to occur throughout the lot, or when the location of the probable contamination is readily identified.

6.42 Sampling of non-suspect lots

A statistically-based random sampling program is recommended that typically draws primary samples from many lots throughout the year with a minimum of samples taken from any one lot. Any of the following types of sampling can be used.

a. Stratified random sampling

Samples are obtained by separating the population elements into some non-overlapping groups, called strata, and selecting samples within each stratum according to a simple random design. Countries, or geographic regions, are natural strata because agricultural practices are likely to be more uniform, tending to make products within these groups more alike. It is also common to stratify by time (e.g., month, quarter) for convenience and efficient use of resources, and to detect seasonal variations. Tables of random numbers or equivalent procedures are used to ensure randomization. However, even with a computer network the simple random design criteria are mechanistically difficult to apply when commodities must be sampled at many different locations over an extended time period.

b. Systematic Sampling

An example of systematic sampling is taking a sample from every "X" pounds of product imported from a particular country. This method is convenient when there is reliable information on product volumes that can be used to determine the sampling interval that will give the desired number of samples per month or year. Alternatively, samples may be systematically taken by time or number of shipments. As systematic sampling can be vulnerable to abuse if the system is predictable, it is advisable to build some randomness about the point indicated by the sampling interval.

c. Biased, estimated worst case sampling

This design is useful when a population group anticipated to be at greatest risk can be identified. For example, a production class of animals or product from certain regions may be randomly sampled during a particular season when agricultural practices favor use of certain chemicals.

Some exporting countries conduct comprehensive residue testing programs and routinely provide results to the importing country. An importing country, therefore, may exempt such products from further testing requirements, or may reduce the level of testing from that normally applied to non-suspect products from other countries that do not provide residue testing results demonstrating compliance with MRLs.

6.5 Packaging and transmission of primary samples

a. Each primary sample must be placed in a clean inert container offering adequate protection from external contamination and protection against damage to the sample in transit.

b. The container must then be sealed in such a manner that unauthorized opening is detectable,

c. The container must be sent to the laboratory as soon as possible after taking precautions against leakage or spoilage.

d. All perishable samples must be frozen, preferably to minus 20° C., as soon as possible after sample collection. Perishable samples must be transported frozen in a suitable container that retards thawing. If facilities are available, the open container to be used for transporting the samples to the laboratory should be placed in a freezer for 24 hours before packing the pre-frozen sample.⁴

⁴ A sample may be placed in a suitable plastic bag. After expelling excess air and closing the top securely, the bagged sample can be placed in a second bag along with the identification label and then placed in a secured area of a freezer. Alternatively, the bagged sample can be placed in a thin walled forming device (e.g., a paper milk carton) to form the sample to shape the shipping container. When frozen solidly, the sample can be placed in an insulated shipping container with coolant canisters and sealed.

7. Records

Each primary sample must be correctly identified and should be accompanied by a record giving the nature and country/state/town of origin of the sample, the location at which the sample was taken, the date of sampling, and any additional information likely to be of assistance to the analyst, or to regulatory officials should follow-up action become necessary.

8. Departure from recommended sampling procedure

If for any reason there has been a departure from the recommended procedures, full details of the procedure actually followed must be recorded in the accompanying records.

Commodity	Instructions for Taking a Primary Sample	Minimum quantity required for laboratory sample
I. <u>Group 030</u> (Mammalian Meats)		
A. Whole carcass or side, unit weight normally 10 kg or more	Take diaphragm muscle supplemented by cervical muscle, if necessary, from one animal.	0.5 kg
B. Small carcass (e.g., rabbit)	Take hind quarters or whole carcasses from one or more animals to meet laboratory sample size requirements.	0.5 kg after removal of skin and bone
C. Fresh/chilled parts 1. units weighing at least 0.5 kg., excluding any bone, (e.g., quarters shoulders, roasts)	Take muscle portion from one unit.	0.5 kg
2. units weighing less than 0.5 kg, (e.g. chops, fillets)	Take number of units from selected container to meet laboratory sample size requirement.	0.5 kg after removal of any bone.
D. Bulk frozen parts	Take a frozen cross-section from selected container or, alternatively, take muscle from one large part.	0.5 kg
E. Retail packaged frozen/chilled parts, or individually wrapped units for wholesale.	For large cuts, take muscle portion from one unit. Otherwise, take appropriate number of units to meet laboratory sample size requirement.	0.5 kg after removal of any bone.
Ia. <u>Group 030</u> (Mammalian Meats where MRL is expressed in the carcass fat)		
A. Animals sampled at slaughter *	See instructions under II., Group 031.	
B. Other meat parts	Trim off 0.5 kg of visible fat, or take sufficient product to yield 50-100 g of fat for analysis. (Normally 1.5-2.0 kg is required for cuts without trimmable fat.)	Sufficient to yield 50-100 g of fat.

* When adhering fat is insufficient to provide a suitable sample, the whole commodity, without bone, is analyzed and the MRL applies to the whole commodity (ALINORM 87/24, Appendix IV, Annex I, paragraph .

II. <u>Group 031</u> (Mammalian fat)		
A. Large animals sampled at slaughter, usually weighing at least 10 kg.	Take kidney, abdominal or subcutaneous fat from one animal.	0.5 kg.
B. Small animals sampled at slaughter *	Take abdominal and subcutaneous fat from one or more animals	0.5 kg.
C. Bulk fat tissue	Take equal size portions from 3 locations in container.	0.5 kg.
III. <u>Group 032</u> (Mammalian Edible Offal)		
Liver	Take whole liver(s) or portion sufficient to meet laboratory sample size requirement.	0.4 - 0.5 kg.
Kidney	Take one or both kidneys, or kidneys from more than one animal sufficient to meet laboratory sample size requirement. Do not collect from more than one animal if size meets the low range for the laboratory sample size requirement.	0.25 - 0.5 kg
Heart	Take whole heart or ventricle portion sufficient to meet laboratory sample size requirement.	0.4 - 0.5 kg
Other fresh/chilled or frozen, edible offal product	Take portion derived from one animal unless product from more than one animal is required to meet laboratory sample size requirement. A cross-section can be taken from bulk frozen product.	0.5 kg.
IV. <u>Group 036</u> (Poultry Meats)		
A. Whole carcass of large bird, typically weighing 2-3 kg or more (e.g., turkey, mature chicken, goose, duck)	Take thighs, legs, and other dark meat from one bird.	0.5 kg after removal of skin and bone.
B. Whole carcass of bird, typically weighing between 0.5 and 2 kg. (e.g., young chicken, duckling, guinea fowl)	Take thighs, legs and other dark meat from 3 to 6 birds, depending on size.	0.5 kg after removal of skin and bone.

C.	Whole carcasses of very small birds typically weighing less than 0.5 kg (e.g., quail, pigeon).	Take at least 6 whole carcasses.	0.25 - 0.5 kg of muscle tissue.
D.	Fresh/chilled or frozen parts.		
	1. Wholesale packaged		
	a. large parts	Take an interior unit from selected container.	0.5 kg after removal of skin and bone.
	b. small parts	Take sufficient parts from a selected layer in the container.	
	2. Retail packaged	Take number of units from selected container to meet laboratory sample size requirement.	0.5 kg after removal of skin and bone.
IV.a.	<u>Group 036</u> (Poultry Meats where MRL is expressed in the carcass fat)		
	A. Birds sampled at slaughter	See instructions under V., Group 037.	
	B. Other poultry meat	Take 0.5kg of separable fat or sufficient product to yield 50-100g of fat. (Normally, 1.5-2kg is required if separable fat is not available)	Sufficient to yield 50-100g of fat.
V.	<u>Group 037</u> (Poultry Fats)		
	A. Birds sampled at slaughter	Take abdominal fat from 3 to 6 bird depending on size.	Sufficient to yield 50-100 g of fat.
	B. Bulk fat tissue	Take equal size portions from 3 locations in container.	0.5 kg.
VI.	<u>Group 038</u> (Poultry Edible Offal)		
	A. Liver	Take 6 whole livers	0.25 - 0.5 kg.
	B. Other fresh/chilled or frozen edible offal product	Take appropriate parts from six birds; if bulk frozen, take a cross-section from selected container.	0.25 - 0.5 kg.
VII.	<u>Class E - Type 16</u> (Secondary Meat and Poultry Products)		
	A. Fresh/chilled or frozen comminuted product of single species origin	Take a representative fresh or frozen cross section from selected container or packaged unit.	0.5 kg.

B. Group 080 (Dried Meat Product)	Take number of packaged units in a selected container sufficient to meet laboratory sample size requirements	0.5 kg, unless fat content is less than 5% and MRL is expressed on a fat basis. In this case, 1.5-2 kg is required.
VIII. <u>Class E - Type 18 *</u> (Manufactured, single ingredient product of meat or poultry origin)		
A. Canned product, (e.g. ham, beef, chicken unit size of at least 1 kg)	Take one can from a lot. When unit size is very large, (> 2 kg) a representative sample including liquids may be taken.	0.5 kg, unless fat content is less than 5% and MRL is expressed on a fat basis. In that case, 1.5-2 kg is required.
B. Cured, smoked, or cooked product (e.g. bacon slab, ham, turkey, cooked beef - unit size of at least 1 kg).	Take portion from a large unit (> 2 kg), or take whole unit, depending on size.	0.5 kg, unless fat content is less than 5% and MRL is expressed on a fat basis. In that case, 1.5-2 kg is required.
IX. <u>Class E - Type 19 *</u> (Manufactured, multiple ingredient, product of meat and poultry origin)		
A. Sausage and luncheon meat rolls - unit size of at least 1 kg.	Take cross section portion from a large unit (> 2 kg) or whole unit, depending on size.	0.5 kg.

* For unit sizes less than 1 kg apply sampling described in Part A of the Guide.

REPORT OF THE AD-HOC WORKING GROUP ON METHODS OF ANALYSIS

The Working Group met under the Chairmanship of Mr. P.A. Greve (Netherlands). The following countries and organizations attended: Australia, Belgium, Bulgaria, Canada, China (People's Rep. of), Finland, France, Germany (Fed. Rep. of), Greece, India, Ireland, Malaysia, Netherlands, Spain, Sweden, Switzerland, United Kingdom, United States of America, Association of Official Analytical Chemists (AOAC), International Union of Pure and Applied Chemistry (IUPAC), International Organization for Standardization (ISO) and the FAO/WHO Secretariat.

REVISION OF THE LIST OF RECOMMENDATIONS FOR METHODS OF ANALYSIS

1. A revised list of recommendations for methods of analysis was discussed by the Group. An amended list was prepared. In its final version, full titles of the papers referred to will be included. The Working Group hoped that the final version would be published by Codex as Part 8 of the Guide to Codex Recommendations concerning Pesticide Residues.

GOOD LABORATORY PRACTICE IN PESTICIDE RESIDUE ANALYSIS

2. As was agreed at the last session, the Working Group discussed the topics Good Laboratory Practice (GLP) and Analytical Quality Assurance (AQA) in pesticide residue analysis on the basis of the following documents:

- Chemistry Quality Assurance Handbook, Volumes I and II, Food Safety and Quality Service, U.S. Department of Agriculture, Washington D.C., USA
- Manual of Analytical Quality Control for Pesticides in Human and Environmental Media, US Environmental Protection Agency, Washington D.C., USA
- Quality Assurance in the Pesticide Laboratory, Agriculture Canada, Ottawa, Ontario, Canada
- Natlas, National Testing Laboratory Accreditation Scheme, NAMAS Executive, National Physical Laboratory, Teddington, UK
- Concise Directory, NAMAS Executive, National Physical Laboratory, Teddington, UK
- Grundsätze der guten Laborpraxis, Lebensmittelchem. Gerichtl. Chem., 42, 77-80 (1988).

It was concluded that the document previously prepared by the Working Group and issued under the title "Good Practice in Pesticide Residue Analysis" (published as Part 7 of the Guide) was still valid, but that it would have to be up-dated in the near future when more experience with GLP and APA had been obtained under practical conditions.

EXPRESSION OF RESIDUES

3. The Working Group endorsed the JMPR's standpoint (FAO Document 92, para. 2.7) that MRLs be expressed by preference in any of the following numbers: 0.01, 0.05, 0.1, 0.2, 0.5, 1, 2, 3, 5, 10, 15, 20, 30 mg/kg (not 1.0, 2.0, 3.0, 5.0). Other numbers could be used, however, if necessary for special reasons.

LIMITS OF DETERMINATION AND EXPRESSION OF RESIDUES FOR A NUMBER OF COMPOUNDS

4 The Working Group endorsed the changes in expression of the residues for methomyl, fenbutatin oxide and oxamyl, as introduced by the JMPR in its 1988 report. The limits of determination for these compounds are not affected by the editorial changes mentioned. The following limits of determination are, in the opinion of the Working Group, reasonable:

2,4-D	:	0.05 mg/kg
phosmet	:	0.02 mg/kg for all commodities
deltamethrin	:	0.01 mg/kg for all commodities
glyphosate	:	0.1 mg/kg for all commodities (under special circumstances a limit of determination of 0.05 mg/kg is possible).

No unanimity could be reached within the Working Group as regards the proposal to establish one general limit of determination of 0.05 mg/kg for all pyrethroids (except bioresmethrin, for which compound a limit of determination of 0.2 or 0.3 mg/kg is necessary).

The term "limit of determination" had to be seen in the light of the Codex definitions of "limit of determination" and of "lower practical level" (ALINORM 89/24, Appendix III, para. 60) and of the concept of "at or about the limit of determination", denoted by "(*)" after an MRL.

PCBs

6. The Working Group was informed that the collaborative study on PCBs under the auspices of AOAC and NMKL (Nordic Committee for Food Analysis), would start in the autumn of 1989. The study is coordinated by Mr. K. Himberg (Finland). In the Federal Republic of Germany a collaborative study on 6 PCB congeners in fish oil had just been completed.

**RECOMMENDATIONS RELATING TO PESTICIDE RESIDUE PROBLEMS IN
DEVELOPING COUNTRIES**

It is recommended that:

1. individual developing countries should take appropriate measures to establish an acceptable regulatory infrastructure to control the supply and use of pesticides and provide an adequate level of resources and training for this purpose;
2. in establishing appropriate control mechanisms, developing countries should follow the FAO Code of Conduct on the Distribution and Use of Pesticides, including the accompanying guidelines, recognizing that implementation of the Code will improve the quality and acceptability of their food products moving in international trade;
3. developing countries be encouraged to join GEMS/Food and FAO, WHO and UNEP should take every possible action to increase such participation;
4. the Codex Committee on Pesticide Residues, with the assistance of regional Codex Coordinating Committees and co-ordinators on pesticide residue matters, should undertake a survey of developing countries to ascertain the pesticides in current use and their respective uses so as to identify pesticide/commodity combinations of interest to developing countries;

GIFAP should request its member national associations to request similar information from their member companies and to provide such information to the Codex Secretariat;
5. GIFAP should continue to encourage its member organizations and companies to undertake residue trials to support uses in developing countries even when there is no regulatory requirement to do so;
6. pesticide residue questions should continue to receive high priority consideration at regional meetings, such as Codex Coordinating Committees and regional meetings on various aspects of the use of pesticides;
7. FAO and WHO should continue recognizing the need to provide pesticide residue analytical facilities as part of their ongoing commitment to strengthening food control measures; and
8. the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) should consider how technical impediments to the establishment of maximum residue limits (MRLs) for pesticide/commodity combinations of importance to trade of developing countries, may be overcome.

PRIORITY LIST OF PESTICIDES

New Additions to the Codex Priority List (see para. 295, 303-304 and Appendix VI)

89-01 bentazon

89-02 dithianon

Re-evaluation of Pesticides evaluated prior to 1976

A. Pesticides recommended for re-evaluation with dates provided by manufacturers for possible submission of data to JMPR (para. 298).

- | | | |
|-----|---------------------|----------------|
| 1. | Azinphos-methyl | August 1989 |
| 2. | Bromopropylate | October 1992 |
| 3. | Carbaryl | July 1992 |
| 4. | Chlorfenvinphos | When requested |
| 5. | Chlorpyrifos-methyl | When requested |
| 6. | Diazinon | February 1992 |
| 7. | Dichloran | June 1989 |
| 8. | Diquat | June 1992 |
| 9. | Disulfoton | June 1989 |
| 10. | Fenbutatin oxide | August 1990 |
| 11. | Fentin | When requested |
| 12. | Iprodione | July 1990 |
| 13. | Malathion | Earliest 1992 |
| 14. | Methidathion | October 1990 |
| 15. | Monocrotophos | When requested |
| 16. | Phosalone | July 1991 |
| 17. | Piperonyl butoxide | August 1989 |

B. Pesticides for which the question of data availability should be pursued with the manufacturers and for which re-evaluation should be scheduled if possible, as there appears to be continued uses (para. 299).

- | | |
|-----|---------------|
| 18. | Bromophos |
| 19. | Chlormequat |
| 20. | 2,4-D |
| 21. | Dichlorvos |
| 22. | Dicofol |
| 23. | Dodine |
| 24. | Formothion |
| 25. | Mevinphos |
| 26. | Parathion |
| 27. | Pyrethrins |
| 28. | Quintozene |
| 29. | Thiabendazole |

C. Pesticides for which there appears to be few or no remaining food uses and for which there appears to be no continued support for registration from manufacturers.

Re-evaluation is not possible as no new data will be provided and consideration should be given to future status of MRLs (para. 300).¹

¹ Governments are requested to provide information to the Chairman of the Working Group, Dr. J. Taylor (see para. 300) and Appendix I under Canada).

- 30. Aldrin/Dieldrin
- 31. Amitrole (no existing CXLs or MRLs)
- 32. Bromophos-ethyl
- 33. Crufomate
- 34. Dioxathion
- 35. Diphenyl
- 36. Endrin
- 37. Ethoxyquin
- 38. Fenchlorphos
- 39. Heptachlor
- D. Pesticides for which there are special considerations (para. 301).
 - 40. Hydrogen Cyanide (Part of Fumigant review)
 - 41. Lindane (Scheduled for a 1989 re-evaluation although one manufacturer thinks it should be delayed)
 - 42. Pirimiphos-methyl (Referred to JMPR to review currently available data)
 - 43. Propoxur (Scheduled to be re-evaluated in 1989)

LIST OF COMPOUNDS SCHEDULED FOR EVALUATION OR RE-EVALUATION BY
THE 1989-1994 JMPR1989 JMPRToxicological Evaluation

Anilazine*
 Azocyclotin
 Cyhexatin
 Daminozide
 Demeton-S-methyl
 Demeton-S-methyl sulphone
 Dinocap
 Endosulfan
 Ethion
 Flusilazole*
 Lindane
 Methomyl
 Oxydemeton-methyl
 2-Phenylphenol
 Procymidone
 Propoxur
 Terbufos*
 Triadimenol*
 Triazolyalanine*

Residue Evaluation

Anilazine*
 Azocyclotin
 Bendiocarb
 Bitertanol
 Chlorathalonil
 Chlorpyrifos
 Clofentezine
 Cyfluthrin
 Cypermethrin
 Daminozide
 Diquat
 Endosulfan
 Fenitrothion
 Fenthion
 Fenvalerate
 Flucytrinate
 Flusilazole
 Imazalil
 Lindane
 Metalaxyl
 Methomyl
 Ortho-phenylphenol
 Paclobutrazol
 Paraquat
 Permethrin
 Phoxim
 Prochloraz
 Procymidone
 Terbufos*
 Thiram
 Triadimenol*
 Triadimefon
 Triazolyalanine*
 Vinclozolin

1990 JMPRToxicological Evaluation

Captan
 Chlorothalonil
 Coumaphos
 Cyromazine*
 Folpet
 Hexaconazole*

Residue Evaluation

Acephate
 Azinphos-methyl
 Bendiocarb
 Captan
 Clofentezine
 Coumaphos

Methacrifos
Methamidophos
Profenfos*
Triazophos*

Cyromazine*
Deltamethrin
Disulfoton
Etriphos
Hexaconazole*
ETU
Folpet
Metalaxyl
Methacrifos
Methoprene
Omethoate
Permethrin
Phoxim
Profenfos*
Tolyfluanid
Triazophos
Vamidothion

1991 JMPR (tentative)

Azinphos-methyl
Bentazon*
Bioresmethrin
Butocarboxim
Chlorfenvinphos
Chlorpyrifos-methyl
Dialifos
Dicloran
Disulfoton
Ethepon
Fentin
Hexythiazox*
Monocrotophos
Thiram
Triazophos

Azinphos-methyl
Bentazon*
Chlorfenvinphos
Chlorpyrifos-methyl
Dicloran
Dinocap
Disulfoton
Fentin
Monocrotophos
Parathion

1992 JMPR (tentative)
Toxicological Evaluation

Aldicarb
Dithianon*
Fenbutatin-oxide
Iprodione
Methidathion
Piperonyl butoxide
Propham*
Pyrazophos

Residue Evaluation

Aldicarb
Dialifos
Dithianon*
Fenbutatin-oxide
Iprodione
Methidathion
Piperonyl butoxide
Propham*
Pyrazophos

1993 JMPR (tentative)

Amitrole
Carbaryl
Chlorpropham*
Diazinon
Diquat

Carbaryl
Chlorpropham*
Diazinon
Ethepon

Ethephon
ETU
Phosalone
Propineb
PTU

1994 JMPR (tentative)
Bromopropylate
Malathion

Phosalone
PTU

Bromopropylate
Malathion

* New evaluations. All others are re-evaluations.