Consultation Document

Proposed Regulatory Framework for Pesticide Residues in Food in Hong Kong

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食物安全中心
Centre for Food Safety

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Food and Environmental Hygiene Department

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CHAPTER 1 INTRODUCTION

1.1 To enhance and stabilize crop yield, protect the nutritional integrity of food, facilitate storage to assure year-round supplies, and provide attractive and appealing food products, farmers and growers have changed the way they produce crops. Among which, the use of pesticides and other chemicals has become a common agricultural practice. In general, farmers use pesticides to protect crops, e.g. fruits and vegetables, from insects, pests, weeds and fungal diseases whilst they are growing and to protect harvested crops from rats, mice, flies and other insects during storage. Pesticides are also applied to food animals for the control of diseases caused by fleas and lice, etc. In this respect, the use of pesticides is beneficial to public health because uncontrolled fungi, insects, rats, fleas and lice, etc. can contaminate crops with natural toxins and harmful microorganisms.

1.2 Despite the beneficial effects they bring forth, the use of pesticides, however, is quite controversial. This is because small amounts of pesticide residues may remain in the crops or animal food, either resulted from the direct use of pesticides on the crops as mentioned above, farm animal feeding on pesticide treated feed, or environmental contamination. Consumer exposure to pesticide residues in food, *inter alia*, is an issue that is of considerable concern to consumers, food producers, academics and government agencies. Overseas pesticide residue data demonstrates that food crop, namely fruits, vegetables and cereals, is the major dietary source of pesticide residues for the general population.

1.3 The adverse health effects of pesticides depend on the nature of the pesticide, as well as the amount and duration of individual exposure. Excessive exposure to some pesticides may cause acute adverse health effects (e.g. methamidophos and triazophos, may affect the nervous system) whereas other pesticides have shown to cause chronic adverse health effects (e.g. lindane may affect the liver and kidney; and dicofol may affect foetal development) in animals.

CHAPTER 2 SITUATION IN HONG KONG

Food supplies in Hong Kong

2.1 Majority of fruits and vegetables supplied in the local market are imported from various countries/areas around the world. About 34% of fresh and semi-processed fruits, vegetables and cereals were imported from the Mainland, about 27% from Thailand and about 16% from the United States of America (USA), with other countries contributed to less than 5% of the total import in 2006.[a] Local production accounted for only 4% of fresh vegetables consumed in 2006.[b]

Current regulatory control on the use of pesticides

2.2 At present, the import, manufacture, formulation, distribution, sale and supply of pesticides in Hong Kong is regulated under the Pesticides Ordinance (Cap. 133), which is enforced by the Agriculture, Fisheries and Conservation Department.

2.3 As stipulated in the Pesticides Ordinance, only pesticides that have been registered in Hong Kong may be freely distributed and used. Details of registered pesticides, including the active ingredient(s), concentration limit and permitted formulations, are entered into the Pesticides Register. Individual pesticide products do not have to be registered as long as their active ingredients are registered and conformed to the specified maximum concentration of active ingredient(s) and permitted formulation detailed in the Register.

2.4 Regarding the regulation of pesticide residues in food in Hong Kong upon the application of pesticides, the Public Health and Municipal Services Ordinance (Cap. 132) stipulates that all food on sale must be wholesome, unadulterated and fit for human consumption. However, there is no specific subsidiary legislation to govern pesticide residues in food in Hong Kong.

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[a] Census and Statistics Department. Hong Kong Merchandise Trade Statistics December 2006 - Imports.

[b] Agriculture, Fisheries and Conservation Department. Agriculture in HK. [cited 10 April 2007] Available from: http://www.afcd.gov.hk/english/agriculture/agr_hk/agr_hk.html

Monitoring pesticide residues in food

2.5 The Centre for Food Safety (CFS) operates a food surveillance programme and regularly takes food samples, including fruits, vegetables and cereals at import, wholesale and retail levels for testing of pesticide residues.

2.6 Currently, CFS follows the testing methods and standards recommended by the Codex Alimentarius Commission (Codex). Codex, established by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) of the United Nations in 1960s, has been the single most important international reference point for consumers, food producers, processors, national food control agencies and the international food trade in developing food associated standards. The Codex Alimentarius, or the food code, is a collection of these standards, codes of practice, guidelines and other recommendations. When there is no relevant Codex standard, CFS will conduct its own risk assessment studies to determine whether the level of pesticide residues detected in food is harmful to human health.

Regulatory and enforcement problems

2.7 The lack of relevant subsidiary legislation on pesticide residues in food in Hong Kong poses regulatory and enforcement problems. In other words, there is currently no provision which empowers CFS to take legal action against the food trade if the pesticide residue level in a particular food sample, collected during our routine food surveillance programme, is found to exceed standards recommended by Codex. Unless it could be proven that the concerned food sample is unfit for human consumption can regulatory action be taken under the provisions of the Public Health and Municipal Services Ordinance (Cap. 132). Moreover, Codex does not cover all the pesticides used in our major exporting countries (e.g. Codex does not provide standards for bisultap which is a registered pesticide in the Mainland) and all food items of local interest (e.g. leafy vegetables are commonly consumed in Hong Kong, however, Codex has only established standards for a limited range of these food commodities). There is therefore a need for Hong Kong to set regulatory standards for a list of pesticides of local relevance to meet regulatory control needs.

CHAPTER 3 THE INTERNATIONAL SCENE

3.1 In developing a regulatory framework on pesticide residues in food, the recommendations by Codex and the practice of other international regulatory authorities, including those in Australia, European Union, Japan, the Mainland, New Zealand, Singapore and the USA, have been studied. The ensuing paragraphs in this chapter detail the international practice in the following areas:

(a) definitions of "pesticide" and related terms;
(b) approaches in regulating pesticide residues in food;
(c) approaches in determining the maximum residue limits (MRLs);
(d) approaches in regulating pesticide residues that are not specified; and
(e) approaches in classification of food.

Definitions of "pesticide" and related terms

3.2 The Codex Alimentarius has laid down the definitions of pesticide and pesticide residues, which demarcate the scope of regulatory control of pesticide residues in food:

> *"Pesticide" means any substance intended for preventing, destroying, attracting, repelling, or controlling any pest including unwanted species of plants or animals during the production, storage, transport, distribution and processing of food, agricultural commodities, or animal feeds or which may be administered to animals for the control of ectoparasites. The term includes substances intended for use as a plant growth regulator, defoliant, desiccant, fruit thinning agent, or sprouting inhibitor and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport. The term normally excludes fertilizers, plant and animal nutrients, food additives and animal drugs.*
>
> *"Pesticide residue" means any specified substance in food, agricultural commodities, or animal feed resulting from the use of pesticide. The term includes any derivatives of a pesticide, such as conversion products, metabolites, reaction products, and*

impurities considered to be of toxicological significance.

3.3 The Codex Alimentarius has also laid down the definitions of pesticide residue limits as follows:

> *"Maximum residue limit" (MRL) is the maximum concentration of a pesticide residue (expressed as mg/kg) to be legally permitted in or on food commodities and animal feeds.*
>
> *"Extraneous maximum residue limit" (EMRL) refers to the maximum permitted limit of residues of compounds, which were used as pesticides but not any more registered as pesticides, arising from environmental contamination (including former agricultural use of pesticides) or uses of these compounds other than agricultural uses.*

3.4 It is noted that some authorities (e.g. the Mainland) have taken reference from the above Codex definitions when developing the definitions of pesticide and pesticide residues and hence the scope of their regulations. Some authorities might take into account their own local situation and define terms in different ways (e.g. pesticide residues and veterinary drug residues are defined and regulated together as agricultural chemical residues in Australia). However, most regulatory authorities have similar definitions of MRL and EMRL as those of Codex.

Approaches in regulating pesticide residues in food

3.5 Regulating pesticide residues in food in the international arena can be broadly classified into the "positive list" approach and "non-positive list" approach.

3.6 Under a "positive list" approach, MRLs of pesticides that are allowed to be found in food are specified in the legislation whereas any other pesticide residues without specified MRLs are not allowed. This approach has been adopted in a number of overseas jurisdictions such as Australia, European Union, Japan, New Zealand, Singapore and the USA.

3.7 Under a "non-positive list" approach, MRLs of a list of pesticides

are also laid down in the legislation. However, the presence of pesticide residues in food without specified MRLs may not necessarily contravene the legislation. This approach has been adopted in the Mainland.

Approaches in determining MRLs

3.8 Under Codex, the Codex Committee on Pesticide Residues (CCPR) is charged to develop MRLs for pesticides. CCPR refers and prioritises pesticides to the Joint Food and Agriculture Organization (FAO) / World Health Organization (WHO) Meeting on Pesticide Residues[c] (JMPR) for assessing their toxicities and estimating MRLs. Recommendations from JMPR will then be forwarded to CCPR for further consideration and the final sets of MRLs will be adopted by Codex as the international reference standards.

3.9 Generally speaking, MRLs are established on the basis of appropriate data obtained mainly from supervised field trials according to Good Agricultural Practice[d] (GAP). A residual level exceeding the MRL is a reflection for non-compliance with GAP.

3.10 A distinction needs to be made here between MRLs and safety reference values, i.e., acceptable daily intake (ADI) for chronic toxicity or acute reference dose (acute RfD) for acute toxicity. Even though the primary purpose of setting MRLs in food is to protect the health of consumers and the levels are intended to be toxicologically acceptable (i.e. do not cause acute or chronic toxicities in humans), it should not be confused with safety reference values. It follows that exposure to pesticide residue in excess of MRL does not automatically imply a hazard to health provided the dietary exposure to that particular pesticide falls within the safety reference value. The acceptability of MRLs is thus judged on the basis of a comparison of the safety reference values with dietary exposure estimates, as determined on the basis of suitable dietary exposure studies. On the other hand, establishment of EMRLs is mainly based

[c] JMPR is the abbreviated title for the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group. The FAO Panel of Experts is responsible for reviewing residue and analytical aspects of the pesticides considered, estimating the maximum residue levels according to supervised trials and GAP. The WHO Core Assessment Group is responsible for reviewing toxicological data on the pesticides, estimating safety reference (i.e. acceptable daily intake) and levels of dietary intakes of pesticide residues. As necessary, acute reference doses for pesticides are estimated along with appropriate estimates of short-term dietary intake.

[d] GAP in the use of pesticides includes the authorized safe use of pesticides under actual conditions necessary for effective and reliable pest control and in a manner which leaves a residue which is the smallest amount practicable.

on residue data obtained from national food control or monitoring activities. Schematic diagrams illustrating how MRL is established and the relationship between MRL and safety reference values are at Annex I.

3.11 As of July 2007, Codex has discussed and recommended the MRLs /EMRLs for some 220 pesticides. These maximum limits are updated or revoked periodically and new ones are established from time to time.

3.12 Member countries of Codex may not necessarily adopt the complete set of Codex standards. They may permit the use of different pesticides in different food commodities according to their own climatic and environmental conditions as well as dietary habits. MRLs of these pesticides in different food commodities are then established based on the residue data obtained from individual countries' own supervised field trials or provided by the industry.

Approaches in regulating pesticide residues that are not specified

3.13 For overseas jurisdictions that adopt a "positive list" approach in regulating pesticide residues in food, there are generally three ways in controlling pesticide residues for which specified MRLs are not available.

3.14 The first one is that the detection of any such pesticide residue is considered illegal, i.e., "zero tolerance". This approach has been adopted by Australia, Singapore and the USA. The second one is that the detection of any such pesticide residue is only considered unacceptable when the residual level exceeds a "default value". The European Union and Japan have adopted a default value of 0.01 mg/kg whereas the New Zealand food authority has adopted a default value of 0.1 mg/kg. Lastly, some regulatory authorities (e.g. Australia, European Union, Japan, New Zealand and the USA) further established a list of substances for which MRLs are not necessary for situations where residues (i) do not occur in food, or (ii) are identical to or indistinguishable from natural food components, or (iii) are otherwise of no toxicological significance. These substances can then be used without contravening relevant legislation.

Approaches in classification of foods

3.15 Codex has developed a Codex Classification of Foods and Animal Feeds which is intended primarily to ensure the use of uniform nomenclature. It also helps to classify foods into groups and/or sub-groups for the purpose of establishing group MRLs for food commodities with similar characteristics and residue potential. A number of overseas jurisdictions such as Australia, European Union, Mainland, Japan and the USA have also developed similar food classifications according to their local situation.

3.16 The following table depicts a brief summary of major approaches in the regulation of pesticide residues in food:

Table: Summary of major approaches in the regulation of pesticide residues in food

Codex / Countries	**Approach in Regulating Pesticide Residues in Food**	**Approach in Regulating Pesticide Residues without MRLs**	**List of "Exempted Substances"**
Codex	Not applicable	Not applicable	Not available
Australia	"Positive list"	Zero tolerance	Yes
European Union	"Positive list"	Default value of 0.01 mg/kg	Yes
Japan	"Positive list"	Default value of 0.01 mg/kg	Yes
Mainland	"Non-positive list"	Not applicable	Not available
New Zealand	"Positive list"	Default value of 0.1 mg/kg	Yes
Singapore	"Positive list"	Zero tolerance	Not available
USA	"Positive list"	Zero tolerance	Yes

CHAPTER 4 THE LEGISLATIVE PROPOSAL

Objectives of developing the regulatory framework

4.1 In considering the proposed regulatory framework for pesticide residues in food in Hong Kong, it is aimed to achieve the following objectives:

(a) better protect public health;
(b) facilitate effective regulatory control; and
(c) promote harmonization between local and international standards.

4.2 After taken into account the international practice and the need to achieve the above objectives, the detailed legislative proposal for regulating pesticide residues in food is set out in the following paragraphs.

To adopt the definitions of "pesticide" and other related terms from Codex

4.3 As in Codex and other overseas regulatory authorities, it is necessary to define key terms such as "pesticide", "pesticide residue", "MRL" and "EMRL" in the new subsidiary legislation in order to demarcate the scope of control.

4.4 In defining the terms in the new subsidiary legislation, it is proposed to make reference mainly to the definitions adopted by Codex which emphasise the use of pesticide during the production, storage, transport, distribution and processing of food. By following the Codex definitions, our trading partners will have a better understanding of the scope of our regulatory requirement. This will also facilitate the selection of appropriate MRLs and EMRLs for relevant pesticides to our new legislation.

To adopt a "positive list" approach

4.5 In order to better protect public health, it is proposed to adopt a "positive list" approach in the subsidiary legislation. Compared with the "non-positive list" approach, the "positive list" approach offers more comprehensive control by stating clearly the MRLs of pesticides that are allowed to be found in food and also facilitate effective enforcement measures.

4.6 As new pesticides and new applications on crops keep emerging, a mechanism will be instituted to regularly update the "positive list".

To adopt MRLs developed by Codex as the backbone

4.7 Since Hong Kong depends almost entirely on imported food, it is of little practical use to conduct our own supervised field trials for establishing our own MRLs, or to assess pesticide residue data provided by the industry.

4.8 A two-step approach is therefore proposed to determine MRLs and EMRLs for Hong Kong. As a first step, it is proposed to adopt the MRLs and EMRLs of individual pesticides recommended by Codex as the backbone, supplemented by related standards of the Mainland and other major exporting countries, notably Thailand and the USA. This approach is considered pragmatic taking into account the heavy reliance of Hong Kong on imported food. As a second step, risk assessment studies will be conducted using internationally accepted methods to assess whether the proposed MRLs and EMRLs are adequate to protect public health in the local setting. It is estimated that MRLs of some 400 pesticides need to be adopted.

4.9 The proposed list of pesticides for which MRLs will be established in our new subsidiary legislation is at Annex II. Examples of MRLs/EMRLs being adopted by Codex are at Annex III.

To develop a "default value" for pesticide residues without specified MRLs and a list of "exempted substances"

4.10 To tie in with the "positive list" approach, it is necessary to deal with pesticide residues for which no MRLs or EMRLs have been specified in the subsidiary legislation. According to international practice, either a "default value", residue level below which is considered acceptable or a "zero tolerance" is set for such chemicals. It is proposed to set a "default value" for those chemicals in which no MRLs and EMRLs have been set under the "positive list" approach based on the following reasons:

- it is difficult to build and maintain a comprehensive list of MRLs, taking into account the frequent amendment to MRLs in Codex and other major exporting countries;

- the limit of detection of laboratory testings may vary in different food commodities, and with different laboratories and the advancement of technology. The establishment of a "default value", taking into account the available analytical methods, will facilitate the trade in monitoring pesticide residues in their products and the laboratories in conducting corresponding analyses; and
- the "default value" approach has been adopted in a number of overseas jurisdictions such as the European Union, Japan and New Zealand.

4.11 Nevertheless, the exact value for this "default value" needs further exploration.

4.12 On the other hand, in order to facilitate the trade to use pesticides that are natural and the residues of which are identical to or indistinguishable from natural food components, it is proposed to develop a list of "exempted substances". The priniciples of developing such a list should be: (i) the substances used fall under the definition of pesticides; (ii) MRLs are considered not necessary by other regulatory authorities; and (iii) the substances will not pose any public health risk. It should however be noted that such a list of "exempted substances" is not available from Codex. It is proposed to make reference to the list adopted by our major exporting countries. The list of "exempted substances" adopted in the USA is at Annex IV.

To adopt Codex's classification of foods

4.13 A classification of food is considered necessary for uniform nomenclature among international trade and for the purpose of establishing group MRLs for food commodities of similar characteristics and residue potential. As it is proposed to adopt Codex MRLs as the backbone of the local set of MRLs for pesticide residues in food, to ensure compatibility, it is also proposed to make reference to Codex when developing such classification system under the new regulatory framework.

4.14 Index and examples of Codex classification of foods is extracted at Annex V.

To implement the new subsidiary legislation with a grace period

4.15 To allow sufficient time for laboratories (both private and government) to develop testing methods for pesticides as listed in the new subsidiary legislation and the trade in complying with the new regulatory requirement, it is proposed to grant a two-year grace period for this new piece of subsidiary legislation.

CHAPTER 5 VIEWS SOUGHT

5.1 The Administration proposes to introduce a new subsidiary legislation to govern pesticide residues in food. The proposed regulatory framework, as set out in Chapter 4, is summarised as follows:

- to adopt the definitions of "pesticide" and other related terms from Codex;
- to adopt a "positive list" approach;
- to adopt MRLs developed by Codex as the backbone;
- to develop a "default value" for pesticide residues without specified MRLs and a list of "exempted substances";
- to adopt Codex's classification of foods; and
- to implement the new subsidiary legislation with a grace period.

5.2 The Administration invites you to let us have your views on the proposed regulatory framework. Please send your comments by letter, facsimile or e-mail to the Centre for Food Safety before 31 January 2008:

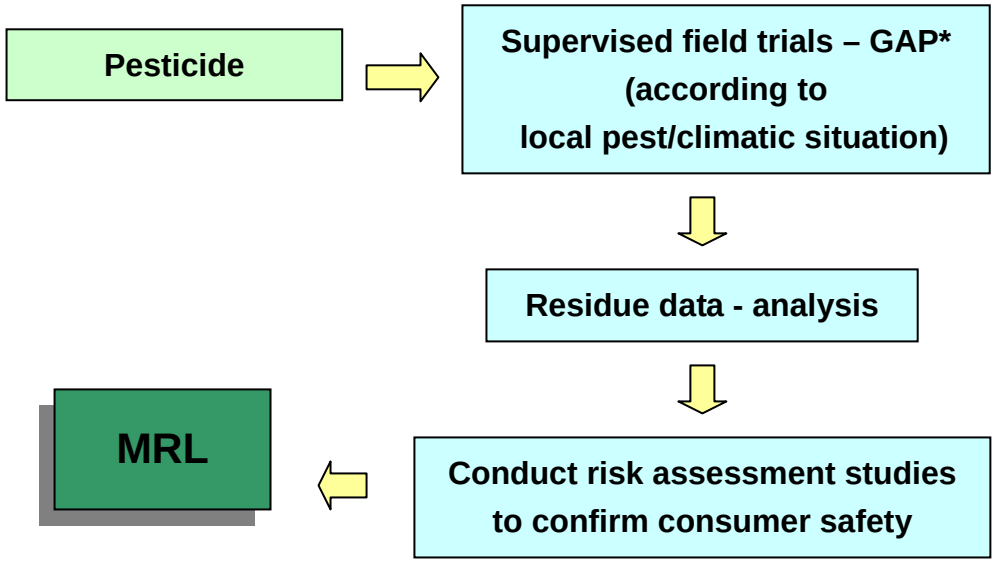
Centre for Food Safety
(Attn.: Risk Assessment Section)
Food and Environmental Hygiene Department
43/F, Queensway Government Offices,
66 Queensway,
Hong Kong
Facsimile : (852) 2893 3547
E-mail address : pesticide_consultation@fehd.gov.hk
Enquiry tel. no. : (852) 2867 5699

5.3 The Administration will take full account of the views received before finalising the new subsidiary legislation on regulating pesticide residues in food under the Public Health and Municipal Services Ordinance (Cap. 132).

5.4 Any person submitting views and comments should be aware that the Government may publish all or part of the views and comments received and disclose the identity of the source in such manner as the Government considers appropriate, unless he/she requests any part of the views and comments and/or his/her identity be treated in confidence.

Annex I

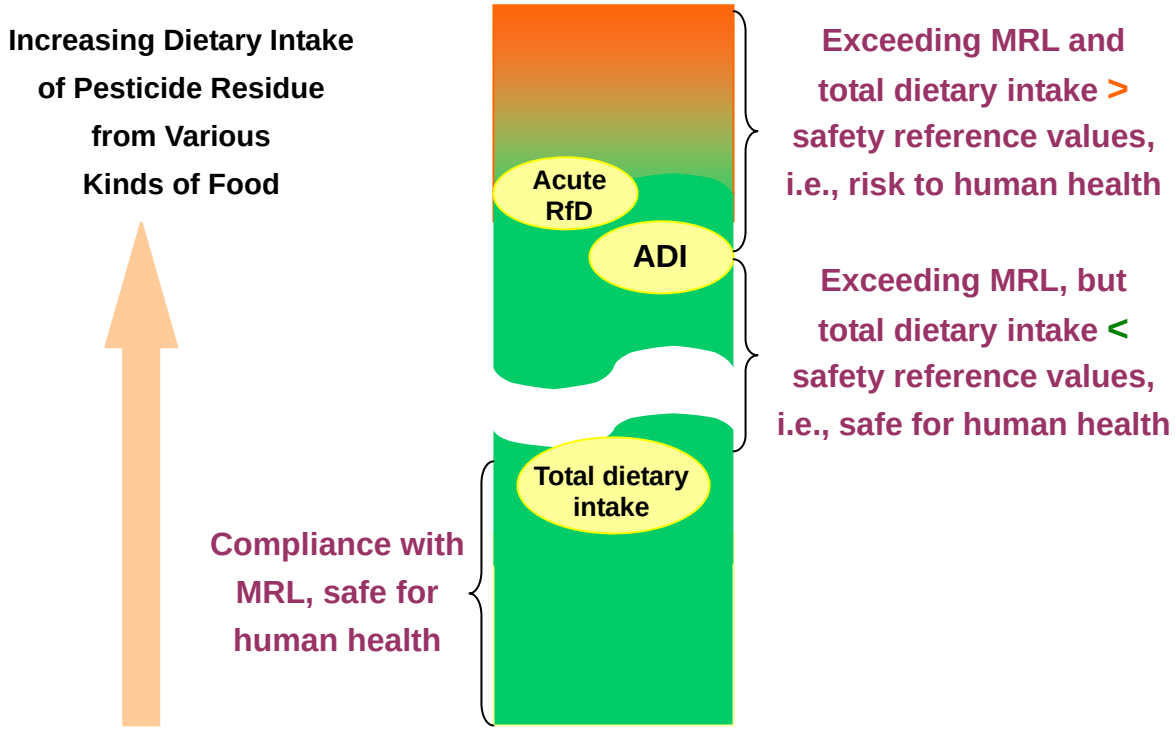
Diagram 1: How Maximum Residue Limit (MRL) is Established



Note

GAP: Good Agricultural Practice

Diagram 2: Relationship between Maximum Residue Limit (MRL) and Safety Reference Values



Note

Acute RfD: Acute reference dose
ADI: Acceptable daily intake
} Safety reference values

MRL: Maximum residue limit

Total dietary intake: dietary intake of individual pesticide from all food commodities of interest. This is calculated by multiplying the MRL established in a given food commodity by the relevant daily consumption and then adding them up.

Annex II

Proposed List of Pesticides to be Included in the New Subsidiary Legislation

1. 1-Naphthaleneacetic acid[d]
2. 2-(Thiocyano-methylthio)benzothiazole[d]
3. 2,4-D[a,b,c,d]
4. 2-methyl-4-chlorophenoxyacetic acid (MCPA) [d]
5. 2-Phenylphenol[a]
6. 4-(2,4-Dichlorophenoxy) butyric acid[d]
7. 4-(2-Methyl-4-chlorophenoxy) butyric acid[d]
8. 5-Ethoxy-3-(trichloromethyl)-1,2,4-thia diazole[d]
9. Abamectin[a,c,d]
10. Acephate[a,b,c,d]
11. Acequinocyl[d]
12. Acetamiprid[d]
13. Acetochlor[d]
14. Acibenzolar-S-methyl[d]
15. Acifluorfen[b,d]
16. Alachlor[b,d]
17. Aldicarb[a,b,d]
18. Aldrin and dieldrin[a,b,c,d]
19. Aluminium phosphide[b,d]
20. Ametryn[c,d]
21. Amicarbazone[d]
22. Aminoethoxyvinylglycine[d]
23. Aminopyralid[d]
24. Amitraz[a,b,d]
25. Amitrole[a,d]
26. Ammoniates for [ethylenebis-(dithiocarbamato)] zinc and ethylenebis [dithiocarbamic acid] bimolecular and trimolecular cyclic anhydrosulfides and disulfides[d]
27. Anilazine[b]
28. Asulam[d]
29. Atrazine[b,c,d]
30. Avermectin B1 and its delta-8,9-isomer[d]
31. Azinphos-methyl[a,d]
32. Azocyclotin[a,b]
33. Azoxystrobin[d]
34. Basic copper carbonate[d]
35. Benalaxyl[a]
36. Benfluralin[d]
37. Benfuracarb[b]
38. Bensulfuron methyl[b,d]
39. Bentazone (Bentazon)[a,b,d]
40. Benthiavalicarb-isopropyl[d]
41. Bifenazate[a,d]
42. Bifenthrin[a,b,d]
43. Bioresmethrin[a]
44. Bispyribac-sodium[d]
45. Bisultap[b]
46. Bitertanol[a,d]
47. Boscalid[a,d]
48. Bromacil[d]
49. Bromide ion[a,d]
50. Bromopropylate[a,b]
51. Bromoxynil[d]
52. Buprofezin[a,b,d]
53. Butachlor[b]
54. Butafenacil[d]
55. Butylate[d]
56. Cacodylic acid[d]
57. Cadre[d]
58. Cadusafos[a,b,d]
59. Captan[a,b,c,d]
60. Carbaryl[a,b,c,d]
61. Carbendazim/Benomyl[a,b,c,d]
62. Carbofuran[a,b,c,d]
63. Carbon disulfide[d]
64. Carbosulfan[a,b,c]
65. Carboxin[d]
66. Carfentrazone-ethyl[d]
67. Cartap[b]

68. Chlorbenzuron[b]
69. Chlordane[a,c,d]
70. Chlorfenapyr[d]
71. Chlorimuron ethyl[d]
72. Chlormequat[a,b]
73. Chloroneb[d]
74. Chloropham[a,d]
75. Chloropicrin[b]
76. Chlorothalonil[a,b,c,d]
77. Chlorpyrifos[a,b,c,d]
78. Chlorpyrifos-methyl[a,b,d]
79. Chlorsulfuron[d]
80. Chlortoluron[b]
81. Clethodim[a,d]
82. Clodinafop-propargyl[d]
83. Clofencet[d]
84. Clofentezine[a,b,d]
85. Clomazone[d]
86. Clopyralid[d]
87. Cloquintocet-mexyl[d]
88. Cloransulam-methyl[d]
89. Clothianidin[d]
90. Coumaphos[d]
91. Cyanide[b]
92. Cyazofamid[d]
93. Cyclanilide[d]
94. Cycloate[d]
95. Cycloxydim[a]
96. Cyfluthrin[a,b,d]
97. Cyhalothrin[a,b]
98. Cyhexatin[a,d]
99. Cymoxanil[d]
100. Cypermethrin[a,b,c,d]
101. Cyprodinil[a,d]
102. Cyromazine[a,b,d]
103. DDT[a,b,c,d]
104. Deltamethrin[a,b,c,d]
105. Diazinon[a,b,c,d]
106. Dicamba[d]
107. Dichlobenil[d]
108. Dichlofluanid[a]
109. Dichlorvos[a,b,c,d]
110. Diclofop-methyl[d]
111. Dicloran[a,d]
112. Diclosulam[d]
113. Dicofol[a,b,c,d]
114. Dicrotophos[d]
115. Difenoconazole[d]
116. Difenzoquat[b,d]
117. Diflubenzuron[a,b,d]
118. Diflufenzopyr[d]
119. Dimethenamid (including Dimethanamid-P) [d]
120. Dimethipin[a,d]
121. Dimethoate and omethoate[a,b,c,d]
122. Dimethomorph[d]
123. Dimethyl tetrachloroterephthalate[d]
124. Diniconazole[b]
125. Dinocap[a,d]
126. Dinotefuran[d]
127. Diphenylamine[a,b,d]
128. Dipropyl isocinchomeronate[d]
129. Diquat[a,b,d]
130. Disulfoton[a,d]
131. Dithianon[a,d]
132. Dithiocarbamates[a,c]
133. Diuron[d]
134. Dodine[a,d]
135. Edifenphos[b]
136. Emamectin[d]
137. Endosulfan[a,b,d]
138. Endothall[d]
139. Endrin[a,c]
140. Epoxiconazole[d]
141. EPTC (S-Ethyl dipropylthiocarbamate)[d]
142. Esfenvalerate[a,b,d]
143. Ethaboxam[d]
144. Ethalfluralin[d]
145. Ethametsulfuron-methyl[d]
146. Ethephon[a,b,c,d]

147. Ethion[a,b,c,d]
148. Ethofumesate[d]
149. Ethoprophos (Ethoprop)[a,b,d]
150. Ethoxyquin[a,d]
151. Ethylene oxide[d]
152. Etofenprox[a]
153. Etoxazole[d]
154. Famoxadone[a,d]
155. Fenamidone[d]
156. Fenamiphos[a,b,d]
157. Fenarimol[a,b,d]
158. Fenbuconazole[a,b,d]
159. Fenbutatin oxide[a,b,d]
160. Fenhexamid[a,d]
161. Fenitrothion[a,b,c,d]
162. Fenobucarb (BPMC)[b]
163. Fenoxaprop-ethyl[d]
164. Fenpropathrin[a,b,d]
165. Fenpropimorph[a,d]
166. Fenpyroximate[a,b,d]
167. Fenthion[a,b,d]
168. Fenvalerate[a,b,c,d]
169. Ferbam[d]
170. Fipronil[a,d]
171. Flonicamid[d]
172. Fluazifop-butyl[b,d]
173. Fluazifop-P-butyl[b]
174. Fluazinam[d]
175. Flucythrinate[b]
176. Fludioxonil[d]
177. Fluefenacet[d]
178. Flufenoxuron[d]
179. Flufenpyr-ethyl[d]
180. Flumethrin[a]
181. Flumetsulam[d]
182. Flumiclorac pentyl[d]
183. Flumioxazin[d]
184. Fluometuron[d]
185. Fluopicolide[d]
186. Fluorine compounds[d]
187. Fluoxastrobin[d]
188. Fluridone[d]
189. Fluroxypyr[b,d]
190. Flusilazole[a,b]
191. Fluthiacet-methyl[d]
192. Flutolanil[a,d]
193. Fluvalinate[b,d]
194. Folpet[a,c,d]
195. Fomesafen[b,d]
196. Forchlorfenuron[d]
197. Formetanate hydrochloride[d]
198. Fosetyl-Al[d]
199. Fosthiazate[d]
200. Fthalide[b]
201. Furilazole[d]
202. Glufosinate-ammonium[a,d]
203. Glyphosate[a,b,d]
204. Halosulfuron-methyl[d]
205. Haloxyfop[a]
206. Heptachlor[a,b,c,d]
207. Hexachlorobenzene[c]
208. Hexachlorocyclohexane[b,c,d]
209. Hexazinone[d]
210. Hexythiazox[a,b,d]
211. Hydramethylnon[d]
212. Hydrogen cyanide[d]
213. Hydrogen Phosphide[a]
214. Hydroprene[d]
215. Imazalil[a,b,d]
216. Imazamethabenz[d]
217. Imazapyr[d]
218. Imazaquin[d]
219. Imazethapyr, ammonium salt[d]
220. Imidacloprid[a,d]
221. Indoxacarb[a,d]
222. Iodosulfuron-methyl-sodium[d]
223. Iprodione[a,b,d]
224. Iprovalicarb[d]
225. Isocarbophos[b]
226. Isofenphos-methyl[b]

227. Isoprocarb[b]
228. Isoprothiolane[b]
229. Isoxadifen-ethyl[d]
230. Isoxaflutole[d]
231. Kasugamycin[d]
232. Kresoxim-methyl[a,d]
233. Lactofen[d]
234. Lambda-cyhalothrin[c,d]
235. Lindane[a,b,c,d]
236. Linuron[d]
237. Malathion[a,b,c,d]
238. Maleic hydrazide[a,d]
239. Mancozeb[b,d]
240. Maneb[d]
241. Mefenoxam[d]
242. Mefenpyr-diethyl[d]
243. Mepanipyrim[d]
244. Mepiquat chloride[d]
245. Mesosulfuron-methyl[d]
246. Mesotrione[d]
247. Metalaxyl[a,b,c,d]
248. Metaldehyde[d]
249. Metconazole[d]
250. Methamidophos[a,b,d]
251. Methanearsonic acid[d]
252. Methidathion[a,b,c,d]
253. Methiocarb[a]
254. Methomyl[a,b,c,d]
255. Methoprene[a]
256. Methoxyfenozide[a]
257. Methyl bromide[b,d]
258. Methyoxyfenozide[d]
259. Metolachlor[b,d]
260. Metrafenone[d]
261. Metribuzin[d]
262. Metsulfuron methyl[d]
263. Mevinphos[a,d]
264. Mgk-264[d]
265. Mineral oil[d]
266. Molinate[b,d]
267. Monocrotophos[b,d]
268. Myclobutanil[a,d]
269. N,N-diethyl-2-(4-methylbenzoyloxy) ethylamine hydrochloride[d]
270. Naled[d]
271. Napropamide[d]
272. Naptalam[d]
273. Nicosulfuron[d]
274. Nitrapyrin[d]
275. Norflurazon[d]
276. Novaluron[a,d]
277. o-Phenylphenol and its sodium salt[d]
278. Orthoarsenic acid[d]
279. Orthosulfamuron[d]
280. Oryzalin[d]
281. Oxadiazon[b]
282. Oxamyl[a,d]
283. Oxydemeton-methyl[a,d]
284. Oxyfluorfen[d]
285. Oxytetracycline[d]
286. Paclobutrazol[b]
287. Paraquat[a,b,c,d]
288. Parathion[a,b,d]
289. Parathion-methyl[a,b,d]
290. p-Chlorophenoxyacetic acid[d]
291. Pebulate (S-Propyl butylethylthiocarbamate)[d]
292. Penconazole[a]
293. Pendimethalin[b,d]
294. Penoxsulam[d]
295. Pentachloronitrobenzene[d]
296. Permethrin[a,b,d]
297. Phenmedipham[d]
298. Phenthoate[a,b]
299. Phorate[a,b,d]
300. Phosalone[a,b,c,d]
301. Phosmet[a,b,d]
302. Phosphamidon[b,d]
303. Phosphorothioic acid[d]
304. Phoxim[b]

305. Picloram[d]
306. Pinoxaden[d]
307. Piperonyl butoxide[a,d]
308. Pirimicarb[a,b]
309. Pirimioxyphos[b]
310. Pirimiphos-methyl[a,b,c,d]
311. Prallethrin[d]
312. Pretilachlor[b]
313. Primisulfuron-methyl[d]
314. Prochloraz[a,b]
315. Procymidone[a,b,d]
316. Profenofos[a,b,c,d]
317. Prohexadione calcium[d]
318. Prometryn[d]
319. Propachlor[d]
320. Propamocarb[a,d]
321. Propanil[b,d]
322. Propargite[a,b,d]
323. Propazine[d]
324. Propetamphos[d]
325. Propiconazole[a,b,d]
326. Propoxycarbazone[d]
327. Propylene oxide[d]
328. Propyzamide[d]
329. Prothioconazole[d]
330. Prothiofos[c]
331. Pymetrozine[d]
332. Pyraclostrobin[a,d]
333. Pyraflufen-ethyl[d]
334. Pyrazon[d]
335. Pyrethrins[a,d]
336. Pyridaben[d]
337. Pyridate[d]
338. Pyrimethanil[d]
339. Pyriproxifen[a,d]
340. Pyrithiobac sodium[d]
341. Quinalphos[b]
342. Quinclorac[d]
343. Quinoxyfen[a,d]
344. Quintozene[a,b]
345. Quizalofop ethyl[d]
346. Resmethrin[d]
347. Rimsulfuron[d]
348. S-(O,O-Diisopropyl phosphorodithioate) of N-(2-mercaptoethyl) benzenesulfonamide[d]
349. Semiamitraz[b]
350. Sethoxydim[b,d]
351. Simazine[d]
352. Spinosad[a,d]
353. Spirodiclofen[d]
354. Spiromesifen[d]
355. Spiroxamine[d]
356. Streptomycin[d]
357. Sulfentrazone[d]
358. Sulfosate[d]
359. Sulfosulfuron[d]
360. Sulfur dioxide[d]
361. Sulfuryl fluoride[a,d]
362. Tebuconazole[a,b,d]
363. Tebufenozide[a,d]
364. Tebuthiuron[d]
365. Tecnazene[a]
366. Teflubenzuron[a]
367. Tefluthrin[d]
368. Tepraloxydim[d]
369. Terbacil[d]
370. Terbufos[a,b,d]
371. Tetrachlorvinphos[d]
372. Tetraconazole[d]
373. Thiabendazole[a,b,d]
374. Thiacloprid[a,d]
375. Thiamethoxam[d]
376. Thiazopyr[d]
377. Thidiazuron[d]
378. Thifensulfuron methyl[d]
379. Thiobencarb[d]
380. Thiocyclam[b]
381. Thiodicarb[b,d]
382. Thiophanate-methyl[d]

383. Thiram[d]
384. Tolclofos-methyl[a]
385. Tolylfluanid[a,d]
386. Topramezone[d]
387. Tralkoxydim[d]
388. Tralomethrin[d]
389. Triadimefon[a,b,d]
390. Triadimenol[a,b,d]
391. Triallate[d]
392. Triasulfuron[d]
393. Triazophos[a,b,c]
394. Tribenuron methyl[d]
395. Tribufos[d]
396. Trichlorfon[b,d]
397. Triclopyr[d]
398. Tricyclazole[b]
399. Tridemorph[d]
400. Trifloxystrobin[d]
401. Trifloxysulfuron[d]
402. Triflumizole[d]
403. Trifluralin[b,d]
404. Triflusulfuron methyl[d]
405. Triforine[a]
406. Triphenyltin hydroxide[d]
407. Triticonazole[d]
408. Vamidothion[b]
409. Vinclozolin[a,b,d]
410. Zinc phosphide[d]
411. Ziram[d]
412. Zoxamide[d]
413. α-Naphthaleneacetamide[d]

Notes:

a. MRLs available in Codex Alimentarius

b. MRLs available in the Mainland

c. MRLs available in Thailand

d. MRLs available in the United States of America

Annex III

Examples of Codex Maximum Residue Limits/ Extraneous Maximum Residue Limits for Pesticides in Food

Codex Code: 118 **Pesticide:** **Cypermethrin**

Residue definition: Cypermethrin (sum of isomers) (fat-soluble)

Code No.	Commodity	MRL/ mg/kg	Notes
FB 0018	Berries and other small fruits	0.5	
FC 0001	Citrus fruits	2	
FP 0009	Pome fruits	2	
FS 0013	Cherries	1	
FS 0014	Plums (including prunes)	1	
FS 0245	Nectarine	2	
FS 0247	Peach	2	
VA 0384	Leek	0.5	
VA 0385	Onion, Bulb	0.1	
VB 0040	Brassica vegetables	1	
VC 0424	Cucumber	0.2	
VD 0541	Soya bean (dry)	0.05	(*)
VL 0480	Kale	1	
VL 0482	Lettuce, Head	2	
VL 0502	Spinach	2	
VO 0051	Peppers	0.5	
VO 0440	Egg plant	0.2	
VO 0447	Sweet corn (corn-on-the-cob)	0.05	(*)
VO 0448	Tomato	0.5	
VO 0450	Mushrooms	0.05	(*)
VP 0062	Beans, Shelled	0.05	(*)
VP 0063	Peas (pods and succulent=immature seeds)	0.05	(*)
VP 0526	Common bean (pods and/or immature seeds)	0.5	
VR 0075	Root and tuber vegetables	0.05	(*)
GC 0640	Barley	0.5	
GC 0645	Maize	0.05	(*)
GC 0654	Wheat	0.2	
SB 0716	Coffee beans	0.05	(*)
SO 0089	Oilseed, except peanut	0.2	

SO 0697	Peanut	0.05	(*)	
HS 0191	Spices, Fruits and Berries	0.1		
HS 0193	Spices, Roots and Rhizomes	0.2		
ML 0106	Milks	0.05	F	(a)
MM 0095	Meat (from mammals other than marine mammals)	0.2	(fat)	(a)
MO 0105	Edible offal (mammalian)	0.05	(*)	(a)
PE 0112	Eggs	0.05	(*)	
PM 0110	Poultry meat	0.05	(*)	
DT 1114	Tea, Green, Black	20		
OR 0172	Vegetable oils, Edible	0.5		

Codex Code: 21 **Pesticide:** **DDT**

Residue definition: Sum of p,p'-DDT, o,p'-DDT, p,p'-DDE and p,p'-TDE (DDD) (fat-soluble)

Code No.	Commodity	EMRL/ mg/kg	Notes
VR 0577	Carrot	0.2	
GC 0080	Cereal grains	0.1	
ML 0106	Milks	0.02	F
PE 0112	Eggs	0.1	
PM 0110	Poultry meat	0.3	

Notes:

(*) (following MRLs or EMRLs) : At or about the limit of determination.

F (following MRLs or EMRLs for milks) : The residue is fat soluble and MRLs for milk products are derived as explained below:

- Codex MRLs/EMRLs for fat-soluble pesticide residues in milk and milk products are expressed on a whole product basis.
- For a "milk product" with a fat content less than 2%, the MRL applied should be half those specified for milk.
- The MRL for "milk products" with a fat content of 2% or more should be 25 times the maximum residue limit specified for milk, expressed on a fat basis.

(fat) (following MRLs or EMRLs for meat) : The MRL/EMRL applies to the fat of meat.

(a) The MRL accommodates external animal treatment.

Annex IV

List of "Exempted Substances" Adopted in the USA[e]

1. (Z)-11-Hexadecenal (exempted in artichokes)
2. 1,4-Dimethylnapthalene (exempted in potatoes)
3. 1-Methylcyclopropene
4. 3,7,11-Trimethyl-1,6,10-dodecatriene-1-ol and 3,7,11-trimethyl-2,6,10-dodecatriene-3-ol
5. 6-Benzyladenine (exempted in apple, pear and pistachio)
6. Allyl isothiocyanate as a component of food grade oil of mustard
7. *Alternaria destruens* strain 059
8. Ammonium bicarbonate
9. *Ampelomyces quisqualis* isolate M10
10. Arthropod pheromones
11. *Aspergillus flavus* AF36 (exempted in cotton and its food commodities)
12. *Aspergillus flavus* NRRL 21882 (exempted in peanut and its food commodities)
13. Auxins
14. Azadirachtin
15. *Bacillus cereus* strain BPO1
16. *Bacillus mycoides* isolate J (exempted in sugar beets)
17. *Bacillus pumilus* GB34 (except soya bean)
18. *Bacillus pumilus* strain QST 2808
19. *Bacillus sphaericus*
20. *Bacillus subtilis* GB03
21. *Bacillus subtilis* MBI 600
22. *Bacillus subtilis* strain QST 713
23. *Bacillus subtilis* var. *amyloliquefaciens* strain FZB24
24. *Beauveria bassiana* ATCC #74040
25. *Beauveria bassiana* strain GHA
26. Biochemical pesticide plant floral volatile attractant compounds: cinnamaldehyde, cinnamyl alcohol, 4-methoxy cinnamaldehyde, 3-phenyl propanol, 4-methoxy phenethyl alcohol, indole, and 1,2,4-trimethoxybenzene (exempted in alfalfa, clover, cotton, dandelion, peanuts, rice, sorghum, soy beans, sunflower, sweet potatoes, wheat,

[e] The list is updated as of July 2007. Inert ingredients of the pesticide formulations as well as substances derived from genetic modification of the crops are not listed in this Annex.

asparagus, beans, beets, carrots, celery, cabbage, broccoli, brussels sprouts, cauliflower, kale, mustard greens, turnip greens, kohlrabi, corn, chinese cabbage, cowpeas, cucumbers, squash, pumpkin, egg plant, endive, radish, rutabagas, turnip roots, spinach, swiss chard, lettuce, okra, parsley, parsnip, peas, peas with pods, peppers, potatoes, sugar beets, tomatoes; the following tree fruit, berry, nut, almonds, apples, apricots, blackberry, boysenberry, dewberry, loganberry, raspberry, blueberry, cherry, grapefruit, kumquat, lemon, lime, orange, tangelo, and tangerine, cranberry, grapes, watermelon, honeydew, crenshaw, cantaloupe, casaba, persian, nectarines, pears, pecans, peaches and strawberry)

27. Boric acid and its salts, borax (sodium borate decahydrate), disodium octaborate tetrahydrate, boric oxide (boric anhydride), sodium borate and sodium metaborate
28. C12-C18 fatty acid potassium salts
29. C8, C10, and C12 fatty acid monoesters of glycerol and propylene glycol
30. Calcium hypochlorite
31. *Candida oleophila* isolate I-182
32. Capsaicin
33. Chlorine gas
34. Chloropicrin
35. Cinnamaldehyde
36. Citronellol
37. Clarified hydrophobic extract of neem oil
38. Codlure, (E,E)-8,10-dodecadien-1-ol
39. *Colletotrichum gloeosporioides* f. sp. *aeschynomene* (exempted in rice grain and soya bean)
40. *Coniothyrium minitan* strain CON/M/91-08
41. Copper
42. CryIA(c) and CryIC derived delta-endotoxins of *Bacillus thuringiensis* var. *kurstaki* encapsulated in killed *Pseudomonas fluorescens*, and the expression plasmid and cloning vector genetic constructs
43. Cytokinins
44. Decanoic acid
45. Delta endotoxin of *Bacillus thuringiensis* variety *kurstaki* encapsulated into killed *Pseudomonas fluorescens*
46. Delta endotoxin of *Bacillus thuringiensis* variety *San Diego* encapsulated into killed *Pseudomonas fluorescens*
47. Diallyl sulfides (exempted in garlic, leeks, onions, and shallots)
48. Diatomaceous earth
49. Ethylene
50. Eucalyptus oil (exempted in honey and honeycomb)
51. F.D.&C. Blue No. 1
52. Ferric phosphate

53. Ferrous sulfate
54. Foramsulfuron (exempted in corn grain)
55. Formic acid (exempted in honey and beeswax)
56. Gamma aminobutyric acid (GABA)
57. GBM-ROPE (exempted in grape)
58. Geraniol
59. Gibberellins [Gibberellic Acids (GA3 and GA4 + GA7), and sodium or potassium Gibberellate]
60. *Gliocladium catenulatum* strain J1446
61. *Gliocladium virens* isolate GL-21
62. Harpin protein
63. Hydrogen peroxide
64. Imazamox
65. Inclusion bodies of the multi-nuclear polyhedrosis virus of *Anagrapha falcifera*
66. Indian meal moth granulosis virus
67. Isomate-C
68. Isomate-M (exempted in peaches, quinces, nectarines, and macadamia nuts)
69. Jojoba oil
70. Kaolin
71. Killed *Myrothecium verrucaria*
72. Lactic acid
73. *Lagenidium giganteum* (a fungal organism exempted in rice grain and soya bean)
74. Lepidopteran pheromones that are naturally occurring compounds, or identical or substantially similar synthetic compounds, designated by an unbranched aliphatic chain (between 9 and 18 carbons) ending in an alcohol, aldehyde or acetate functional group and containing up to 3 double bonds in the aliphatic backbone
75. L-glutamic acid
76. Lime
77. Lime-sulfur
78. Lysophosphatidylethanolamine (LPE)
79. Methol (exempted in beeswax and honey)
80. Methoprene
81. Methyl anthranilate
82. Methyl eugenol and malathion combination
83. Methyl salicylate
84. Monocarbamide dihydrogen sulfate
85. *Muscodor albus* QST 20799 and the volatiles produced on rehydration
86. N-Octylbicyclo(2,2,1)-5-heptene-2,3-dicarboximide

87. *Nosema locustae*
88. Nuclear polyhedrosis virus of *Heliothis zea* (exempted in corn, cottonseed, beans, lettuce, okra, peppers, sorghum, soybeans and tomatoes)
89. Occlusion bodies of the granulosis virus of *Cydia pomenella*
90. *Paecilomyces lilacinus* strain 251
91. *Pantoea Agglomerans* strain C9-1 (exempted in apple and pear)
92. *Pantoea Agglomerans* strain E325 (exempted in apple and pear)
93. Paraformaldehyde
94. Parasitic (parasitoid) and predatory insects
95. Pasteuria penetrans (except roots and tubers)
96. Pelargonic acid (exempted in root and tuber vegetable, bulb vegetable or cotton)
97. Peroxyacetic acid
98. Petroleum oils
99. Phosphorous acid (exempted in potato)
100. *Phytophthora palmivora* (exempted in citrus fruits)
101. Pine oil (exempted in honey and beewax)
102. Piperonyl butoxide
103. Plant extract derived from *Opuntia lindheimeri*, *Quercus falcata*, *Rhus aromatica* and *Rhizophoria mangle*
104. Polybutenes
105. Poly-D-glucosamine (chitosan)
106. Poly-N-acetyl-D-glucosamine
107. Potassium bicarbonate
108. Potassium dihydrogen phosphate
109. Potassium silicate
110. Potassium sorbate
111. Propanoic acid (exempted in alfalfa, barley grain, clover, corn grain, oat grain, sorghum grain and wheat grain)
112. *Pseudomonas chlororaphis* strain 63-28
113. *Pseudomonas fluorescens* A506, *Pseudomonas fluorescens* 1629RS, and *Pseudomonas syringae* 742RS
114. *Pseudomonas syringae*
115. *Pseudozyma flocculosa* strain PF-A22 UL
116. Pyrethrum and pyrethrins
117. *Reynoutria sachalinensis* extract
118. Rhamnolipid biosurfactant
119. Rotenone or derris or cube roots
120. Sabadilla

121. Sesame stalks (exempted in cotton, soybeans, potatoes, sugarbeets, tomatoes, bell peppers, squash, strawberries, eggplants, cucumbers, carrots, radish, turnips, onions, peas, melons, grapes, walnuts, almond, orange, grapefruit, mulberry, peach, apple, apricot, blackberry, loganberry, pecan, cherry, plum, and cranberry)
122. Sodium 5-nitroguaiacolate
123. Sodium bicarbonate
124. Sodium carbonate
125. Sodium chlorate (exempted in dry beans, corn grain, cottonseed, flaxseed, guar beans, peas, chili peppers, potatoes, rice, safflower grain, sorghum grain, soya bean and sunflower seed)
126. Sodium chlorite (exempted in brassica leafy vegetables and radishes)
127. Sodium diacetate (exempted in corn grain and oat grain)
128. Sodium hypochlorite
129. Sodium metasilicate
130. Sodium o-nitrophenolate
131. Sodium p-nitrophenolate
132. Sorbitol octanoate
133. *Spodoptera exigua* nuclear polyhedrosis virus
134. *Streptomyces lydicus* WYEC 108
135. *Streptomyces sp.* Strain K61
136. Sucrose octanoate esters
137. Sulphur
138. Sulphuric acid (exempted in garlic, onion and potato)
139. Tomato pinworm insect pheromone
140. *Trichoderma harzianum* KRL-AG2 (ATCC #20847) strain T22
141. *Trichoderma harzianum* strain T-39
142. Viable spores of the microorganism *Bacillus popilliae*
143. Viable spores of the microorganism *Bacillus thuringiensis* Berliner
144. *Xanthomonas campestris* pv. *vesicatoria* and *Pseudomonas syringae* pv. *tomato* specific bacteriophages (exempted in tomato and pepper)
145. Xylene
146. Yeast extract hydrolysate from *Saccharomyces cerevisiae*

Annex V

Index and Examples of Codex Classification of Foods

Index of Classes, Types and Groups of Commodities

Class A Primary Food Commodities of Plant Origin

Type	No.	Group	Group Letter Code
01 Fruits	001	Citrus fruits	FC
	002	Pome fruits	FP
	003	Stone fruits	FS
	004	Berries and other small fruits	FB
	005	Assorted tropical and sub-tropical fruits – edible peel	FT
	006	Assorted tropical and sub-tropical fruits – inedible peel	FI
02 Vegetables	009	Bulb vegetables	VA
	010	Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas	VB
	011	Fruiting vegetables, Cucurbits	VC
	012	Fruiting vegetables, other than Cucurbits	VO
	013	Leafy vegetables (including Brassica leafy vegetables)	VL
	014	Legume vegetables	VP
	015	Pulses	VD
	016	Root and tuber vegetables	VR
	017	Stalk and stem vegetables	VS
03 Grasses	020	Cereal grains	GC
	021	Grasses, for sugar or syrup production	GS
04 Nuts and Seeds	022	Tree nuts	TN
	023	Oilseed	SO
	024	Seed for beverages and sweets	SB
05 Herbs and Spices	027	Herbs	HH
	028	Spices	HS

Class B Primary Food Commodities of Animal Origin

Type	No.	Group	Group Letter Code
06 Mammalian products	030	Meat (from mammals other than marine mammals)	MM
	031	Mammalian fats	MF
	032	Edible offal (mammalian)	MO
	033	Milks	ML
07 Poultry products	036	Poultry meat (including Pigeon meat)	PM
	037	Poultry fats	PF
	038	Poultry, Edible offal of	PO
	039	Eggs	PE
08 Aquatic animal products	040	Freshwater fish	WF
	041	Diadromous fish	WD
	042	Marine fish	WS
	043	Fish roe (including milt = soft roe) and edible offal of fish: offal	WL
	043	Fish roe (including milt = soft roe) and edible offal of fish: roe	WR
	044	Marine mammals	WM
	045	Crustaceans	WC
	046	Reserved	
	047	Reserved	
09 Amphibians and reptiles	048	Frogs, lizards, snakes and turtles	AR
10 Invertebrate animals	049	Molluscs (including Cephalopods) and other invertebrate animals	IM

Class C Primary Animal Feed Commodities (not relevant to this exercise on pesticide residues in food)

Class D Processed Foods of Plant Origin

Type	No.	Group	Group Letter Code
12 Secondary food commodities of plant origin	055	Dried fruits	DF
	056	Dried vegetables	DV
	057	Dried herbs	DH
	058	Milled cereal products (early milling stages)	CM
	059	Miscellaneous secondary food commodities of plant origin	SM
13 Derived products of plant origin	065	Cereal grain milling fractions	CF
	066	Teas	DT
	067	Vegetable oils, crude	OC
	068	Vegetable oils, edible (or refined)	OR
	069	Miscellaneous derived edible products of plant origin	DM
	070	Fruit juices	JF
14 Manufactured foods (single-ingredient) of plant origin	075	Reserved	
15 Manufactured foods (multi-ingredient) of plant origin	078	Manufactured multi-ingredient cereal products	CP

Class E Processed Foods of Animal Origin

Type	No.	Group	Group Letter Code
16 Secondary food commodities of animal origin	080	Dried meat and fish products	MD
	081	Reserved	
	082	Secondary milk products	LS
17 Derived edible products of animal origin	084	Crustaceans, processed	SC
	085	Animal fats, processed	FA
	086	Milk fats	FM
	087	Derived milk products	LD
18 Manufactured food (single-ingredient) of animal origin	090	Manufactured milk products (single-ingredient)	LI
19 Manufactured food (multi-ingredient) of animal origin	092	Manufactured milk products (multi-ingredient)	LM

Examples of Classes, Types and Groups of Food

Class A Primary Food Commodities of Plant Origin

Type 1 Fruits

Fruits are derived from many different kinds of perennial plants, trees and shrubs, usually cultivated. They consist mostly of the ripe, often sweet, succulent or pulpy developed plant ovary and its accessory parts, commonly and traditionally known as fruit.

Exposure to pesticides is dependent on the particular part of the fruit used for food. Fruits may be consumed whole, after removal of the peel, or in part, and in the form of fresh, dried or processed products.

Group 001 Citrus fruits (except kumquats)
Group Letter Code FC
Class A Type 1 Fruits

Kumquats: see Group 005 Assorted tropical and sub-tropical fruits - edible peel

Citrus fruits are produced on trees or shrubs of the family Rutaceae. These fruits are characterized by aromatic oily peel, globular form and interior segments of juice-filled vesicles. The fruit is fully exposed to pesticides during the growing season. Post-harvest treatments with pesticides and liquid waxes are often carried out to avoid deterioration during transport and distribution due to fungal diseases, insect pests or loss of moisture. The fruit pulp may be consumed in succulent form and as a juice.

The entire fruit may be used for preserves.

Portion of the commodity to which the MRL applies (and which is analysed): **Whole commodity**.

Group 001 Citrus fruits

Code No.	Commodity
FC 0001	**Citrus fruits**
FC 0002	**Lemons and Limes** (including Citron)
FC 0003	**Mandarins** (including Mandarin-like hybrids)
FC 0004	**Oranges, Sweet, Sour** (including Orange-like hybrids)
FC 0005	**Shaddocks or Pomelos** (including Shaddock-like hybrids, among others Grapefruit)
FC 4000	**Bigarade**, see Orange, Sour
FC 4001	**Blood orange**, see Orange, Sweet
FC 0201	**Calamondin**, see also Subgroup 0003 Mandarins
FC 4002	**Chinotto**, see Orange, Sour
FC 4003	**Chironja**, see Subgroup Oranges, Sweet, Sour (including Orange-like hybrids)
FC 0202	**Citron**, see also Subgroup 0002 Lemons and Limes
FC 4005	**Clementine**, see Mandarin

FC 4006 **Cleopatra mandarin**, see Subgroup 0003 Mandarins
FC 4007 **Dancy or Dancy mandarin**, see Subgroup 0003 Mandarins
FC 0203 **Grapefruit**, see also Subgroup 0005 Shaddocks or Pomelos
FC 4008 **King mandarin**, see Subgroup 0003 Mandarin
FC 0204 **Lemon**, see also Subgroup 0002 Lemons and Limes
FC 0205 **Lime**, see also Subgroup 0002 Lemons and Limes
FC 4011 **Malta orange**, see Blood Orange
FC 0206 **Mandarin**, see also Subgroup 0003 Mandarins
FC 4014 **Mediterranean mandarin**, see Subgroup 0003 Mandarins
FC 4016 **Myrtle-leaf orange**, see Chinotto
FC 4018 **Natsudaidai**, see Subgroup 0005 Shaddocks or Pomelos
FC 4019 **Orange**, **Bitter**, see Orange, Sour
FC 0207 **Orange, Sour**, see also Subgroup 0004 Oranges, Sweet, Sour
FC 0208 **Orange, Sweet**, see also Subgroup 0004 Oranges, Sweet, Sour
FC 4020 **Pomelo**, see Shaddocks or Pomelos
FC 4022 **Satsuma or Satsuma mandarin**, see Subgroup 0003 Mandarins
FC 4024 **Seville Orange**, see Orange, Sour
FC 0209 **Shaddock**, see also Subgroup 0005 Shaddocks or Pomelos
FC 4029 **Tangelo, large-sized cultivars**, see Subgroup 0005 Shaddocks or Pomelos
FC 4031 **Tangelo, small and medium sized cultivars**, see Subgroup 0003 Mandarins
FC 4033 **Tangelo**, see Subgroup 0005 Shaddocks or Pomelos
FC 4027 **Tangerine**, see Subgroup 0003 Mandarins
FC 4035 **Tangors**, see Subgroup 0003 Mandarins
FC 4037 **Tankan mandarin**, see Subgroup 0003 Mandarins
FC 4039 **Ugli**, see Subgroup 0005 Shaddocks or Pomelos
FC 4041 **Willowleaf mandarin**, see Mediterranean Mandarin and Subgroup 0003 Mandarins

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