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REPORT OF THE SIXTH SESSION OF THE
CODEX COMMITTEE ON PESTICIDE RESIDUES
The Hague, 16-23 October 1972

INTRODUCTION

1. The Codex Committee on Pesticide Residues held its sixth session in The Hague, the Netherlands, from 16 to 23 October 1972.
2. Drs. A. Kruyse, adviser to the Minister of Public Health and Environmental Hygiene, the Netherlands, acted as Chairman.
3. The session was attended by government delegates, experts, observers and advisers from the following 31 countries: Argentina, Australia, Austria, Belgium, Brazil, Canada, Czechoslovakia, Denmark, Finland, France, Gabon (observer), Federal Republic of Germany, Guatemala, Hungary, Ireland, Israel, Italy, the Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, South Africa (observer), Spain, Sweden, Switzerland, Thailand, Togo, United Kingdom and the United States of America. The following International Organizations were also represented: Council of Europe, European Economic Community (EEC), International Federation of National Associations of Pesticide Manufacturers (GIFAP), International Organization for Standardization (ISO/TC 34 and SC 5), European and Mediterranean Plant Protection Organization (EPPO), and International Union of Pure and Applied Chemistry (IUPAC). A list of participants, including officers from FAO and WHO, is set out as Appendix I to this Report.

ADOPTION OF THE AGENDA

4. The Committee agreed to discuss the definitions for "pesticide" and "pesticide residue" before the consideration of the definition of "good agricultural practice" and other definitions proposed by the 1971 session of the Ad Hoc Working Group of the Codex Committee on Pesticide Residues, and that these items (listed as Items 5 and 4(c) on the draft agenda) should be taken immediately after Item 3. The Committee's attention was drawn to the fact that the Joint Meeting on Pesticide Residues at its 1970 session had recommended a number of changes affecting tolerances issued to governments for acceptance. It was agreed to consider these changes under agenda item 9.
5. The Committee agreed that it was important to give full consideration to a number of proposed priority lists at this session so as to assist the deliberations of the Joint Meeting on Pesticide Residues. ^{1/}In order to facilitate progress on this item, an Ad Hoc Working Group was set up with the task of considering the various papers submitted by governments justifying the inclusion of pesticides in appropriate priority lists together with the paper on good agricultural practice in the use of pesticides for selected foods, prepared by Canada on the basis of individual governments' replies to a questionnaire drawn up by that country. The following delegations were designated by the Committee as members of this Ad Hoc Working Group on Priorities: Australia, Canada, the Federal Republic of Germany, Israel, the Netherlands, Switzerland, United Kingdom and the U.S.A. Dr. E.E. Turtle, representing the Joint Meeting on Pesticide Residues, participated at the meeting of the Ad Hoc Working Group.

^{1/} Joint FAO Working Party of Experts and WHO Expert Committee on Pesticide Residues.

6. The Committee discussed ways and means of expediting its work on methods of analysis of pesticide residues (See item 12 of the agenda). The Committee decided that the most expeditious way of dealing with the comments received from governments and from IUPAC on methods of analysis included in document CX/PR 72/3 was to set up an Ad Hoc Working Group on methods of analysis to meet during the session of the Committee. The following countries were designated as members of the Ad Hoc Working Group: Canada, Federal Republic of Germany, Israel, the Netherlands, Switzerland, United Kingdom and the United States of America. The representative of IUPAC and Dr. E.E. Turtle representing the Secretariat of the Joint Meeting on Pesticide Residues participated at the meetings of the Ad Hoc Working Group. The Committee agreed that the Working Group should have the following terms of reference:

- (a) to examine all the comments received from governments and IUPAC;
- (b) wherever possible, to make recommendations for appropriate methods of analysis; and
- (c) to suggest a procedure whereby appropriate and suitable methods of analysis could be developed so that the Committee could proceed with their elaboration in accordance with the Codex procedure for the elaboration of Codex methods of analysis. In view of the magnitude of the task of recommending suitable methods of analysis for the large number of tolerances already proposed, the Committee agreed that priority should be given to those methods of analysis which were intended to apply to tolerances and practical residue limits at advanced steps in the Codex procedure and especially those which had already been recommended to governments for acceptance.

APPOINTMENT OF RAPPORTEURS

7. Mr. J.A. Brown from the delegation of the United Kingdom and Mr. G. Viel from the delegation of France agreed to act as Rapporteurs and were so appointed by the Committee.

CONSIDERATION OF DEFINITIONS FOR "PESTICIDE" AND "PESTICIDE RESIDUE"

8. The Committee had before it a working paper prepared by the Secretariat containing proposals for the definition of "pesticide" and "pesticide residue" (CX/PR 72/6). The Committee noted that the format for Codex standards included a section on contaminants which listed "pesticide residues" as contaminants. The Committee also noted that the Codex Committee on Food Additives had defined contaminants in such a way as to include pesticide residues, recognizing, however, that pesticide residues themselves were subject to a separate definition. The Committee was of the opinion that the definition of "pesticide" proposed by the Secretariat contained too much detail in relation to the various types of pest control agents and the various conditions of their use and agreed to the following definition initially proposed by the delegation of the United States and to which minor amendments were made during the discussion: "For the purposes of the Codex Alimentarius, the term "pesticide" means any substance or mixture of substances intended for preventing or controlling any pest and includes any substance or mixture of substances intended for use as a plant-growth regulator, defoliant or dessicant. The term excludes fertilizers and antibiotics or other chemicals administered to animals for other purposes such as to stimulate their growth or to modify their reproductive behaviour."

9. The Committee adopted the definition for "pesticide residue" proposed by the Secretariat with some amendments as follows: "For the purposes of the Codex Alimentarius, a 'pesticide residue' means any substance or substances in food for man or animals resulting from the use of a 'pesticide'. It also includes any specified derivatives, such as degradation and conversion products, metabolites and reaction products which are considered to be of toxicological significance."

CONSIDERATION OF DEFINITIONS OF "GOOD AGRICULTURAL PRACTICE IN THE USE OF PESTICIDES" AND "CODEX TOLERANCE" OR "CODEX MAXIMUM RESIDUE"

10. The Committee adopted the definitions for the above terms proposed by the Ad Hoc Working Group which had met in Copenhagen in October 1971 (ALINORM 72/24, paras 9 and 21 and Appendix II) with some amendments. The amended definitions read as follows:

Good Agricultural Practice in the Use of Pesticides

"For the purposes of the Codex Alimentarius, good agricultural practice in the use of pesticides is defined as the officially recommended or authorized usage of pesticides under practical conditions at any stage of production, storage, transport, distribution and processing of food and other agricultural commodities, bearing in mind the variations in requirements within and between regions, and which takes into account the minimum quantities necessary to achieve adequate control, applied in a manner so as to leave a residue which is the smallest amount practicable and which is toxicologically acceptable."

Codex Tolerance or Codex Maximum Residue Limit

"For the purposes of the Codex Alimentarius, a Codex tolerance or Codex maximum residue limit is the maximum concentration of a pesticide residue that is recommended by the Codex Alimentarius to be legally permitted in or on a food or food commodity. The concentration is expressed in parts by weight of pesticide residue per million parts by weight of the food or food commodity."

Explanatory Note

In general, a Codex tolerance or Codex maximum residue limit refers to the residue resulting from the use of a pesticide under circumstances designed to protect the food or food commodity against pest attack, according to good agricultural practice (as defined). When a residue results from circumstances not designed to protect the food or food commodity in question against pest attack the maximum concentration recommended is designated as a "practical residue limit".

In some countries the national tolerances or maximum residue limits have been established to include not only the normal variations in residue levels found in appropriate supervised trials, but also the variations occurring in the sampling error. In other countries the national tolerances or maximum residue limits have been established on the average of the residue levels estimated from appropriate supervised trials. In both instances it is recognized that the higher levels occur only occasionally. This is illustrated by the low occurrence of higher residues in national surveillance programmes.

Where tolerances or maximum residue limits are established at the average, the level at which consignments are rejected is generally higher than this average. This difference recognizes the normal distribution of values in relation to the average level. In those cases where the tolerances or Codex maximum residue limits have been established to include the occasional higher values, consignments exceeding this figure are subject to rejection. The Codex Alimentarius recommendations have taken account of occasional higher values and fall into the latter category.

Unless specifically recommended otherwise, for the purpose of the Codex Alimentarius, the Codex tolerance or Codex maximum residue limit or the practical residue limit shall apply to the food or food commodity at the point of entry into a country or at the first point of entry into trade channels within a country.

STATEMENT OF THE REPRESENTATIVE OF EPPO ON GOOD AGRICULTURAL PRACTICE IN THE USE OF PESTICIDES

11. The representative of EPPO stressed the importance of the work of the Codex Committee on Pesticide Residues in harmonizing regulations on pesticide residues in food. He pointed out that the paper prepared by Canada on good agricultural practice demonstrated differences in the rates of application of pest control agents, even between countries with similar agricultural and ecological conditions.

12. It was, therefore, important to provide guidance in the proper use of pest control agents so as to more closely align national practices with tolerances. FAO's activities in this respect were noted and the representative of EPPO also expressed the opinion that Codex tolerances for pesticide residues should take into account quarantine requirements as well as the considerations of "good agricultural practice". He stated that EPPO, an intergovernmental body, would be willing to cooperate with the Codex Committee on Pesticide Residues in this regard.

DISCUSSION OF THE REPORT OF THE 1971 AD HOC WORKING GROUP OF THE CODEX COMMITTEE ON PESTICIDE RESIDUES

13. The Committee had before it a report of the above Ad Hoc Working Group (ALINORM 72/24). It agreed that considerable progress had been made at the session of the Ad Hoc Working Group in clarifying the various basic issues that had given rise to difficulties at earlier sessions of the Committee. The decisions of the Committee regarding the definition of good agricultural practice in the use of pesticides and the definition of a Codex maximum residue limit are recorded in paras 11 and 12.

14. As regards the basic information required by the Joint FAO/WHO Meeting on Pesticide Residues in relation to the statistical evaluation of the results of analysis of residues occurring during supervised trials, the Committee agreed with the views expressed by the Ad Hoc Working Group that there was a need for more comprehensive data on the variation of residues in agricultural products, especially from countries or regions with special pest control problems. The Committee agreed that the availability of such data would assist the Joint Meeting on Pesticide Residues in proposing the best possible recommendations for tolerances and thereby help governments to a better understanding of the differing needs of individual governments in such cases. This would facilitate agreement within the Codex Committee on Pesticide Residues on proposed tolerance figures.

15. The Committee then discussed several papers prepared by the delegation of the Netherlands discussing various approaches under which these comprehensive trials data could be utilized both in the establishment of tolerances as well as in their enforcement.

16. The Committee noted that the Codex Committee on Methods of Analysis and Sampling, at its last session, had discussed the problem of sampling and had set up a drafting group on sampling to study this problem. The Drafting Group would correspond and draw up a working paper for the next session of the Codex Committee on Methods of Analysis and Sampling (Ref. ALINORM 72/23). The Committee considered whether to await the outcome of the work of the Codex Committee on Methods of Analysis and Sampling in this field or whether to continue working on problems of sampling and enforcement in anticipation of the decisions of the Codex Committee on Methods of Analysis and Sampling. It was agreed that work should be continued on the problem of sampling for the enforcement of pesticide residue tolerances in view of the fact that this represented a specific and specialized field.

17. Furthermore, it was important to clarify the interpretation of tolerances in terms of sampling procedures and analytical methods so as to facilitate the acceptance of recommended tolerances by member countries. The Committee noted that in dealing with the problem of sampling and enforcement for pesticide residues, a number of important aspects needed to be given consideration. These included, for example, differences in the size of the item (unit); differences in the nature of the commodities sampled; the toxicity of the pesticide residue in question as well as its possible degradation; differences in the size of the sample in relation to the size of the lot; and the uniformity of the distribution of pesticide residues in the food commodity under examination. Furthermore, other aspects such as the economic and commercial viability of the analysis in relation to cost, the diversity of legal approaches in various countries, and the perishable nature of the commodity being sampled should also be taken into consideration.

18. The Committee also agreed with the views of the Ad Hoc Working Party that the basic objective of sampling procedures should be to provide a means by which the enforcement of Codex maximum residue limits would be consistent with fair practices in international trade

always bearing in mind the need to protect the health of the consumer. The Committee agreed that the approach to sampling contained in paras 36 to 38 of the report of the Ad Hoc Working Group on Pesticide Residues (ALINORM 72/24) had for the first time given rise to the possibility of reconciling the differences between the "high" and "low" tolerance concepts in some situations. It, therefore, agreed in principle that in some situations the use of sampling plans as an administrative mechanism for enforcement purposes could resolve difficulties that had previously delayed progress in the Committee. It was considered desirable that those countries which had difficulty in accepting Codex tolerance proposals might consider making early use of sampling plans in practical circumstances to determine whether present difficulties and delays could be overcome by the implementation of such a procedure. In arriving at this conclusion, the Committee recognized that it would be necessary, where appropriate, to take account of the factors outlined in para 17 above and also to agree on acceptance criteria and other relevant details. The Chairman of the Committee, in cooperation with the delegation of the Netherlands, undertook to prepare a working paper on the subject of sampling plans for the next session, in consultation with the Working Group on Sampling set up by the Codex Committee on Methods of Analysis and Sampling.

19. The Canadian delegation presented a paper summarizing information on good agricultural practices in a number of countries (CX/PR 72/7). This paper had been compiled from the responses of certain governments to a questionnaire on this subject and resulted from the task which the Canadian delegation agreed to undertake at the Fifth Session of the Codex Committee on Pesticide Residues (see paras 14 and 15 and Appendix VIII of the Report of that session, ALINORM 71/24). The summary listed information on 227 different pesticides, used by 22 countries in connection with the commodities in the questionnaire. There were in excess of 184 citations of insect pests, 2 vertebrate pests, 43 fungal pests and 27 weed pests. The Committee considered the survey to be an excellent document which would be of great value as a source of information, not only for the establishment of Codex priority lists, but also for countries having an interest in the marketing of major commodities on an international scale. The Committee accepted the offer of the Canadian delegation to continue collecting information on this subject in order to keep the document up to date and recommended that governments should be requested to provide additional relevant data on this subject as they became available. The delegation of Canada informed the Committee that a revised and more appropriate questionnaire would be circulated by them specifying the information required.

CONSIDERATION OF PROPOSAL FOR AMENDMENT OF THE PROCEDURE FOR THE ELABORATION OF CODEX TOLERANCES FOR PESTICIDE RESIDUES

20. The Committee took note of the sequence of events following its request to the Secretariat to investigate ways and means of expediting the establishment of recommended international Codex tolerances for pesticide residues (ALINORM 71/24, para 164). The relevant considerations of the Executive Committee and the Commission were included in a working paper (document CX/PR 72/4) placed before the Committee.

21. The Committee considered and agreed to a change relating to the Codex procedure followed at Steps 1, 2 and 3 by requesting the Secretariat to distribute a summary of the recommendations for maximum limits for pesticide residues as soon as possible following a session of the Joint FAO/WHO Meeting on Pesticide Residues. This would enable governments immediately to seek the views of interested organizations on the proposed tolerances in readiness for discussion at Step 4 of the next successive meeting of the Codex Committee on Pesticide Residues. It was agreed that in practice this would consolidate the procedure presently followed. The Committee also requested the representatives of FAO and WHO to make available the related monographs as soon as possible thereafter in order that these might be taken into account during the governments' consideration of the proposed tolerances.

22. The Committee further agreed to recommend to the Commission the adoption of the proposal under which Steps 6, 7 and 8 of the standard procedure could be omitted in certain circumstances. The Secretariat explained that in such cases where the Committee agreed to propose to the Commission to omit Steps 6, 7 and 8, the attention of governments would be drawn specifically to this proposal and comments would be requested:

- (i) on the proposal as such; and
- (ii) on the tolerance itself under the normal procedure followed at Step 8, whereby government observations would be compiled by the Secretariat and distributed prior to the session of the Commission successive to the meeting of the Committee.

23. The text of the amended procedure as adopted by the Committee reads as follows:

"Procedure for the Elaboration of Worldwide Codex Maximum Residue Limits for Pesticides

Steps 1, 2 and 3

The Secretariat distributes the recommendations for maximum limits for pesticide residues [or contaminants], when available from the Joint FAO Working Party of Experts and the WHO Expert Committee on Pesticide Residues [or from the Joint FAO/WHO Expert Committee on Food Additives] and requests comments from governments and interested International Organizations.

Step 4

The Codex Committee on Pesticide Residues [or the Codex Committee on Food Additives, as appropriate] examines the recommendations for maximum limits for residues or contaminants in the light of comments. The Codex Committee, when formulating its recommendations for proposed draft Codex maximum limits, takes all appropriate matters into consideration including the need for urgency, the government comments at Step 3 and the likelihood of new evidence becoming available in the immediate future and, on the basis of such considerations, indicates to the Commission those proposed draft maximum limits which, in its view, need to be passed through the full Procedure and those for which there might be an omission of Steps 6, 7 and 8. It being understood that any maximum limit at Step 5, for which it has been recommended that Steps 6, 7 and 8 could be omitted or any maximum limit at Step 8 shall be dealt with by the Commission in accordance with the Guide to the Consideration of Standards at Step 8 of the Procedure for the Elaboration of Codex Standards.

Steps 5 - 10

Unchanged."

24. The Committee also discussed in detail the proposal of the Executive Committee to the Commission to amend the Procedure for the Elaboration of Codex Standards in respect of pesticide residues by adding to para 3 of the Introduction a provision stating that the omission of Steps 6, 7 and 8 by the Commission would be possible by two thirds majority of votes cast in favour of the omission. The text of the proposed addition to para 3 of the Introduction to the Procedure for the Elaboration of Codex Standards and Codes of Practice, as agreed by the Committee, reads as follows:

"It shall further be open to the Commission to authorize, on the basis of a two thirds majority of the votes cast, the omission of one or more of Steps 6, 7 and 8 of the Procedure in Parts 1 and 2 of this document in respect of standards for pesticide residues [and contaminants] elaborated by the Codex Committee on Pesticide Residues [or the Codex Committee on Food Additives], where such an omission is recommended by the Committee concerned."

25. The Secretariat explained that in those instances where the Commission could agree either by general consent or by a vote with at least a two thirds majority, to adopt the proposal of the Committee to omit Steps 6, 7 and 8, the proposed draft standard would be advanced to Recommended International Standard. If, however, the Commission decided for any reason that Steps 6, 7 and 8 should not be omitted (such a decision would require either general agreement or the support of more than one third of the votes cast), the proposed draft standard would normally be advanced to Step 6 of the standard Procedure and thus be submitted to another round of government comments.

26. It would, of course, still be open to the Commission to return any proposed draft standard to an earlier step in the Procedure.

27. The Committee agreed that the amended Procedure would indeed provide for speeding up and facilitating the elaboration of international tolerances for pesticide residues while at the same time leaving authority with the Codex Committee on Pesticide Residues with

regard to guiding the actual procedure to be followed. It was emphasized that the two-thirds majority voting procedure related only to the question of whether one or more of Steps 6, 7 and 8 could be omitted; all decisions on whether the standards themselves could be advanced to Step 9 (Recommended International Standard) would continue to be taken in accordance with the existing procedures of the Commission.

CONSIDERATION OF A PROPOSAL FOR AMENDMENT OF THE PROCEDURE FOR THE ACCEPTANCE OF MAXIMUM LIMITS FOR PESTICIDE RESIDUES

28. The Committee noted the view of the 1971 Ad Hoc Working Group concerning the desirability of applying the provisions of para 4 B of the General Principles of the Codex Alimentarius (which related to the acceptance of Codex commodity standards) instead of para 5 B of the same General Principles (which related to the acceptance of Codex General Standards) to Codex maximum limits or Codex tolerances for pesticide residues. In practice, this amendment would enable a country which could not accept a standard in any of the normal ways, i.e. on the basis of a full acceptance, a target acceptance, or an acceptance with minor deviations, to indicate nevertheless that it would be prepared to allow the free distribution of products conforming to the standard within its territorial jurisdiction, if appropriate. It was agreed to request the Commission to consider the insertion of an appropriate footnote to this effect to para 5 B of the Procedure for the Acceptance of Codex General Standards.

MATTERS ARISING FROM REPORTS OF THE COMMISSION AND CODEX COMMITTEES

29. The Secretariat briefly reviewed matters of particular interest to the Committee but which were not otherwise dealt with under specific Agenda items.

CODEX ALIMENTARIUS COMMISSION (ALINORM 71/31, paras 133-143)

30. The Committee noted in particular the interpretation given by the Commission to the status of "temporary tolerances" and that these should be regarded as "provisional recommendations of the Commission sent for acceptance to governments but which would remain applicable until such time as the revised tolerances had been adopted by the Commission" (ALINORM 71/31, para 136).

EXECUTIVE COMMITTEE (ALINORM 71/3, paras 20-25 and ALINORM 72/3, paras 25-30)

31. The Committee noted the specific request by the Executive Committee "to give due consideration to the establishment of priority lists taking into account particularly health hazards as well as economic considerations". (ALINORM 71/3, para 24).

CODEX COMMITTEE ON COCOA PRODUCTS AND CHOCOLATE (ALINORM 72/10, para 27)

32. The Committee discussed the request to consider pesticide residues in cocoa products and chocolate, and in particular in cocoa butter. It was noted that the Committee could only consider specific pesticides for which priorities were established and that the request of the Codex Committee on Cocoa Products and Chocolate would imply a change in this approach. The Committee further noted that the Office International du Cacao et du Chocolat (OICC) had prepared a synopsis of levels of residues in cocoa products and chocolate. The Committee decided to ask the Secretariat to request governments and International organizations to provide data on pesticide residues for cocoa beans, different categories of butter and cake for consideration by the Joint Meeting.

CODEX COMMITTEE ON FOODS FOR SPECIAL DIETARY USES (ALINORM 72/26, para 67)

33. The Committee considered the provision for pesticide residues in Section 6 - "Contaminants" of the Draft Standard for Infant Formula (Step 8). It was stated that as a rule, commodities intended for use in the production of Infant Formula would be grown under specified conditions and that, therefore, the provision was not an absolute necessity. The Committee, nevertheless, expressed its general agreement with the provision.

FAO INTERGOVERNMENTAL GROUP ON CITRUS FRUIT

34. The Committee was informed that the FAO Intergovernmental Group on Citrus Fruit (5th session) which met in Catania in 1972, had requested this Committee to make every effort to expedite harmonization of pesticide residue tolerances relating to Citrus fruit. This request was prompted by increasing propaganda in the trade against chemically treated fruits, and the fact that the lack of harmonization in the application of tolerances created unnecessary trade obstacles. It was pointed out that an additional problem was created by the practice of certain countries classifying chemicals used in post-harvest treatment of Citrus fruit as food additives. The Committee took note of this request and also noted that the FAO Group on Citrus Fruit had been advised by the FAO Secretariat of the pesticide residue tolerances which had already been recommended by this Committee. It agreed that the problem raised by the FAO Group on Citrus Fruit was of a general nature which applied to other agricultural commodities and that Citrus fruit should not, therefore, be selected for special treatment. It was envisaged that in due course further maximum pesticide residue limits for Citrus fruit would be recommended by the Joint Meeting. It agreed that under the definitions adopted for "pesticide" and "pesticide residue", compounds used for pest control in post-harvest treatments were to be regarded as "pesticides".

POTENTIAL AND ACTUAL INTAKE OF PESTICIDE RESIDUES

35. The representative of WHO presented a survey (CX/PR 72/8) about additional studies on this subject. Tolerances are recommended for residues of pesticides to allow their proper use in agriculture as well as to protect the health of the consumer and to facilitate international trade. On a world-wide basis the establishment of tolerances is undertaken by Member States within the framework of the Joint FAO/WHO Food Standards Programme, the principal organ of which is the Codex Alimentarius Commission.

36. Because of WHO's involvement in this Programme, the Organization had been asked to provide information as to whether the average consumer would be exposed to an intake of the residues of a pesticide greater than its ADI, if a Member State accepted all the Codex tolerances for this pesticide. The total diet studies carried out in a few countries indicated that the average actual intake of pesticide residues was in general much lower than the ADI. In spite of these studies, there remained certain reservations about the applicability of these figures to other regions. It was, therefore, considered necessary for WHO to carry out additional studies. The Committee agreed that theoretical calculations of pesticide residue intake were less indicative than intake figures derived from total diet studies, but might serve as a first screen for problem areas.

37. The results of these other studies described in document CX/PR 72/8, indicated that for the majority of the 35 pesticides considered, the potential daily intakes did not exceed the corresponding ADI. For these pesticides there was not even a theoretical possibility that the actual intakes of their residues would exceed the ADI, provided the level of residues did not exceed the tolerances. In these cases it was agreed that there was no need to include the pesticides in monitoring studies provided that the tolerances and the ADIs remained unchanged. In the remaining cases there was no suggestion that the actual intakes would exceed the ADIs. This was supported by the results of the few total diet studies carried out so far which indicated that the potential daily intakes were a gross overestimation of actual intakes.

38. In the discussion on this subject, the delegation of the Netherlands suggested that more food consumption figures should come forward from other countries in order to be incorporated in the WHO calculations. The delegation of the Netherlands further requested that information on the quantitative relation between potential intake and ADI should be made available in the monographs.

39. In reply to a question on whether data were available about the potential intake of lindane and beta-HCH, the representative of WHO informed the Committee that data about lindane were available and that this compound should be included with the border-line cases listed in CX/PR 72/8. No such data were available about beta-HCH.

40. It was also noted that the potential intake of the bromide ion was based on the present tolerance proposal for only one commodity and did not take into account residues of the bromide ion resulting from other sources. Proposals for other commodities had been withdrawn because of the unknown amounts of bromide ion resulting from other sources. For this reason the potential intake for bromide was not necessarily a realistic one.

41. The Committee agreed that for those pesticides where the potential intake did not at present exceed the ADI, the conclusions of the WHO studies should be borne in mind, especially when individual proposed tolerances for these compounds were discussed later in the Agenda.

42. The Committee requested WHO to continue its study on potential intakes on the lines indicated in the final two paragraphs of CX/PR 72/8 and to make details available to the Codex Committee on Pesticide Residues as and when these became available.

43. The delegation of the U.S.A. presented a room document on the relation between theoretical intake figures derived from 9th decile consumption figures and U.S.A. tolerances, and actual intake figures derived from total diet studies in the U.S.A. from 1964-1970. Using 9th decile food consumption factors for commodities having a tolerance in the U.S.A., the conclusions could be drawn that the theoretical intake exceeded greatly the actual intake. For the 7 examples; DDT, dicofol, dieldrin, lindane, malathion, parathion and carbaryl, the actual intake ranged from 1/40 to less than 1/1000 of the theoretical intake, thus giving great assurance that the tolerances allowed in that country provided adequate protection for the health of the consumer. On the basis of these studies it was suggested that the actual intake could be estimated as 10% of the theoretical intake in cases where, for various reasons, no information about the disappearance of the residues was available.

44. Figures for milk and milk products were not taken into account with the exception of DDT because in the U.S.A. no tolerances are established for pesticides in milk and milk products. The U.S.A. delegation indicated pesticide residues in milk and milk products would not contribute any significant increase to the theoretical intake. The U.S.A. delegation agreed to consider a suggestion that the relationship between the total diet studies and the ADIs would be provided.

CLASSIFICATION OF FOODS AND DEFINITION OF FOOD GROUPS

45. The Committee had before it a paper prepared by the Secretariat on the above subject (CX/PR 72/9). The Committee agreed in principle with the approach taken by the 1971 and 1972 Joint Meetings to the establishment of individual versus general tolerances, which reads as follows:

- (a) When residue data are available for only a small number of commodities in a class of food, tolerance recommendations should be made separately for each commodity on which the data are considered adequate.
- (b) When data on a number of commodities in a class show that there is a great variation in residue levels in different commodities, separate recommendations should be made for each commodity.
- (c) When data on a wide variety of commodities in a class indicate that the range of residue levels is relatively narrow, a single tolerance should be recommended for the class as a whole.
- (d) Every effort should be made to use classifications that are generally recognized by those concerned with pesticide residue problems and that are suitable for adoption by the Joint FAO/WHO Codex Alimentarius Commission.

46. The Committee decided not to further discuss the paper in detail but to consider the various points raised by the Secretariat at appropriate stages of the discussion on the recommendations for tolerances. It was pointed out that in some instances classes or items of food would have to be defined and that it was essential that the Joint Meeting and the Codex Committee on Pesticide Residues should be consistent in their use of terminology describing items and classes of food.

DIFFICULTIES IN RELATION TO THE ESTABLISHMENT OF ACCEPTABLE INTERNATIONAL TOLERANCES FOR PESTICIDE RESIDUES

47. During the discussion of the lists of maximum limits for pesticide residues at different Steps of the Procedure, a number of difficulties were encountered. These may be summarized as follows:

A. Acceptance of Codex Maximum Residue Limits

There was some misunderstanding among delegations regarding the manner of acceptance of Codex Maximum Residue Limits. On the one hand, it was considered that a country accepting a Codex Maximum Residue Limit for pesticide residues was required to adjust, i.e. either increase or decrease its national maximum residue limits to coincide with the Codex limit. On the other hand, it was suggested that a country accepting a Codex Maximum Residue Limit for pesticide residues was required only to ensure that food in conformity with Codex limits would not be denied free distribution within its territorial jurisdiction in accordance with established legal and administrative procedures, and that this might not necessarily involve any changes to existing national maximum residue limits. In the opinion of the Secretariat, the General Principles of the Codex Alimentarius indicated that full acceptance of Codex Maximum Residue Limits required adjustment of national maximum residue limits to the Codex Maximum Residue Limits. The Committee agreed that clarification of this matter by the Codex Alimentarius Commission was required to ensure successful continuation of the work of the Committee.

In this context, particular attention was drawn to the fact that harmonizing pesticide residue tolerances presented a special problem as distinct from harmonizing other food standards, due to the dependence on natural (pest and climatic) conditions, which were widely different in the various regions of the world. The Committee thought that this might warrant a special acceptance procedure for pesticide residue limits.

B. Residues arising from the Use of Pesticides according to Good Agricultural Practice as the basis of Codex Tolerances

The concept of good agricultural practice as agreed by the Committee (para 10) recognized the different needs of individual countries or regions to use pest control agents in a manner so as to give the required protection to crops or livestock against pest attack under the prevailing conditions. Experimental evidence indicating the level of residues resulting from these good agricultural practices has served as the basis for the recommendations for Codex Maximum Residue Limits. While there was general acceptance of this concept it was stated by some delegations that some maximum residue limit recommendations had been established which provided for exceptional cases of severe pest infestation which had occurred only infrequently in limited regions and which had affected only a limited proportion of the agricultural products in question. This approach had resulted in international maximum residue limits being proposed, in some instances, which were not acceptable to some member countries as, in their opinion, the limits appeared too high. It was also the view of these delegations that maximum residue limits should not be based on residue data derived from exceptions to the normal good agricultural practice of the country concerned. Other countries expressed their concern with this view and pointed to the economic and social consequences of restricting the free movement of food if good agricultural practice under the pest and climatic conditions in these areas were to be considered as exceptional. They indicated that to restrict the maximum residue limit to the levels most generally found in commodities in commerce would place undue hardship on some countries, especially developing countries.

C. Choice of Residue Data in Relation to Point of Enforcement

It was noted that in many instances the levels of pesticide residues remaining on agricultural commodities declined with the passing of time between application of the pesticide and the time of sampling and analysis of the residues. In order to provide for the sampling of agricultural commodities moving particularly in domestic commerce close to harvest or slaughter, recommendations of the Joint Meeting had been based on residue data derived from this time period. Codex residue limits adopted by member governments would have to provide for similar circumstances because of their ultimate adoption into national

legislation. This means that food subjected to inspection at a point very close to harvest or slaughter may show higher residue levels than is the case where the same commodities are sampled in another country after transport of long duration. It was the view of some delegations that more acceptable residue limits could be set by considering residue data obtained at appropriate intervals after harvest or slaughter.

D. Meaning of Codex Maximum Residue Limits in the light of Sampling and Analysis

It was apparent that views differed about the interpretation of the results of sampling and analysis of food for pesticide residues with respect to regulatory action. The following questions were raised: (a) should a consignment of an agricultural commodity be rejected only if the average residue level found in the samples taken exceeded the maximum residue level, or (b) should rejection follow if one item in the sample were in excess of the maximum residue level? (c) What quantity of a particular agricultural commodity should be taken to represent the consignment as a whole?

Consideration could profitably be given to a statistical approach to the interpretation of residues found in the samples (See paras 16-18).

E. Consideration of the Health of the Consumer

The Committee encouraged governments to carry out appropriate studies to determine the actual amounts of pesticide residues ingested. The information obtained, compared against the Acceptable Daily Intake, would provide a meaningful indication of the protection afforded consumers by the maximum residue limits established (See paras 35-44).

Some delegations indicated that the Committee must not lose sight of the need to reduce tolerances to the lowest possible level due to health consideration.

Other delegations indicated that the proposed levels had been shown to present no toxicological hazard and that restriction to the requirement for lower levels for pesticide residues was not warranted.

CONSIDERATION OF MAXIMUM LEVELS FOR PESTICIDE RESIDUES AT STEP 7 OF THE CODEX PROCEDURE

A. Maximum Residue Levels Returned to Step 6 for further Comments in 1970

48. The Committee examined, at Step 7 of the Procedure, the maximum residue levels returned to Step 6 at the 5th session of the Committee (See Appendix IV of the Report of the 5th session of the Codex Committee on Pesticide Residues, ALINORM 71/24) with a request for further comments. The Committee had before it comments from governments in working papers CX/PR 72/10/1 and CX/PR 72/11/1. Proposals submitted to the Commission at Step 8 of the Procedure are listed in Appendix II. Recommendations for maximum residue levels held at Step 7 are listed in Appendix III. In Appendix IV are those recommendations listed which were returned to Step 6.

49. The delegation of Switzerland wished to have on record their view that, with the exception of lindane, they were opposed to the use of all chlorinated hydrocarbons. The delegation of France, supported by the delegation of the Federal Republic of Germany, was of the opinion that the question of the use of persistent pesticides represented a basic issue which should be the subject of further discussion by the Committee.

50. The delegation of Gabon pointed out that except in a few cases, developing countries were not in a position to comment on the proposed tolerances as they did not have adequate facilities to determine whether or not residues resulting from the use of pesticides in their countries were covered by the Codex tolerances proposed. The FAO representative pointed out that FAO had taken steps to increase its assistance to developing countries in this field and that a Food Standards Conference would be held in Africa in 1973 where this question, among others, would be discussed.

ALDRIN AND DIELDRIN

Aldrin and Dieldrin in Rice

51. The 1970 Joint Meeting on Pesticide Residues had reconsidered a temporary tolerance of 0.05 ppm in rice in the light of extensive new data and a tolerance of 0.02 ppm in rough rice had since been proposed. It was decided that the new figure of 0.02 ppm should be considered by the Committee. It was noted that the proposed tolerance applied to rough rice and that a reduction of residues would automatically occur during processing. The delegate of the Federal Republic of Germany stated that a tolerance of 0.02 ppm in rough rice was acceptable to his delegation if residues in the polished rice did not exceed 0.01 ppm. The Committee agreed to submit the tolerance of 0.02 ppm in rough rice to the Commission at Step 8 of the Procedure.

Aldrin and Dieldrin in Fruit, except Citrus Fruit

52. The temporary tolerance of 0.1 ppm in fruit (except Citrus fruit) had been referred back by the 5th session to the Joint Meeting in order that the types of fruit covered by the proposed tolerances could be specified. The representative of FAO declared that no data had been received from governments so that the question could not be answered. The attention of the meeting was drawn to the fact that the temporary tolerance had been changed to a tolerance at the 1970 Joint Meeting. It was stated that certain countries had a need for the use of aldrin and dieldrin on fruit to control certain soil pests such as termites. Some countries could not accept the proposed tolerance and expressed the view that the use of alternative less toxic and less persistent pesticides should be recommended by the Joint Meeting. The representatives of both FAO and WHO informed the Committee that the proposed tolerance was regarded as safe and that no change either in the tolerance or in the ADI could be expected at present. All that the Joint Meeting could do was to provide a list of the types of fruit for which the tolerance was necessary, but only if the interested countries provide the requested data. The Committee decided to return the tolerance of 0.1 ppm to Step 6 (See Appendix IV) and to request governments to provide information on the types of fruit treated for consideration by the Joint Meeting.

CARBARYL

Carbaryl in 30 Commodities

53. In this group of crops special attention was given to the proposed temporary tolerance of 10 ppm for berries and peaches. The delegations of the Federal Republic of Germany, France, Italy, the Netherlands and Switzerland could not agree to this tolerance because in their opinion the level was too high. The attention of the Committee was drawn to the fact that apricots were erroneously not mentioned in the Joint Meeting reports and should be maintained on the list of proposed tolerances. The Committee decided to submit the following temporary tolerances to the Commission at Step 8 of the Procedure (See Appendix II): 10 ppm in raspberries, blackberries, boysenberries, peaches, nectarines, apricots, okra, asparagus, leafy vegetables (except brassica), nuts (whole) and olives (fresh); 7 ppm in Citrus fruit, strawberries and blueberries; 5 ppm in apples, bananas (pulp), grapes, brassica, beans, peas (incl. pod), tomatoes, peppers and eggplant; 3 ppm in cucumbers, melons (incl. cantaloups), pumpkins and squash; 1 ppm in nuts (shelled), olives (processed) and cottonseed (whole).

CHLORDANE

Chlordane in Berries

54. The Committee noted that the temporary tolerance of 0.1 ppm in berries was withdrawn by the 1970 Joint Meeting.

Chlordane in Vegetables except Carrots

55. The attention of the Committee was drawn to the fact that the temporary tolerance of 0.3 ppm was withdrawn by the 1970 Joint Meeting and replaced by specific tolerances for different items of vegetables. Because no country was in a position to comment on these new proposals, the Committee decided to return the following tolerances to Step 6 of the

Procedure with a request for government comments (See Appendix IV): 0.3 ppm in potatoes, sweet potatoes, rutabagas, turnips, parsnips and radishes; 0.2 ppm in asparagus, broccoli, Brussels sprouts, cabbage, celery, cauliflower, mustard greens, spinach, Swiss chard and lettuce; 0.02 ppm in collards.

DDT

DDT in Apples, Pears, Peaches, Apricots, Berries, Strawberries, Cherries, Plums, Citrus Fruit, Tropical Fruit, Vegetables, Root Vegetables, Meat, Poultry, Fish and Nuts

56. The Committee was informed that at the 1969 Joint Meeting the following amendments were made to the previous recommendations: a) all temporary tolerances were changed into tolerances; b) the term "berries" was replaced by "small fruits except strawberries"; c) the tolerance for fish was withdrawn. A number of countries stated that they were at present unable to comment on any of the proposed tolerances. In view of the general agreement that the proposed tolerances would need to be reviewed by the Joint Meeting in the light of the changes in the agricultural use pattern of DDT, the Committee decided to return the following tolerances to Step 6 of the Procedure (See Appendix IV): 7 ppm in apples, pears, peaches, apricots, small fruits (except strawberries), vegetables (except root vegetables), meat and poultry (on a fat basis); 3.5 ppm in cherries, plums, Citrus fruit and tropical fruit; 1 ppm in strawberries, root vegetables and nuts (shelled).

57. Governments were requested to send further comments and additional information about the current use pattern of DDT in their country directly to the Joint Meeting for evaluation by that body.

58. A request by the delegate of Thailand for the term "tropical fruit", to be specified, was endorsed by the Committee and governments were asked to supply relevant information on this question.

DIAZINON

Diazinon on Leafy Vegetables

59. The Committee noted that the temporary tolerance of 0.7 ppm had been changed to a tolerance. The delegates of Austria, the Federal Republic of Germany, France, Italy and the Netherlands stated that they were not in a position to comment on the proposed tolerances. It was pointed out, however, that it would be logical to forward the proposed tolerance in leafy vegetables to Step 8 because the tolerance in vegetables (except leafy vegetables) was already at Step 9. The Committee decided to submit the tolerance of 0.7 ppm in leafy vegetables to the Commission at Step 8 of the Procedure.

LINDANE

Lindane in Raw Cereals

60. The Committee noted that the temporary tolerance of 0.5 ppm had been changed to a tolerance. Some delegations pointed out that the use of lindane on raw cereals could be replaced by the use of other substances which should not lead to residues in foodstuffs. This might prevent the occurrence of lindane residues in foods of animal origin. It was pointed out by the delegation of Australia that the use of lindane in the treatment of storage structures was important in many countries, especially in the tropics, and semi-tropics and that at the moment there were no suitable alternatives. The maximum residue limits did not provide for a mixture of lindane with grain as a protection agent. The delegation of France requested that the proposed tolerance of 0.5 ppm should be raised in view of the use pattern in that country. The delegation of the United Kingdom reserved their position pending an evaluation in that country of new toxicological information relating to this compound. The Committee decided to submit the tolerance of 0.5 ppm in raw cereals to the Commission at Step 8 of the Procedure.

Lindane in Cranberries, Cherries, Grapes, Plums, Strawberries and Vegetables

61. The Committee noted that the temporary tolerances of 3 ppm for these commodities had been changed to tolerances. A number of countries reserved their position over the proposed tolerances. The Committee agreed to return the tolerance of 3 ppm in cranberries, cherries, grapes, plums, strawberries and vegetables to Step 6 of the Procedure. Governments were requested to submit further comments and to make additional information available direct to the Joint Meeting.

PARATHION

Parathion in Vegetables except Carrots

62. At the 1970 Joint Meeting the temporary tolerance of 0.7 ppm was changed to a tolerance. It was noted that the oxygen analogue was included in the tolerance. A number of countries reserved their position because in their opinion the tolerance was too high. The delegate of Brazil suggested that a tolerance of 1 ppm should be established which should also include carrots. The Committee decided to submit the tolerance of 0.7 ppm in vegetables except carrots to the Commission at Step 8 of the Procedure.

B. Maximum Residue Levels held at Step 7 at the 5th Session

63. The Committee examined at Step 7 of the Procedure the maximum residue levels held at Step 7 at the 5th Session of the Committee and returned to the Joint Meeting on Pesticide Residues for further consideration (see Appendix III of the Report of the 5th Session of the Codex Committee on Pesticide Residues, ALINORM 71/24). The Committee had before it the revised and new recommendations made by the Joint Meeting contained in working paper CX/PR 72/10/4.

CARBARYL

Carbaryl in Poultry

64. At the Committee's request, the Joint Meeting reviewed the temporary tolerance in poultry at its 1970 Meeting, and revised the proposals as follows: 0.5 ppm in total poultry (edible portions) and 5 ppm in poultry skin. In reply to a question about the 2-naphthol content of carbaryl, it was noted that the FAO specification indicated that the amount of 2-naphthol in this compound should not exceed 0.05%. Possible residues of 1-naphthol as a metabolite of carbaryl were included in the tolerance because residues can be determined by a method based on the determination of the 1-naphthol moiety. The delegate of the Federal Republic of Germany reserved his position on this proposal. The Committee decided to submit the temporary tolerances of 0.5 ppm in total poultry (edible portions) and of 5 ppm in poultry skin to the Commission at Step 8 of the Procedure.

CHLORDANE

Chlordane in Sugar Beets

65. The new proposal of the 1970 Joint Meeting related to a tolerance of 0.3 ppm instead of a temporary tolerance of 0.1 ppm. The delegation of the Netherlands, supported by the delegations of Austria, the Federal Republic of Germany, France and Italy, could not agree with this figure because the practice of using pulp as animal feed could give rise to residues in human foods. Data on residues in pulp moving in international trade would be provided by the Netherlands, in due course. The Committee was informed that practical residue limits in milk and milk products, sufficient to cover these residues, had been proposed by the Joint Meeting; these limits were at Step 2 of the Procedure. The Committee agreed to submit the tolerance of 0.3 ppm in sugar beets to the Commission at Step 8 of the Procedure.

DIAZINON

Diazinon in Meat

66. The Committee had asked the Joint Meeting whether the temporary tolerance in meat should be expressed on a whole meat basis and the new proposal under consideration by the Committee reads as follows: "tolerance of 0.7 ppm in fat of meat of cattle, sheep and hogs". Some delegations were not in a position to comment on this figure. For the sake of consistency it was agreed that the Joint Meeting recommendation should relate to residues determined and expressed on the rendered and extracted fat, and the Committee decided to submit the tolerance of 0.7 ppm in meat of cattle, sheep and hogs (determined and expressed on the rendered or extracted fat) to the Commission at Step 8 of the Procedure.

HYDROGEN PHOSPHIDE

Hydrogen phosphide in Breakfast Cereals

67. At the request of the Committee the Joint Meeting had re-evaluated the tolerance of 0.01 ppm at their 1971 Meeting. No change had been made to the original proposal. The Committee agreed to submit the tolerance of 0.01 ppm in breakfast cereals to the Commission at Step 8 of the Procedure.

INORGANIC BROMIDE

Inorganic bromide in Dried Eggs

68. The Committee took note of the withdrawal of the temporary tolerance of 400 ppm in dried eggs by the 1971 Joint Meeting.

MALATHION

Malathion in Vegetables, Leafy Vegetables and Fruit (except Citrus fruit)

69. Malathion had been reviewed by the 1970 Joint Meeting at which the tolerances in vegetables, leafy vegetables and fruit except Citrus fruit had been withdrawn and replaced by separate tolerances for specific crops. Because no country was in a position to comment on these new proposals the Committee decided to return the following tolerances to Step 6 of the Procedure with a request for government comments: 8 ppm in lettuce, endive, cabbage, spinach, blackberries and raspberries; 6 ppm in cherries, peaches and plums; 5 ppm in broccoli; 3 ppm in kale, turnips and tomatoes; 2 ppm in beans (green) and apples; 1 ppm in strawberries and celery; 0.5 ppm in peas (in pod), cauliflower, peppers, eggplant, kohlrabi, roots (except turnips), Swiss chard, collards, pears and blueberries.

C. Maximum Residue Levels returned to Step 7 by the Codex Alimentarius Commission

70. The Committee examined the temporary tolerances and practical residue limits returned to Step 7 by the Eighth Session of the Codex Alimentarius Commission. The report of the eighth session (see ALINORM 71/31, para 137) did not indicate why these maximum residue levels had not been accepted by the Commission. The Committee had relevant information available in working paper CX/PR 72/10/5.

ALDRIN AND DIELDRIN

Aldrin and Dieldrin in Eggs (on a shell-free basis)

71. In a review of the available data the Committee considered that the proposed practical residue limit of 0.1 ppm for eggs (on a shell-free basis) should not be changed. It was agreed to re-submit this practical residue limit to the Commission at Step 8.

DICHLORVOS

Dichlorvos in Vegetables

72. For the sake of consistency with other proposed standards it was decided that this item should relate to "vegetables" rather than "fresh vegetables". A number of delegations could not agree with the Joint Meeting's proposed tolerance of 0.5 ppm of dichlorvos

(including dichloroacetaldehyde) in vegetables (except lettuce), because in their opinion this was too high. It was agreed to return this tolerance to Step 6 and to request governments to provide further data for consideration by the Joint Meeting.

HEPTACHLOR

Heptachlor in Carrots

73. In view of the fact that government comments had been requested on a practical residue limit of 0.1 ppm for heptachlor in carrots, and the Joint Meeting had amended this figure to 0.2 ppm, the Committee agreed that this proposal should be returned to Step 6 with a renewed request for government comments.

D. Maximum Residue Levels sent to the Commission at Step 5 at the 5th Session

74. The Committee examined at Step 7 of the Procedure the maximum residue levels which had been forwarded by the Commission to governments for comment at Step 6 of the Procedure (see Appendix V of the Report of the 5th session, ALINORM 71/24). The Committee had available comments from governments in working papers CX/PR 72/10/2 and CX/PR 72/11/2. In view of the existing uncertainty over fundamental questions on which it was considered essential to obtain the views of the Commission, the Chairman proposed that detailed discussion should be restricted to those less controversial standards which might possibly be submitted to the Commission at Step 8 of the Procedure (see Appendix II). Maximum residue levels held at Step 7 are listed in Appendix IV.

AZINPHOS METHYL

Azinphos methyl in Apricots and in Grapes

75. The proposed temporary tolerances were held at Step 7.

CARBARYL

Carbaryl in Meat of Cattle, Goat and Sheep

76. The proposed temporary tolerances were held at Step 7.

CHLOROBENZILATE

Chlorobenzilate in Apples and in Pears

77. The proposed temporary tolerances were held at Step 7.

Chlorobenzilate in Citrus fruit, Almonds, Walnuts and Melons

78. The Committee agreed to submit the following temporary tolerances to the Commission at Step 8: Citrus fruit 1 ppm; almonds and walnuts 0.2 ppm (on a shell-free basis); melons (incl. cantaloups) 1 ppm.

CHLOROPROPYLATE

Chloropropylate in Citrus fruit, Apples, Pears, Tomatoes and in Cantaloups

79. The Committee was informed that the manufacture of this compound would cease in the near future. All proposed temporary tolerances were, therefore, withdrawn.

COUMAPHOS

Coumaphos in Meat, Poultry and Eggs

80. The Committee agreed to retain the proposed temporary tolerances of 0.5 ppm in meat (to be determined and expressed on the rendered or extracted fat), 0.5 ppm in poultry (on a fat basis) and 0.05 ppm in eggs (on a shell-free basis) at Step 7 of the Procedure. Governments were invited to submit further data for evaluation by the Joint Meeting.

CRUFOMATE

Crufomate in Whole Milk

81. The temporary tolerance of 0.05 ppm in whole milk was submitted to the Commission at Step 8 of the Procedure.

Crufomate in Meat

82. Because it was not clear whether the proposed temporary tolerance of 1 ppm in meat (to be determined and expressed on the rendered or extracted fat) would accurately reflect the distribution of the pesticide between the fat and aqueous phase, it was decided to hold this temporary tolerance at Step 7 and to ask the Joint Meeting for further information.

DDT

DDT in Eggs

83. The Committee agreed to submit the practical residue limit of 0.5 ppm in eggs (on a shell-free basis) to the Commission at Step 8 of the Procedure.

DIOXATHION

Dioxathion in Pome Fruit and in Grapes

84. The Danish delegation requested information about the possibility of the occurrence of residues in juices from these fruits. It was decided to retain the proposed temporary tolerances of 5 ppm in pome fruit and 2 ppm in grapes at Step 7 of the Procedure. The Joint Meeting was also requested to clarify which fruits were included in the category "pome fruit". The representative of WHO pointed out that dioxathion was not listed in the daily intake study of WHO (see para 36), but that the desirability of obtaining data on dioxathion intake could be considered by WHO.

Dioxathion in Citrus fruit and in Meat

85. The Committee agreed to submit the temporary tolerances of 3 ppm in Citrus fruit and 1 ppm in meat (to be determined and expressed on the rendered or extracted fat) to the Commission at Step 8 of the Procedure.

ETHION

Ethion in Grapes

86. In relation to the proposed temporary tolerance of ethion in grapes, the delegate of Brazil questioned whether a discussion of the recommendations of the Joint Meeting would be relevant from the point of view of protection of the consumer. It was explained that other considerations relating to the policy of protecting public health could prevent countries from accepting recommendations from the Joint Meeting. In this connection, the representative of WHO pointed out that ethion was not listed in the daily intake study of WHO (see para 36), but that the desirability of obtaining data on ethion intake could be considered by WHO. The Committee decided to retain the proposed temporary tolerance of 2 ppm in grapes at Step 7.

FENCHLORFOS

Fenchlorfos in Whole Milk and in Egg Yolk

87. The Committee agreed to submit the proposed temporary tolerances of 0.04 ppm in whole milk and 0.03 ppm in eggs on a shell-free basis to the Commission at Step 8 of the Procedure. It was noted that the proposal in relation to eggs on a shell-free basis corresponded to the figure of 0.05 ppm in egg yolk proposed by the 1970 Joint Meeting.

INORGANIC BROMIDE

Inorganic Bromide in Whole-Meal Flour

88. The Committee agreed to submit the proposed tolerance of 50 ppm in whole meal flour to the Commission at Step 8 of the Procedure. It was noted that the previous temporary tolerance had been changed to a tolerance at the 1971 Joint Meeting.

CARBARYL

Carbaryl in Sweet Corn (kernels) and Potatoes

102. The Committee agreed to submit the temporary tolerances of 1 ppm in sweet corn kernels and 0.2 ppm in potatoes to the Commission at Step 5 of the Procedure with a recommendation to omit Steps 6, 7 and 8.

DICOFOL

Dicofol in Fruit, Vegetables, Hops and Tea

103. It was noted that the temporary tolerances had been changed to tolerances. The Committee decided to submit the tolerances of 5 ppm in fruit and vegetables to the Commission at Step 5 of the Procedure. With regard to the tolerances of 5 ppm in hops and tea, the delegate of the U.S.A. questioned their need. He pointed out that dicofol was not soluble in water and, therefore, a residue on hops was not likely to result in a residue in beer. The Committee noted that at the 1970 Joint Meeting the earlier proposals for a tolerance of 1 ppm in tea (blended) and of 5 ppm in tea from a particular estate for blending only had been changed to a tolerance of 5 ppm in tea (dry manufactured). The delegate of the U.S.A. remarked that the residue data in the monograph all apply to raw tea leaves and that the mean residue was about 25 ppm; therefore, he could not understand the proposed tolerance of 5 ppm in dry manufactured tea. It was agreed to retain the tolerances for hops and tea at Step 4 of the Procedure and to request the Joint Meeting to re-examine the proposed tolerances in the light of the views expressed by the Committee.

DIPHENYLAMINE

Diphenylamine in Apples

104. The delegation of Canada pointed out that according to the WHO paper "Estimate of Potential Pesticide Residue Intake" (CX/PR 72/8) there was not even a theoretical possibility that the acceptable daily intake might be exceeded for diphenylamine.

105. The Committee decided to submit the tolerance of 10 ppm in apples to the Commission at Step 5 of the Procedure. The delegation of the Netherlands offered to make available data concerning residues in apples moving in international trade.

ENDOSULFAN

Endosulfan in Fruit and Vegetables

106. Some governments had indicated in their written comments that they considered the temporary tolerances for fruit (2 ppm) and vegetables (2 ppm) to be too high. Other governments had indicated their agreement with these limits. The delegation of the United Kingdom reserved their position because this compound was under review in that country. The Committee decided to submit the tolerances without amendment to the Commission at Step 5 of the Procedure.

ETHION

Ethion in Meat, Fruit (except Grapes), Vegetables and Tea

107. It was noted that at the 1970 Joint Meeting the earlier proposals for a temporary tolerance of 1 ppm in tea (blended) and of 7 ppm in tea from a particular estate for blending only had been changed to a temporary tolerance of 7 ppm in tea. The Committee discussed the temporary tolerances for meat (2.5 ppm, to be determined and expressed on the rendered or extracted fat), fruit (except grapes) 1 ppm; vegetables 0.5 ppm; and tea 7 ppm and agreed to submit them to the Commission at Step 5 of the Procedure.

ETHOXYQUIN

Ethoxyquin in Apples and Pears

108. The Committee decided to advance the temporary tolerance of 3 ppm in apples and pears to the Commission at Step 5 of the Procedure with the recommendation that Steps 6, 7 and 8 be omitted.

FENCHLORFOS

Fenchlorfos in Meat

109. Whereas some delegates were of the opinion that the temporary tolerance of 7.5 ppm in meat (to be determined and expressed on the rendered or extracted fat), was too high, others indicated that they required a still higher tolerance in connection with the change in use pattern. The Committee agreed to retain the temporary tolerance at Step 4 of the Procedure and reiterated their request to the Joint Meeting to consider this compound.

FENITROTHION

Fenitrothion in certain Commodities

110. The delegate of Canada suggested that it might be desirable to obtain more data relating to the toxicology of fenitrothion and composition of the technical mixture. It was noted, however, that the WHO study (CX/PR 72/8) on potential residue intake had indicated that there was not even a theoretical possibility that the acceptable daily intake for the compound might be exceeded. After some discussion about the term "tea (green at harvest)" it was decided to apply the temporary tolerance to "dried green tea". With regard to the tolerance of 0.03 ppm in meat the delegate of Australia pointed out that this level was at the limit of detection of the analytical method. The delegate of Brazil asked for a tolerance of 0.2 ppm in cocoa beans. Because it was not clear as to what the tolerance of 0.1 ppm in cocoa related, it was decided to ask the Joint Meeting to clarify the matter. The Committee agreed to advance the temporary tolerances for the following commodities to the Commission at Step 5 of the Procedure: 0.5 ppm in apples, cherries, grapes and lettuce; 0.3 ppm in red cabbage and dried green tea; 0.2 ppm in tomatoes; 0.1 ppm in cocoa, together with the practical residue limit of 0.05 ppm for milk and milk products (on a fat basis); and of 0.03 ppm in meat (to be determined and expressed on the rendered or extracted fat).

FOLPET

Folpet in different kinds of Fruit and Vegetables

111. According to the delegation of the Netherlands, the temporary tolerance of 5 ppm in strawberries was too low in relation to good agricultural practice in greenhouses. The Committee agreed to submit the following temporary tolerances to the Commission at Step 5 of the Procedure: 30 ppm in currants (fresh); 25 ppm in grapes and blueberries; 15 ppm in cherries and raspberries; 10 ppm in apples and Citrus fruit; 5 ppm in tomatoes and strawberries; 2 ppm in cucumbers, cantaloups, water melons and onions.

FORMOTHION

Formothion in Strawberries and Blackcurrants

112. The attention of the Committee was drawn to the fact that no ADI existed for this compound. Although it was recognized that formothion is degraded in the plant into dimethoate, it appeared from the residue data in the monograph of the 1969 Joint Meeting that residues of the parent compound could occur. As it was not clear whether the proposed temporary tolerances applied to formothion and dimethoate together (in which case the proposed levels might be too low), to formothion alone or to dimethoate alone, the Committee decided to retain the temporary tolerances of 0.3 ppm in strawberries and 2 ppm in blackcurrants at Step 4 of the Procedure and to request the Joint Meeting to re-examine this compound.

HEPTACHLOR

Heptachlor in Sugar Beets

113. After a discussion about the occurrence of residues in sugar beets after seed or furrow treatment it was decided to retain the temporary tolerance of 0.1 ppm at Step 4 of the Procedure. The delegate of the Netherlands agreed to provide further residue data. It was agreed that the Joint Meeting should be asked to review the data.

HEXACHLOROBENZENE

Hexachlorobenzene in Meat, Eggs, Milk and Milk Products, Raw Wheat and Cereal Products from Wheat

114. The delegation of the U.S.A. mentioned that in their written comments reference had been made in error to a figure of 0.03 ppm in meat instead of 0.3 ppm. The delegate of the Netherlands pointed out that although the use of hexachlorobenzene was not allowed in his country, residues were found in a number of commodities; this was also the case in other countries. He further drew attention to the inconsistency between the proposed practical residue limit in raw wheat and cereal products from wheat.

115. The Committee decided to submit the following temporary practical residue limits to the Commission at Step 5 of the Procedure: 1 ppm in meat of cattle, sheep, goat and pig (to be determined and expressed on the rendered or extracted fat); 1 ppm in poultry and eggs (shell-free basis); 0.3 ppm in milk products; 0.05 ppm in raw wheat; 0.01 ppm in cereal products (from wheat) and in milk (whole). Governments were requested to send additional data direct to the Joint Meeting for consideration at the 1973 session.

ORTHOPHENYLPHENOL (and sodium salt)

Orthophenylphenol in different kinds of Fruits and Vegetables

116. The Committee agreed to submit the following tolerances to the Commission at Step 5 of the Procedure: 120 ppm in cantaloups (whole); 25 ppm in pears; 20 ppm in carrots and peaches; 15 ppm in sweet potatoes, apples, plums and prunes; 10 ppm in Citrus fruit, cucumbers, peppers, cantaloups (edible portions), pineapple and tomatoes; 3 ppm in cherries and nectarines.

PARATHION

Parathion in Fruit except Peaches, Apricots and Citrus Fruit

117. The Committee noted that the temporary tolerance of 0.5 ppm had been changed to a tolerance at the 1970 Joint Meeting. The delegation of Brazil said that a tolerance of 1 ppm was needed in that country. The Committee agreed to submit the tolerance of 0.5 ppm in fruit (except peaches, apricots and Citrus fruit) to the Commission at Step 5 of the Procedure with a recommendation to omit Steps 6, 7 and 8.

PARATHION METHYL

Parathion methyl in Fruit and Vegetables except Cole Crops and Cucurbits

118. The delegation of Brazil said that a tolerance of 1 ppm in fruit was needed in that country. The Committee agreed to submit the temporary tolerances of 0.2 ppm in fruit and 1 ppm in vegetables (except cole crops and cucurbits) to the Commission at Step 5 of the Procedure.

PHOSPHAMIDON

Phosphamidon in some Fruit and Vegetables

119. The Committee noted that the term "vegetables except cucumbers, lettuce, tomatoes and cole crops" had been redrafted to read "other vegetables except root vegetables" at the 1971 Joint Meeting, and that special reference had been made to the fact that a tolerance was not required for root vegetables. It was agreed to submit the temporary tolerance of 0.2 ppm in fruit (except apples, pears, Citrus fruit and water melon) and other vegetables (except root vegetables) to the Commission at Step 5 of the Procedure.

PIPERONYL BUTOXIDE

Piperonyl butoxide in Vegetables and Dried Codfish

120. The Committee agreed to submit the temporary tolerances of 8 ppm in vegetables and of 1 ppm in dried codfish to the Commission at Step 5 of the Procedure.

PYRETHRINS

Pyrethrins in Dried Codfish

121. The delegation of Norway expressed their need for a tolerance higher than 0.1 ppm in dried codfish; supporting data would be submitted for consideration by the Joint Meeting. It was agreed to submit the temporary tolerance of 0.1 ppm to the Commission at Step 5 of the Procedure. Governments were requested to send comments and additional information direct to the Joint Meeting.

Pyrethrins in Vegetables

122. The Committee agreed to submit the temporary tolerance of 1 ppm in vegetables to the Commission at Step 5 of the Procedure with a recommendation to omit Steps 6, 7 and 8.

QUINTOZENE

Quintozene in Peanuts (whole)

123. As the Committee recognized that whole peanuts were not consumed as such and that a tolerance for quintozene in peanut kernels had been established, it was agreed to delete the proposed temporary tolerance of 5 ppm in whole peanuts.

Quintozene in a number of Commodities

124. The Committee decided to submit the following temporary tolerances to the Commission at Step 5 of the Procedure: 10 ppm in mushrooms; 1 ppm in bananas (whole); 0.3 ppm in lettuce and peanut kernels; 0.2 ppm in beans (navy) and potatoes; 0.1 ppm in tomatoes; 0.03 ppm in cottonseed; 0.02 ppm in broccoli and cabbage; 0.01 ppm in banana (pulp), beans (other than navy) and pepper (bell type). Governments were requested to provide additional data on lettuce and potatoes direct to the Joint Meeting for further consideration.

CONSIDERATION OF CHANGES RECOMMENDED BY THE JOINT MEETING ON PESTICIDE RESIDUES TO MAXIMUM RESIDUE LIMITS FOR PESTICIDES AT STEP 9 OF THE CODEX PROCEDURE

125. The Committee had before it a working paper showing the changes, recommended by the Joint FAO/WHO Meeting, to tolerances at Step 9 (CX/PR 72/18). Noting the Codex Procedure for the amendment of Step 9 standards, the Committee agreed that those changes of a substantive nature would have to be considered in detail before the Committee could recommend their amendment to the Commission. It was, therefore, decided to request governments to consider the proposed changes so that, at the next session of the Committee the necessary decisions could be taken. It was noted that the document contained a number of changes of editorial nature, which would probably not involve an amendment of the Step 9 standards. The Committee requested the Secretariat to bring to the notice of the Commission those tolerances which were no longer considered temporary by the Joint Meeting on Pesticide Residues, so that the Commission could inform governments accordingly.

CONSIDERATION OF TOLERANCES AT STEP 2 OF THE PROCEDURE

126. The Committee considered the Report of the 1970 Joint Meeting on Pesticide Residues (FAO Agricultural study No. 87). These recommendations, also contained in the Secretariat document CX/PR 72/17, were received by the Committee at Step 2 of the Procedure. The Committee did not discuss these recommendations of the Joint Meeting but decided to request governments to submit their comments at Step 3 (see Appendix VIII). The Committee was informed that the Report of the 1971 Joint Meeting had also been published and would be available for distribution to Codex contact points in the near future. It was decided that should the Commission at its 9th session adopt the amended Procedure for the Elaboration of Codex Tolerances, the Secretariat should be authorized to request government comments at Step 3 so that all tolerances proposed by the 1970 and 1971 Joint Meetings could be considered together at the next session.

DISCUSSION OF METHODS OF ANALYSIS

127. Under this item the Committee had before it a Report of the Ad Hoc Working Group on Methods of Analysis, which had been established at the beginning of the session (see para 6). During the discussion of the Report, Dr. H.V. Morley from the delegation of Canada acted as Chairman of the Committee. The Report was presented by Dr. P.A. Greve from the delegation of the Netherlands.

128. It was agreed that the contents of the Report of the Working Group should be included in the body of the Report of this session and that the recommended methods would be set out in an Appendix to the Report (see Appendix IX). The following is the Report of the Group:

- a) "The Codex Committee on Pesticide Residues has the responsibility, according to the Guidelines for Codex Committees adopted by the Codex Alimentarius Commission, to propose methods of analysis for the determination of the levels of the maximum residue limits of pesticides in food. These methods need not be referred to the Codex Committee on Methods of Analysis and Sampling for endorsement, and the Codex Committee on Pesticide Residues is responsible for elaborating them in accordance with the Steps of the Procedure for the Elaboration of Codex Standards (see para 13(c)(iv), Guidelines, Procedural Manual of the Codex Alimentarius Commission, 2nd edition). Under this procedure, the methods which the Joint Meeting on Pesticide Residues has found to be satisfactory and which are cited in the Monographs on Pesticide Residues, are used by the Codex Committee on Pesticide Residues as the basis for proposals for suitable methods of analysis.
- b) The 18th Session of the Executive Committee of the Codex Alimentarius Commission was of the opinion that a country, when accepting Codex referee methods, undertook to use them in cases of dispute involving food moving in international trade; this did not preclude governments from using other methods of their own choice nationally (ALINORM 72/3, para 28). It was also suggested at that session that Codex "referee" methods were intended for use only when the parties in dispute could not agree on a suitable method of analysis (ALINORM 72/3, para 29). The Executive Committee requested the Codex Committee on Pesticide Residues to examine how best it could proceed with the elaboration of such methods.
- c) The Sixth Session of the Codex Committee on Pesticide Residues accepted the need for analytical methods for regulatory purposes and formed a Working Group to consider the matter in the light of government and IUPAC comments on working paper CX/PR 72/3.
- d) The Working Group examined the criteria for the selection of analytical methods set out on page 59 of the Procedural Manual (CX 8/7, 2nd edition 1969) and accepted that these were applicable to the selection of methods for determination of pesticide residues. When considering the merits of several published methods particular weight was given to multi-residue methods which had been subjected to collaborative check sample procedures. When such collaborative procedures were lacking the best methods available, in the view of the Working Group, were chosen.
- e) As requested by the Codex Committee on Pesticide Residues, the Working Group gave priority to compounds at Step 9 of the Codex procedure and the methods included in the Annex to this report for 13 pesticides were recommended for adoption by the Codex Committee on Pesticide Residues (see Appendix IX). It was suggested that further consideration was needed before methods would be recommended for dimethoate, piperonyl butoxide and for pyrethrins, and it was suggested that the government comments and other papers relating to methods for these compounds be sent to IUPAC with a request for recommendations for consideration and possible adoption at the seventh session of the Codex Committee on Pesticide Residues.
- f) Subject to the approval of the Codex Committee on Pesticide Residues, it was suggested that methods for pesticides at Steps 7 and 8, and possibly 5 and 6, be considered at the seventh session of the Codex Committee on Pesticide Residues. To facilitate the selection of suitable analytical methods in future, the Working Group proposed

hexachlorobenzene: practical residue limits were required for cereals and cereal products other than wheat (for which practical residue limits had already been proposed) Governments were asked to provide available data.

lindane: a tolerance in apples and pears was requested. Supporting data will be provided.

The Committee also agreed, on the proposal of the Federal Republic of Germany, that the Joint Meeting on Pesticide Residues be requested to consider limits for pesticide residues in animal fats (i.e. the processed products moving in trade) when recommending pesticide residue limits for meat on a fat basis (see Joint Meeting on Pesticide Residues Report (1970) page 12).

DATE OF THE NEXT MEETING

143. The Committee's attention was drawn to the Proposed Provisional Timetable of Codex Sessions from 1973 to 1976 (ALINORM 72/28) in which provision had been made for meetings of the Codex Committee on Pesticide Residues at approximately 18 monthly intervals. The Committee was of the opinion, however, that the volume and importance of its work and the urgent need to establish international tolerances for pesticide residues merited more frequent and preferably annual meetings. It was noted that at the 16th session of the Executive Committee it had been agreed that "the work of FAO/WHO on pesticide residues was of extreme importance requiring high priority" (ALINORM 71/3, para 21). It was agreed that these views should be drawn to the attention of the Commission. The Committee concluded that its meetings should be phased with the sessions of the Joint Meeting and suggested autumn 1973, with an appropriate time interval between the meeting and the 1973 Joint Meeting on Pesticide Residues, as a possible date for the next session.

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APPENDIX II

TOLERANCES, TEMPORARY TOLERANCES AND PRACTICAL RESIDUE LIMITS SUBMITTED TO THE
CODEX ALIMENTARIUS COMMISSION AT STEP 8

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1) (ppm)</u>	<u>Practical residue limit (1) (ppm)</u>
aldrin and dieldrin (singly or in combination expressed as dieldrin)	eggs (3)		0.1 on a shell-free basis
	rice (rough)	0.02	
carbaryl	apricots	10	
	asparagus	10	
	blackberries	10	
	boysenberries	10	
	leafy vegetables	10	
	except:		
	brassica	5	
	nectarines	10	
	nuts (whole in the shell)	10	
	okra	10	
	olives (unprocessed)	10	
	peaches	10	
	raspberries	10	
	blueberries	7	
	Citrus fruit	7	
	strawberries	7	
	apples	5	
	bananas	5 in the pulp	
	beans	5	
	eggplant	5	
	grapes	5	
	peas (in the pod)	5	
	peppers	5	
	tomatoes	5	
	cucumbers	3	
	melons (including cantaloups)	3	
	pumpkins	3	
squash	3		
cotton seed (whole)	1		
nuts (shelled)	1		
olives (processed)	1		
poultry skin	5		
poultry	0.5 in the total edible portions		
chlordanes (combined residues of <u>cis</u> and <u>trans</u> chlordanes)	sugar beets	0.3	

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1) (ppm)</u>	<u>Practical residue limit (1) (ppm)</u>
chlorobenzilate	Citrus fruit	1	
	melons (including cantaloups)	1	
	almonds	0.2 on a shell-free basis	
	walnuts	0.2 on a shell-free basis	
crufomate	whole milk	0.05	
DDT (DDT, DDD and DDE singly or in any combination)	eggs (3)		0.5 on a shell-free basis
diazinon	meat of cattle, sheep and pigs	0.7 (2)	
	leafy vegetables	0.7	
dioxathion (residues of <u>cis</u> and <u>trans</u> isomers of principal active ingredient to be determined and expressed as sum of both)	Citrus fruit	3	
	meat	1 (2)	
fenchlorfos (residues of fenchlorfos and its oxygen analogues to be determined and expressed as fenchlorfos)	whole milk	0.04	
	eggs (3)	0.03 on a shell-free basis (4)	
hydrogen phosphide	breakfast cereals	0.01	
inorganic bromide (determined and expressed as total bromide ion from all sources)	whole meal flour	50	
	eggs (3)		0.2 in the yolk
lindane (gamma BHC)	poultry		0.7 on a fat basis
	meat of cattle, pigs and sheep	2 (2)	
	raw cereals	0.5	
malathion (combined residues of malathion and malaaxon)	whole meal and flour from rye and wheat	2	
	vegetables (except carrots)	0.7	
parathion (combined residues of parathion and paraoxon)			

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1)</u> (ppm)	<u>Practical residue limit (1)</u> (ppm)
parathion-methyl	cole crops	0.2	
	cantaloups, melons and cucumbers	0.2	
	cottonseed oil	0.05	

(1) underlined: not temporary
not underlined: temporary

(2) To be determined and expressed on the rendered or extracted fat.

(3) The term "eggs" covers egg white plus egg yolk and, therefore, includes products such as fresh whole eggs or whole egg pulp.

(4) It is understood that the figure of 0.03 ppm in eggs on a shell-free basis corresponds to a figure of 0.05 ppm in egg yolk.

APPENDIX III

TOLERANCES AND TEMPORARY TOLERANCES HELD AT STEP 7 AND REFERRED TO THE JOINT MEETING ON PESTICIDE RESIDUES

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1)</u> (ppm)
azinphos methyl	apricots	4
	grapes	4
carbaryl	meat of cattle, goat and sheep	1
chlorobenzilate	apples	5
	pears	5
coumaphos (residues to be determined as coumaphos and its oxygen analogue and expressed as coumaphos)	eggs (3)	0.05 on a shell-free basis
	poultry	0.5 on a fat basis
	meat	0.5 (2)
crufomate	meat	1 (2)
dioxathion (residues of <u>cis</u> and <u>trans</u> isomers of principle active ingredient to be determined and expressed as sum of both)	pome fruit	5
	grapes	2
ethion	grapes	2
parathion (combined residues of parathion and paraoxon)	peaches	1
	Citrus fruit	1
	apricots	1
phosphamidon (residues to be determined by cholinesterase inhibition technique and results to be expressed as phosphamidon)	raw cereals	0.1
	apples	0.5
	pears	0.5
	Citrus fruit	0.4
	cole crops	0.2
	water melons	0.1
	tomatoes	0.1
	lettuce	0.1
	cucumbers	0.1

- (1) underlined: not temporary
not underlined: temporary
- (2) To be determined and expressed on the rendered or extracted fat.
- (3) The term "eggs" covers egg white plus egg yolk and, therefore, includes products such as fresh whole eggs or whole egg pulp.

APPENDIX IV

TOLERANCES, TEMPORARY TOLERANCES AND PRACTICAL RESIDUE LIMITS RETURNED TO STEP 6
WITH A REQUEST FOR FURTHER COMMENTS

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1)</u> (ppm)	<u>Practical residue limit (1)</u> (ppm)
aldrin and dieldrin (singly or in any combination, expressed as dieldrin)	fruit (except Citrus fruit)	0.1	
chlordane (combined residues of <u>cis</u> and <u>trans</u> chlordane)	potatoes	0.3	
	sweet potatoes	0.3	
	rutabages	0.3	
	turnips	0.3	
	parsnips	0.3	
	radishes	0.3	
	asparagus	0.2	
	broccoli	0.2	
	Brussels sprouts	0.2	
	cabbage	0.2	
	celery	0.2	
	cauliflower	0.2	
	mustard greens	0.2	
	spinach	0.2	
	Swiss chard	0.2	
	lettuce	0.2	
	collards	0.02	
DDT (DDT, DDD and DDE singly or in any combination)	apples	7	
	apricots	7	
	pears	7	
	peaches	7	
	small fruits	7	
	except:		
	strawberries	1	
	vegetables	7	
	except:		
	root vegetables	1	
	meat	7 (2)	
	poultry	7 on a fat basis	
	cherries	3.5	
	Citrus fruit	3.5	
	plums	3.5	
	tropical fruit	3.5	
	nuts (shelled)	1	
dichlorvos (combined residues of dichlorvos (DDVP) and, where present, dichloroacetaldehyde (DCA), the level of which should be reported)	vegetables (except lettuce)	0.5	

APPENDIX V

TOLERANCES AND TEMPORARY TOLERANCES SUBMITTED TO THE CODEX ALIMENTARIUS COMMISSION
AT STEP 5, WITH THE PROPOSAL TO OMIT STEPS 6, 7 AND 8 OF THE CODEX PROCEDURE

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1)</u>	<u>(ppm)</u>
captan	Citrus fruit	15	
	plums	15	
	rhubarb	15	
	tomatoes	15	
	cranberries	10	
	cucumbers	10	
	green beans	10	
	lettuce	10	
	peppers	10	
carbaryl	sweet corn	1	in the kernels
ethoxyquin	potatoes	0.2	
	apples	3	
	pears	3	
parathion (combined residues of parathion and paraoxon)	fruit (except peaches, apricots and Citrus fruit)	0.5	
	vegetables	1	
pyrethrins (sum of pyrethrins I and II and other structurally related insecticidal ingredients of pyrethrum)			

(1) underlined: not temporary
not underlined: temporary

APPENDIX VI

TOLERANCES, TEMPORARY TOLERANCES AND PRACTICAL RESIDUE LIMITS SUBMITTED TO THE
CODEX ALIMENTARIUS COMMISSION AT STEP 5

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1)</u>	<u>Practical residue limit (1)</u>
		<u>(ppm)</u>	<u>(ppm)</u>
azinphos-methyl	fruit (except apricots and grapes)	1	
	vegetables	0.5	
binapacryl	cherries	1	
	peaches	1	
	apples	0.5	
	grapes	0.5	
	pears	0.5	
	plums	0.3	
	nectarines	0.2	

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1) (ppm)</u>	<u>Practical residue limit (1) (ppm)</u>
captafol (tolerances relate only to the parent compound)	peaches	15	
	cherries (sour)	10	
	tomatoes	5	
	cherries (sweet)	2	
	melons	2	
	cucumbers	1	
	apricots	0.5	
	plums	0.2	
	captan	apples	40
pears		30	
apricots		20	
dicofol	fruit	5	
	vegetables	5	
diphenylamine	apples	10	
endosulfan (to be measured and reported as total endosulfan A and B and endosulfan sulphate)	fruit	2	
	vegetables	2	
ethion	tea	7	
	meat	2.5 (2)	
	fruit (except grapes)	1	
	vegetables	0.5	
	milk and milk products		0.03 (2)
fenitrothion	apples	0.5	
	cherries	0.5	
	grapes	0.5	
	lettuce	0.5	
	dried green tea	0.3	
	red cabbage	0.3	
	tomatoes	0.2	
	cocoa	0.1	
	meat		0.05 on a fat basis
	vegetables		
	fruit		
folpet (tolerances apply only to the parent compound)	currants (fresh)	30	
	grapes	25	
	blueberries	25	
	cherries	15	
	raspberries	15	
	apples	10	
	Citrus fruit	10	
	strawberries	5	
	tomatoes	5	
	cantaloups	2	
	cucumbers	2	
	onions	2	
	water melons	2	

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1) (ppm)</u>	<u>Practical residue limit (1) (ppm)</u>
hexachlorobenzene	meat of cattle, sheep, goat and pig poultry		1 (2) 1 on a fat basis
	eggs (3)		1 on a shell-free basis
	milk products		0.3
	raw wheat		0.05
	cereal products (from wheat)		0.01
	milk (whole)		0.01
	parathion-methyl	vegetables (except cole crops and cucurbits)	1
fruit		0.2	
2-phenyl-phenol and sodium salt (residues expressed as 2-phenyl-phenol)		cantaloups	<u>120</u>
	pears	<u>25</u>	
	carrots	<u>20</u>	
	peaches	<u>20</u>	
	apples	<u>15</u>	
	plums	<u>15</u>	
	prunes	<u>15</u>	
	sweet potatoes	<u>15</u>	
	cantaloups	<u>10</u>	(in edible portions)
	Citrus fruit	<u>10</u>	
	cucumbers	<u>10</u>	
	pineapple	<u>10</u>	
	tomatoes	<u>10</u>	
	cherries	<u>3</u>	
nectarines	<u>3</u>		
phosphamidon (residues to be determined by cholinesterase inhibition technique and results to be expressed as phosphamidon)	fruit (except apples, pears, Citrus fruit and water melons)	0.2	
	vegetables (except root vegetables)	0.2	
	piperonyl-butoxide	vegetables	8
dried codfish		1	
pyrethrins (sum of pyrethrins I and II and other structurally related insecticidal ingredients of pyrethrum)		dried codfish	0.1

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1)</u> (ppm)	<u>Practical residue limit (1)</u> (ppm)
quintozene	cultivated unprocessed mushrooms	10	
	bananas	1 in the whole product	
	lettuce	0.3	
	peanuts	0.3 in the kernels	
	beans (navy)	0.2	
	potatoes	0.2	
	tomatoes	0.1	
	cottonseed	0.03	
	broccoli	0.02	
	cabbage	0.02	
	bananas	0.01 in the pulp	
	beans (other than navy beans)	0.01	
	pepper (bell type)	0.01	

- (1) underlined: not temporary
not underlined: temporary
- (2) To be determined and expressed on the rendered or extracted fat.
- (3) The term "eggs" covers egg white plus egg yolk and, therefore, includes products such as fresh whole eggs or whole egg pulp.

APPENDIX VII

TOLERANCES AND TEMPORARY TOLERANCES HELD AT STEP 4 AND REFERRED TO THE JOINT MEETING ON PESTICIDE RESIDUES

<u>Pesticide Residue</u>	<u>Food</u>	<u>Tolerance or temporary tolerance (1)</u> (ppm)
captan	cherries	40
	peaches	15
	raspberries	10
	strawberries	10
	raisins	5
dicofol	hops	<u>5</u>
	tea	<u>5</u>
fenchlorfos (residues of fenchlorfos and its oxygen analogue to be determined and expressed as fenchlorfos)	meat	7.5 (2)
formothion (residues present as dimethoate to be covered by recommendations for dimethoate)	blackcurrants strawberries	<u>2</u> <u>0.3</u>
heptachlor (combined residues of heptachlor and heptachlor epoxide expressed as heptachlor)	sugar beets	0.1

- (1) underlined: not temporary
not underlined: temporary
- (2) To be determined and expressed on the rendered or extracted fat.

APPENDIX VIII

TOLERANCES, TEMPORARY TOLERANCES AND PRACTICAL RESIDUE LIMITS SUBMITTED TO GOVERNMENTS FOR COMMENT AT STEP 3

<u>Pesticide Residue</u>	<u>Food</u>	<u>Limit</u> <u>(mg/kg (ppm))</u>	<u>Type of</u> <u>Limit (*)</u>
chlordanes (combined residues of <u>cis</u> and <u>trans</u> chlordanes)	milk and milk products	0.05 on a fat basis	PRL
	meat	0.05 (1)	PRL
	poultry	0.05 on a fat basis	PRL
	eggs (2)	0.02 on a shell-free basis	PRL
	almonds	0.1	T
	bananas		
	figs		
	filberts		
	guavas		
	mangoes		
	olives		
	passion fruit		
	papayas		
	pecans		
	pomegranates	0.02	T
pineapples			
strawberries			
walnuts	0.5	T	
Citrus fruit			
pome fruit			
stone fruit	0.1	T	
crude soya bean and linseed oils			
crude cotton-seed oil	0.02	T	
edible cotton-seed oil			
edible soya bean oil			

(1) To be determined and expressed on the rendered or extracted fat.

(2) The term "egg" covers egg white plus egg yolk and, therefore, includes products such as whole eggs or whole egg pulp.

(*) T = Tolerance; TT = Temporary Tolerance; PRL = Practical Residue Limit.

<u>Pesticide Residue</u>	<u>Food</u>	<u>Limit</u> (mg/kg (ppm))	<u>Type of</u> <u>Limit</u> (*)
diazinon (determined and expressed as the parent compound) (1)	cherries	0.7	T
	wheat)	0.1	
	barley)		
	rice (polished))		
	almonds)	0.5 on a shell-free basis	
	walnuts)		
	filberts)		
	pecans)		
	peanuts)		
	cotton seed)		
	safflower seed)	0.7 in the kernels	
sunflower seed)			
sweet corn)	2		
olives and olive oil)			
dichlorvos (including, where present, dichlor- acetaldehyde (DCA)) (1)	cocoa beans	5	T
	coffee beans)	2	
	soya beans)		
	lentils)		
	peanuts)		
	mushrooms	0.5	
	lettuce	1	
	tomatoes	0.5	
	meat of cattle,)	0.5	
	sheep, goats,)		
	pigs and poultry)	0.05 on a shell-free basis	
	eggs (2))		
	milk (whole)	0.02	
miscellaneous)	0.1		
food items not)			
otherwise)			
specified (3))			

(1) Residues decline rapidly in level during storage and shipment; the tolerances are based on residues likely to be found at harvest or slaughter.

(2) The term "egg" covers egg white plus egg yolk and, therefore, includes products such as fresh whole eggs or whole egg pulp.

(3) e.g. bread, cakes, cheese, cooked meats, etc.; the tolerance is intended to cover residues resulting from use of dichlorvos for pest control purposes in storage in warehouses, shops, etc.

(*) T = Tolerance; TT = Temporary Tolerance; PRL = Practical Residue Limit.

<u>Pesticide Residue</u>	<u>Food</u>	<u>Limit</u> <u>(mg/kg (ppm))</u>	<u>Type of</u> <u>Limit (*)</u>	
diquat (cation)	rice (in husk)	5) TT	
	rape seed	2		
	sorghum	2		
	peas	0.1		
	beans	0.1		
	sunflower seed	0.1		
	onions	0.1		
	potatoes	0.1		
	maize	0.1		
	rice (polished)	0.1		
	edible oils	0.1		
	(sesame seed,)		
	sunflower seed,			
rape seed,)			
cotton seed oils))				
endrin (combined residues of endrin and delta-keto-endrin)	cotton seed) 0.1) T	
	cotton seed oil (crude)			
	edible cotton- seed and maize oils) 0.02		
	apples) 0.02		
	wheat			
	barley			
	sorghum			
	rice (husked and/or polished))			
	milk and milk products) 0.02 on a fat basis		PRL
	poultry) 1 on a fat basis		PRL
eggs (1)) 0.2 on a shell- free basis	PRL		
fentin compounds (total amount of fentin compounds, excluding inorganic tin, expressed as fentin hydroxide)	celery) 1) T	
	sugar beet) 0.2 on a soil- free basis		
	carrots			
	potatoes) 0.1 on a soil- free basis		
	celeriac) 0.05 on a shell-free basis		

(1) The term "egg" covers egg white plus egg yolk and, therefore, includes products such as fresh whole eggs or whole egg pulp.

(*) T = Tolerance; TT = Temporary Tolerance; PRL = Practical Residue Limit.

<u>Pesticide Residue</u>	<u>Food</u>	<u>Limit</u> <u>(mg/kg (ppm))</u>	<u>Type of</u> <u>Limit</u> (*)
heptachlor (combined residues of heptachlor and its epoxide to be deter- mined separately and expressed as heptachlor)	pineapple	0.01 in the total edible portions	T
	tomatoes	0.02	PRL
	cotton seed		
	soya bean		
	edible soya bean oil	0.05 on a shell-free basis	PRL
	eggs (1)		
crude soya bean oil	0.5	PRL	
	Citrus fruit	0.01	PRL
lindane (gamma HCH)	beans (dried)	1	T
mancozeb (tolerance applies to parent compound or to sum of all dithio- carbamates present)	potatoes	1	TT
paraquat (cation) (Syn.: Quino- methionate)	cottonseed	0.2) TT
	potatoes	0.1	
	cottonseed meal,	0.05	
	cottonseed oil		
	(edible)		
sugar cane juice			
thiabendazole	Citrus fruit	6) T
	bananas	3	
	bananas	0.4 in the pulp	
tricyclohexyltin hydroxide (tolerance applies to the parent compound)	apples	2	TT
	pears	2	TT

(1) The term "egg" covers egg white plus egg yolk and, therefore, includes products such as fresh whole eggs or whole egg pulp.

(*) T = Tolerance; TT = Temporary Tolerance; PRL = Practical Residue Limit.

METHODS OF ANALYSIS FOR RESIDUES OF PESTICIDES ON STEP 9
SUITABLE FOR REGULATORY PURPOSES

Aldrin/dieldrin

Official methods of analysis of the AOAC, 11th edit. (1970) 29.001 for fresh fruits, dairy products (dieldrin) and vegetables.
J. Assoc. Offic. Anal. Chem. 54, 470 (1971), for dry cereals and fish (dieldrin)

Carbaryl

Official methods of analysis of the AOAC, 11th edit. (1970), 29.066 for apples and spinach

DDT

Official methods of analysis of the AOAC, 11th edit. (1970), 29.001

Diazinon

Official methods of analysis of the AOAC, 11th edit. (1970), 29.028 for fruits and vegetables (not suitable for electron capture).
Machin, A.F. and M.P. Quick, Analyst 94, 221 (1969) (for parent compound and oxygen analog).

Dichlorvos

Elgar, K.E., Marlow, R.G. and Mathews, B.L., Analyst, 95, 875 (1970) for crops and animal tissues.
Drager, G. Pfl. Schutz-Nachr. Bayer, 21, 373 (1968)

Diphenyl

Westoo, G., Analyst, 94, 406 (1969) for citrus fruits (UV method) Norman, S., Rugg, G.L. and Wells, A.W., J. Assoc. Offic. Anal. Chem., 49, 590 (1966)
Vogel, K. and Deshusses, J., Mitt. Gebiete Lebensm. Hyg., 56, 185 (1965) (GLC)

Heptachlor

Official methods of analysis of the AOAC, 11th edit. (1970), 29.001 for fruit and vegetables.
J. Assoc. Offic. Anal. Chem., 54, 470 (1971) for dry cereals.

Hydrogen cyanide

Official methods of analysis of the AOAC, 11th edit. (1970) 29.064, 29.065 for beans.

Hydrogen phosphide

White, W.E., and Bushey, A.H., J. Am. Chem. Soc., 66, 1666 (1949) Bruce, R.B., Robbins, A.J. and Tuft, T.O., J. Agr. Food Chem. 10, 18 (1962)

Inorganic bromide

Official methods of analysis of the AOAC, 11th edit. (1970) ...

Note: This method covers only inorganic bromide as such and is therefore of little use for the determination of unchanged fumigants such as methyl bromide and 1,2-dibromoethane. Reference is made to the work of Heuser, S.G. and Scudamore, K.A., J.Sci. Fd. Agric. 20, 566, 1969 and Pesticide Sci., 1, 244 (1970) and to a collaborative study to be undertaken by the U.K.

Lindane

Official methods of analysis of the AOAC, 11th edit. (1970) 29.001 for dairy products, fruits and vegetables.

Malathion

Official methods of analysis of the AOAC, 11th edit. (1970) 29.001, 29.028 for non-fatty foods.
Crisp, S. and Tarrant, K.R., Analyst, 96, 310 (1971) for wheat.

General Note

Attention is drawn to the importance of

1. The adequacy of the sampling method employed (advice might be sought from the Codex Committee on Methods of Analysis and Sampling).
2. The need for positive identification of the residue(s) detected (IUPAC might be invited to include this aspect in recommendations for analytical methods).
3. The availability of pesticide standards of known purity.
4. The development of minimum performance criteria for gas chromatographic columns and detectors.

PRIORITY LIST VIII

Pesticide
(in order of priority)

Countries responsible for
providing toxicological and
residue data to the JMPR
as soon as possible

- | | |
|--|---|
| 1. Lindane <u>1/</u> | Federal Republic of Germany
in cooperation with the
Netherlands |
| 2. Technical HCH (including all isomers) <u>1/</u> | |
| 3. Camphechlor <u>2/</u> (FAO specification) | USA |
| 4. Azinphos ethyl | Federal Republic of Germany |
| 5. Propoxur | Federal Republic of Germany |
| 6. Demeton-methyl and related products
(e.g. thiometon) | Federal Republic of Germany |
| 7. Vamidothion | France |
| 8. Isopropyl-4, 4'-dibromobenzilate | Switzerland |
| 9. Disulfoton | Federal Republic of Germany
and Switzerland |
| 10. Prometryn | Switzerland |
| 11. Tetradifon and tetrasul <u>3/</u> | the Netherlands |

-
- 1/ All Governments are requested to provide residue data in food and any other relevant information.
- 2/ Also known in the trade as 'Toxaphene'.
- 3/ The FAO Secretariat to request data from Japan on CPAS so that this compound can be evaluated together with tetradifon and tetrasul.