

Draft Guidelines for Technical Meeting with Trade on 20 December 2012.
Subject to further revision.

Pesticide Residues in Food Regulation (Cap. 132CM)

Draft User Guidelines

DRAFT

**Centre for Food Safety
Food and Environmental Hygiene Department
December 2012**

Table of Content

<i>Chapter</i>		<i>Page no.</i>
1	Introduction	1
2	Interpretation of MRLs/EMRLs for Pesticide-Food Pairs Listed in Schedule 1	6
3	Interpretation of Exempted Pesticides Listed in Schedule 2	14
4	Frequently Asked Questions	15

Chapter 1 Introduction

Purpose

1.1 The Pesticide Residues in Food Regulation (Cap. 132CM) (“the Regulation”), passed by the Legislative Council in June 2012, will come into operation and be enforced by the Food and Environmental Hygiene Department (FEHD) on 1 August 2014, following a two-year grace period. The User Guidelines (the Guidelines) aims to assist the trade in having a better understanding of the Regulation, and to answer some of the frequently asked questions.

Key Features of the Regulation

1.2 The Regulation defines “pesticide” and other related terms in a way consistent with the Codex Alimentarius Commission (Codex), and adopts the Codex classification of foods.

1.3 Schedule 1 of the Regulation sets out a list of maximum residue limits (MRLs)/extraneous maximum residue limits (EMRLs) for specified pesticide-food pairs. The presence of any pesticide residues in food exceeding the specified MRLs/EMRLs is not permitted under the Regulation.

1.4 Principles for determining MRLs/EMRLs of pesticide residues in a food in dried, dehydrated or concentrated form, in other types of processed food, and in compounded food, have been laid down in Sections 5 and 6 to the Regulation.

1.5 Schedule 2 of the Regulation sets out a list of exempted pesticides that are natural and the residues of which are identical to or indistinguishable from the natural food components. These pesticides are exempted from the requirement of having a MRL in food under the Regulation.

1.6 If a food is found to contain pesticide residues for which no MRLs/EMRLs have been specified in Schedule 1, except for exempted pesticides, the import and sale of the concerned food is only allowed if the Director of Food and Environmental Hygiene (DFEH) is satisfied that the detected level of pesticide residues will not be dangerous or prejudicial to health. In deciding whether the consumption of the food concerned is dangerous or prejudicial to health, DFEH will conduct risk assessment taking into account the local food consumption patterns and other factors.

Disclaimer

1.7 The Guidelines, which should be read in conjunction with the Regulation, is intended for use as a general reference only. Information contained in the Guidelines may not be exhaustive or complete. Specific issues should be considered on a case-by-case basis. The Guidelines does not have the force of the law and should not be interpreted in any manner which would override the provision of the Regulation. In case of any inconsistency, the statutory provisions will prevail. These guidelines should not be regarded as legal advice. If you need legal advice, you must contact your own lawyer.

1.8 The Guidelines is subject to periodic review by DFEH and may be amended or supplemented as necessary from time to time.

Definitions

1.9 The followings are definitions of some technical terms which are useful and applicable to the Guidelines –

“Acceptable daily intake (ADI)” of a chemical is an estimate of the amount of a substance in food and/or drinking-water, expressed on a body-weight basis, that can be ingested daily over a lifetime without appreciable health risk to the consumer on the basis of all the known facts at the time of the evaluation. It is expressed in milligrams of the chemical per kilogram of body weight.

“Acute reference dose (ARfD)” of a chemical is an estimate of the amount of a substance in food and/or drinking-water, expressed on a body-weight basis, that can be ingested in a period of 24 hours or less without appreciable health risk to the consumer on the basis of all known facts at the time of the evaluation. It is expressed in milligrams of the chemical per kilogram of body weight.

“Aquatic products” means any product derived from any edible part of any aquatic organism, including—

- (a) fish;
 - (b) fish roe;
 - (c) edible offal of fish;
 - (d) crustacean;
 - (e) mollusc (including cephalopod); and
 - (f) any other aquatic invertebrate animal,
- but does not include an amphibian, marine mammal or reptile.

“Codex Alimentarius Commission” means the body created in 1963 by the World Health Organization and the Food and Agriculture Organization to develop food standards, guidelines and related texts.

“Exempted pesticides” are substances falling under the definition of pesticide and meet one of the following criteria:

- (a) the use of the pesticides does not result in residues occurring in food;
- (b) the residues are identical to or indistinguishable from natural food components; or
- (c) the residues are of no toxicological significance or will not be dangerous or prejudicial to human health.

“Extraneous Maximum Residue Limits (EMRL)” means a pesticide residue arising from environmental sources (including former agricultural uses) other than the use of a pesticide directly or indirectly on the commodity, the maximum concentration of which is to be legally permitted (expressed as mg/kg) in food commodities.

“Food” includes—

- (a) drink;
- (b) ice;
- (c) chewing gum and other products of a similar nature and use;
- (d) smokeless tobacco products; and
- (e) articles and substances used as ingredients in the preparation of food,

but does not include—

- (f) live animals or live birds, other than live aquatic products;
- (g) fodder or feeding stuffs for animals, birds or aquatic products; or
- (h) medicine as defined by section 2(1) of the Pharmacy and Poisons Ordinance (Cap. 138) or Chinese herbal medicine or proprietary Chinese medicine as defined by section 2(1) of the Chinese Medicine Ordinance (Cap. 549).

“Ingredient” means a food that is used as an ingredient of a compounded food.

“Maximum Residue Limit (MRL)” means the maximum concentration of a pesticide residue (expressed as mg/kg) to be legally permitted in food commodities.

“Milk and milks” mean the normal mammary secretion of milking animals—

- (a) obtained from one or more milkings without either addition or extraction; and
- (b) is intended for consumption as liquid milk or for further processing.

“Pesticide” means—

- (a) any substance intended for preventing, destroying, attracting, repelling or controlling any pest (including any unwanted species of plants, animals, birds or aquatic products) during the production, storage, transport, distribution or processing of—
 - (i) food, agricultural commodities; or
 - (ii) fodder or feeding stuffs for animals, birds, or aquatic products;
- (b) any substance which may be administered to animals, birds or aquatic products for the control of ectoparasites;
- (c) any substance intended for use as a plant growth regulator, defoliant, desiccant, fruit thinning agent or sprouting inhibitor; and
- (d) any substance applied to crops before or after harvest to protect them from deterioration during storage or transport,

but does not include—

- (e) fertilizers;
- (f) nutrients for plants, animals, birds, aquatic products;
- (g) food additives; or
- (h) drugs for animals, birds, or aquatic products.

“Pesticide residue” means any substance present in food resulting from the use of pesticide, and includes any derivatives and impurities of toxicological significance.

“Primary food commodity” means a product in, or nearly in, its natural state that—

- (a) is intended for processing into food for sale; or
- (b) can serve as food without further processing.

“Processed food” means the product, resulting from the application of physical, chemical or biological processes to a “primary food commodity” intended for direct sale to the consumer, for direct use as an ingredient in the manufacture of food or for further processing. “Primary food commodities” treated with ionizing radiation, washed, sorted or submitted to similar treatment are not considered to be “processed foods”.

“Pro-rata MRL or EMRL” means the percentage of the MRL or EMRL for the residue definition of the pesticide in respect of an ingredient that equals the percentage of the ingredient in the compounded food.

“Residue definition”, in relation to a pesticide, means the combination of the pesticide and its derivatives or related compounds to which the MRL applies.

“Safety reference values” are established by international bodies (e.g. JMPR) and national authorities to ensure the safety of pesticide residue in food. The ADI and ARfD are two commonly used safety reference values for assessing the risk of chronic and acute adverse health effects of pesticide residues, respectively.

DRAFT

Chapter 2 Interpretation of MRLs/EMRLs for Pesticide-Food Pairs Listed in Schedule 1

How to Read the Schedule 1

2.1 Schedule 1 of the Regulation sets out a list of maximum residue limits (MRLs)/extraneous maximum residue limits (EMRLs) for specified pesticide-food pairs (see **Figure 1**). Part 1 of the Schedule 1 lists out MRLs for pesticide residues arising from application of pesticides currently in use, and Part 2 of the Schedule 1 lists out EMRLs for pesticide residues arising from environmental sources (including former agricultural uses) other than the use of pesticides directly or indirectly on the commodities.

Figure 1. Extract of Part 1 of the Schedule 1

Part 1				
Maximum Residue Limit (MRL)				
Column 1	Column 2	Column 3	Column 4	Column 5
Item	Pesticide	Residue definition	Description of food	Maximum residue limit (MRL) (mg/kg)
1.1	1-Naphthaleneacetic acid	Sum of 1-naphthaleneacetic acid and its conjugates, expressed as 1-naphthaleneacetic acid	Orange, Sweet	0.1
1.2	1-Naphthaleneacetic acid	Sum of 1-naphthaleneacetic acid and its conjugates, expressed as 1-naphthaleneacetic acid	Tangerine	0.1

2.2 Column 1, “Item”, illustrates the item number which is unique for each pesticide-food pair. The number before the dot (“.”) denotes the pesticide number whereas the number after the dot (“.”) denotes the MRL number of the particular pesticide concerned. For example, the pesticide “1-Naphthaleneacetic acid” is the first pesticide listed in Part 1 of the Schedule 1 and the MRL of “1-Naphthaleneacetic acid in tangerine” is the second MRL listed under the pesticide “1-Naphthaleneacetic acid”; therefore the item number for this particular pesticide-food pair is “1.2”.

2.3 Column 2, “Pesticide”, lists out the common name of the pesticide concerned.

2.4 Column 3, “Residue definition”, lists out the pesticide and its derivatives or related compounds to which the MRL/EMRL applies. The derivatives or related compounds are considered to be of potential toxicological concern or other legitimate reasons and therefore are required to be included for MRL/EMRL compliance monitoring.

2.5 Column 4, “Description of food”, lists out the food commodity or food group/subgroup for which the MRL/EMRL applies. The “Description of food” should be read in conjunction with the “Guidelines on Food Classification” issued by this Department or the “Codex Classification of Foods” to facilitate the proper identification of appropriate pesticide residue limits for the food commodities concerned.

2.6 Column 5, “Maximum residue limit (MRL)/Extraneous maximum residue limit (EMRL)”, lists out the maximum concentration (expressed as mg/kg) of a pesticide residue to be legally permitted in food commodities.

2.7 Explanatory notes regarding further interpretation of aquatic products and “milk and milks”, as well as the interpretation of MRL/EMRL of certain foods of animal origin (see paras. 2.20 to 2.21 for details) have been laid down in Part 3 of the Schedule 1.

2.8 Interpretation of MRLs/EMRLs for processed food, compounded food and foods of animal origin is further elaborated in the ensuing paragraphs.

Interpretation of MRLs/EMRLs for Processed Food and Compounded Food

2.9 As a general rule, Codex MRLs/EMRLs are established for raw agricultural commodities of both plant and animal origins. However, where it is considered necessary for consumer protection and facilitation of trade, MRLs and EMRLs are also established for certain processed foods on a case-by-case basis, taking into consideration information on the effect of processing on the pesticide residues present in the food commodity.

2.10 Where appropriate, the available MRLs/EMRLs of pesticides recommended by Codex, the Mainland and other major food exporting countries to Hong Kong (the USA and Thailand) have been adopted and incorporated in the Regulation. Where MRLs/EMRLs for a food commodity in its processed

form have not been specified in the Regulation, the following conditions are applicable in interpreting the appropriate pesticide residue limits for the food commodity concerned.

Food in a dried, dehydrated or concentrated form

2.11 The principles for determining the appropriate MRL/EMRL for food in a dried, dehydrated or concentrated form, when there is no specific MRL/EMRL specified in Schedule 1, have been laid down in Section 5(2) of the Regulation.

“If a food in a dried, dehydrated or concentrated form, the MRL or EMRL is to be adjusted proportionately by reference to the ration between the following—

- (a) the weight of the food in such form; and
- (b) the weight of the food after dilution or reconstitution (as the case required).”

2.12 Two examples to illustrate the above principles are provided below –

Example 1 – Carbendazim (多菌靈) in Dehydrated Carrot (脫水胡蘿蔔)

- Search the MRL of carbendazim (多菌靈) in carrot specified in Schedule 1, ⇒ 0.2mg/kg (item 49.62)
- Look up the water content of fresh carrot and dehydrated carrot from reliable database(s) or determine by conducting laboratory analysis, e.g.,
⇒ water content of fresh carrot = 89%
⇒ water content of dehydrated carrot = 10%
- Compute the adjusted MRL of carbendazim in dehydrated carrot:

$$\frac{100\% - \text{“Water content in dehydrated carrot” } (\%)}{100\% - \text{“Water content in fresh carrot” } (\%)} \times \text{MRL (or EMRL)}$$

$$= ((100 - 10) / (100 - 89)) \times 0.2$$

$$= 8.2 \times 0.2$$

$$= \underline{1.6\text{mg/kg}}$$

The adjusted MRL for carbendazim in the dehydrated carrot is calculated to be 1.6mg/kg.

Example 2 – Propargite (炔螨特) in Concentrated (Ten times (10X)) Orange Juice (濃縮橙汁)

- Search the MRL of propargite in orange juice specified in Schedule 1,
⇒ 0.3mg/kg (item 277.14)
- Obtain the concentration factor from the food manufacturer/supplier
⇒ 10X (this example)
- Compute the adjusted MRL of propargite in concentrated (10X) orange juice:
⇒ $0.3 \text{ mg/kg} \times 10 = \underline{3\text{mg/kg}}$

The adjusted MRL for propargite in the concentrated (10X) orange juice is calculated to be 3mg/kg.

2.13 The water content of the primary food commodity and food in its dried, dehydrated or concentrated form can be derived from:

- (a) laboratory test results of water content of a food sample before and after drying, dehydration or concentration; and/or
- (b) generally accepted data (e.g. food composition database) regarding the water content of the processed food and its unprocessed counterparts.

2.14 It is important to note that water content of a food sample before and after drying or dehydration may vary with a number of factors including species, seasons, geographical locations, processing requirements, etc. Therefore, direct laboratory analysis of the water content of food sample before and after processing would provide a better estimate of the “conversion factor”. If generally accepted data is used, the trade should ensure that the data sources are accurate and reputable.

Food in other processed forms (other than compounded food)

2.15 The principles for determining MRL/EMRL for processed food not in a dried, dehydrated or concentrated food (other than compounded food), when there is no specific MRL/EMRL specified in Schedule 1, have been laid down in Section 5(1) of the Regulation.

“If—

- (a) a food (other than compounded food) contains pesticide residues of a pesticide listed in Schedule 1 but the food is not specified in that Schedule opposite to the pesticide; and
- (b) a MRL or EMRL is specified for the residue definition of the pesticide in respect of a food that is the primary food commodity from which the food described in paragraph (a) is derived,

subject to subsection (2), that MRL or EMRL is to apply to the food described in paragraph (a).”

In simple words, for a food in its processed form (other than compounded food), but not in a dried, dehydrated or concentrated form, unless there is specific MRL/EMRL specified in Schedule 1, the MRL/EMRL specified for the corresponding primary food commodity applies.

2.16 Two examples to illustrate the above principles are provided below –

Example 1 – Deltamethrin (溴氰菊酯) in Orange Juice

- Orange juice is derived from “orange, sweet”. When MRL for orange juice is not available, MRL for “orange, sweet” will be applicable to orange juice.
- MRL for deltamethrin in “orange, sweet, sour” specified in Schedule 1, i.e., 0.05mg/kg (item 86.15), is applicable to its orange juice.

Example 2 – Deltamethrin in “Peanut oil, edible”

- Edible peanut oil is derived from peanut. When MRL for “peanut oil, edible” is not available, MRL for peanut will be applicable to edible peanut oil.
- MRL for deltamethrin in peanut specified in Schedule 1, i.e., 0.01mg/kg (item 86.54), is applicable to its peanut oil product.

Compounded food

2.17 Principles for determining MRL/EMRL for compounded food have been laid down in Section 6 to the Regulation.

“...in relation to the compounded food, the MRL or EMRL for the residue definition of the pesticide is the aggregated sum of the pro-rata MRL or EMRL for the residue definition of the pesticide in respect of each of the ingredients of the compounded food (***aggregated MRL or EMRL***); whereas “***pro-rata MRL or EMRL*** means the percentage of the MRL or EMRL for the residue definition of the pesticide in respect of an ingredient that equals the percentage of the ingredient in the compounded food.”

2.18 The above principles will apply when—

- (a) the ingredient is a food in respect of which a MRL or EMRL is specified for the residue definition of the pesticide; or
- (b) by virtue of section 5 of the Regulation, a MRL or EMRL for the residue definition of the pesticide is applicable to the ingredient.

2.19 Two examples to illustrate the above principles are provided below –

Example 1: Abamectin (阿維菌素) in Strawberry Milk Shake

- Look up the recipe of the concerned food product –
Assuming that a 200g sample of strawberry milk shake contains 20g of strawberry (i.e., 10% of the strawberry milk shake by weight) and 180g of milk (i.e., 90% of the strawberry milk shake by weight)
- Search the MRL of abamectin for each ingredient specified in Schedule 1, i.e.,
 - (i) MRL of abamectin in strawberry (草莓) = 0.02mg/kg (item 7.4)
 - (ii) MRL of abamectin in cattle milk(牛奶) = 0.005mg/kg (item 7.16)

Compute the adjusted MRL of abamectin in the strawberry milk shake
= (MRL for abamectin of strawberry) × [% of strawberry in strawberry milk shake (by weight)] + (MRL of abamectin in milk) × [% of milk in strawberry milk shake (by weight)]
= 0.02mg/kg × 10% + 0.005mg/kg × 90%
= 0.007mg/kg

The maximum permitted residue level of abamectin in the strawberry milk shake sample is calculated to be 0.007mg/kg.

Example 2: Pirimicarb (抗蚜威) in Mixed Salad (雜錦沙律)

- Look up the recipe of the concerned food product –
Assuming that a 100g sample of mixed salad contains 30g of tomato (i.e. 30% of the mixed salad by weight), 50g of lettuce (i.e., 50% of the mix salad by weight) and 20g of sweet corn kernels (i.e., 20% of the mixed salad by weight).
- Search the MRL of pirimicarb for each ingredient specified in Schedule 1, i.e.,
 - (i) MRL of pirimicarb (抗蚜威) in tomato (i.e. fruiting vegetables, other than cucurbits 果類蔬菜，葫蘆科除外) = 0.5mg/kg (item 265.29)
 - (ii) MRL of pirimicarb in “Lettuce, Head 結球萵苣(包括西生菜)” = 5mg/kg (item 265.27)
 - (iii) MRL of pirimicarb in “Sweet corn (kernels)甜玉米粒” = 0.05mg/kg (item 265.30)

$$\begin{aligned}
& \text{Compute the adjusted MRL of pirimicarb in mixed salad} \\
& = (\text{MRL of pirimicarb in tomato}) \times [\% \text{ of tomato in mixed salad (by weight)}] \\
& + (\text{MRL of pirimicarb in lettuce}) \times [\% \text{ of lettuce in mixed salad (by weight)}] \\
& + (\text{MRL of pirimicarb in sweet corn kernel}) \times [\% \text{ of sweet corn kernels in} \\
& \text{mixed salad (by weight)}] \\
& = 0.5\text{mg/kg} \times 30\% + 5\text{mg/kg} \times 50\% + 0.05\text{mg/kg} \times 20\% \\
& = \underline{2.7\text{mg/kg}}
\end{aligned}$$

The maximum permitted residue level of pirimicarb in the mixed salad sample is calculated to be 2.7mg/kg.

Interpretation of MRLs/EMRLs for Foods of Animal Origin

Certain meat or poultry meat

2.20 Where “(Fat)” forms part of the description of a food (i.e., meat from mammals other than marine mammals or poultry meat) as set out in Column 4 of either Part 1 or Part 2 of the Schedule 1 to the Regulation (see **Figure 2**), the corresponding MRL/EMRL in Column 5 applies only to the fat of the food (i.e., expressed on a fat basis). For example, the MRL of chlorpyrifos in cattle meat (item 63.39) applies only to the fat of the cattle meat, i.e., the MRL is 1mg/kg chlorpyrifos residues per kg fat content of the cattle meat.

Figure 2. MRL/EMRL for certain meat or poultry meat

Column 1	Column 2	Column 3	Column 4	Column 5
Item	Pesticide	Residue definition	Description of food	Maximum residue limit (MRL) (mg/kg)
63.39	Chlorpyrifos	Chlorpyrifos	Cattle meat (Fat)	1
63.40	Chlorpyrifos	Chlorpyrifos	Goat meat	0.05
63.41	Chlorpyrifos	Chlorpyrifos	Horse meat	0.25

Certain milk products

2.21 Where “(F)” forms part of the description of a food (i.e., milk) as set out in Column 4 of either Part 1 or Part 2 of the Schedule 1 to the Regulation (see **Figure 3**), the pesticide residue is fat soluble and the corresponding MRLs for milk products shall be applied as explained below:

- (a) For a “milk product” with a fat content less than 2%, the MRL applicable is half that specified for “milk”. For example, the MRL of cyfluthrin in skimmed milk (<2% fat) will be “0.04mg/kg (MRL for milk specified in Column 5) divided by 2”, i.e., 0.02mg/kg.
- (b) For a “milk product” with a fat content of 2% or more, the MRL applicable is 25 times that specified for milk, expressed on a fat basis. For example, the MRL of cyfluthrin in butter (>2% fat) will be “25*0.04mg/kg, expressed on a fat basis”, i.e., 1.0mg cyfluthrin residues per kg fat content of butter.

Figure 3. MRL/EMRL for certain milk products

Column 1 Item	Column 2 Pesticide	Column 3 Residue definition	Column 4 Description of food	Column 5 Maximum residue limit (MRL) (mg/kg)
78.29	Cyfluthrin	Cyfluthrin (sum of isomers)	Milks (F)	0.04
78.30	Cyfluthrin	Cyfluthrin (sum of isomers)	Meat (from mammals other than marine mammals) (Fat)	1
78.31	Cyfluthrin	Cyfluthrin (sum of isomers)	Kidney of cattle, goats, pigs and sheep	0.05

Conclusion

2.22 Many steps may be involved in the proper identification of the appropriate MRL/EMRL for a pesticide-food pair, particularly that for a processed food. The trade is advised to study and follow the examples provided in the Guidelines in proper interpretation of the MRL/EMRL specified for a pesticide-food pair.

Chapter 3 Interpretation of Exempted Pesticides Listed in Schedule 2

Criteria for Inclusion in the List of Exempted Pesticides

3.1 To facilitate the use of pesticides by the trade that are natural and the residues of which are identical to or indistinguishable from natural food components, a list of exempted pesticides has been specified in Schedule 2 to the Regulation. In determining whether a pesticide is to be included in Schedule 2, DFEH will take into account relevant factors including the following –

- (a) whether the use of the pesticide will result in residues occurring in food;
- (b) whether the residues of the pesticide are identical to or indistinguishable from natural food components; and
- (c) whether the residues of the pesticide have any toxicological significance or will be dangerous or prejudicial to human health.

3.2 Such a list of exempted pesticides is not available from Codex. We have made reference to the lists adopted by major food exporting countries to Hong Kong in drawing up our own. The list of exempted pesticides includes but not limited to the following main types of substances –

- Inorganic chemicals
- Organic chemicals
- Plant materials or derivatives
- Pheromones
- Bateria
- Fungi
- Protozoans
- Viruses

Chapter 4 Frequently Asked Questions

Food surveillance and enforcement

1. At what levels will CFS collect food samples for conducting surveillance for the Regulation?

Through the Food Surveillance Programme, CFS takes food samples at import, wholesale and retail levels for microbiological testing and chemical analysis to ensure that food for sale is fit for human consumption. This will cover the scope of the Regulation.

2. Will the food trade be prosecuted if the food has been unintentionally contaminated with pesticide residues (for example during storage in warehouse or by pesticides applied in a farm nearby)?

Under section 54 of the Public Health and Municipal Services Ordinance (Cap. 132), food for sale in Hong Kong, whether it is imported or locally produced, must be fit for human consumption. Food manufacturers should ensure that their products will not be contaminated by pesticides during the manufacturing process.

Section 70 of Cap. 132 provides that if the defendant could prove that the contravention was due to the act or default of some other person, and that he has exercised all due diligence to secure that the provisions in question were complied with, he may plead this as a defence. This defence is applicable to offences under the Regulation. In addition, section 71 of Cap. 132 stipulates conditions under which warranty may be pleaded by the defendant as defence in any proceedings for an offence under the relevant part of the Ordinance. This would also be applicable to the offences under the Regulation.

Interpretation of MRLs/EMRLs

3. How would the food traders interpret the MRLs/EMRLs for Chinese medicine/herbs?

Food products falling under the definition of proprietary Chinese medicine in the Chinese Medicine Ordinance (Cap. 549) are governed by that Ordinance.

Products containing medicines or claimed to have medicinal effects are required

to be registered as pharmaceutical products under the Pharmacy and Poisons Ordinance (Cap. 138). Those that cannot be classified as either of the above are regulated as general food products and are subject to the regulation of the Public Health and Municipal Services Ordinance (Cap. 132).

For other traditional Chinese herbs which do not fall under the definition of Chinese herbal medicine or proprietary Chinese medicine as stated in Cap. 549, the trade may first search our Guidelines on Food Classification or the Codex classification of food for the item concerned. If not on the Food Classification Lists and no appropriate MRL for the pesticide-food pair is applicable, risk assessment will be conducted on a case-by-case basis. For example, the dried or processed ginseng is regulated under the Chinese Medicine Ordinance while fresh ginseng is considered “food” and is subject to the regulation of Cap. 132 and its subsidiary regulations, including the Regulation. Fresh ginseng has been classified as “root and tuber vegetables” under the Codex classification and relevant MRLs will be applicable.

Another example is fresh “Spatulate-leaved Sauropus” (龍脷葉), which is not regulated under the Chinese Medicine Ordinance and the item is not listed under the Codex classification on food. Therefore, available MRLs specified in Schedule 1 to the Regulation may not be applicable. Risk assessment will be conducted if pesticide residues are detected in these kinds of traditional Chinese herbs.

4. Some of the common food items among Chinese people (e.g. hairy gourd) may not be covered by the Codex food classification system. Will these food items be regulated under the Regulation?

Under the Regulation, all substances which fall within the definition of “food” will be regulated. CFS has compared the foods commonly found in Hong Kong against the Codex food classification system and incorporated as many food items of special local interest not found on the Codex list as practicable. The food traders and other concerned stakeholders may wish to refer to the Guidelines on Food Classification for details. For other food items of special local interest but with no available MRLs (e.g., bean sprouts, lotus seed, etc.), risk assessment is considered the appropriate approach to be adopted to determine if there would be any associated food safety risk when pesticide residues are detected.

Laboratory analysis

5. Will the Government provide recommended testing methods for all the pesticides included in the Regulation?

The Government has conducted workshops on pesticide residues testing in May and June 2011 to discuss the reference testing methods of the major national authorities and international organisations, other reference methods or technical criteria, as well as the related equipment and standard reference materials. The relevant information can be found at the website:

http://www.cfs.gov.hk/english/whatsnew/whatsnew_fstr/whatsnew_fstr_21_Pesticide.html

Laboratories may develop testing methods based on the needs, actual requirements, equipment, resources available, and make reference to national or international technical criteria and reference testing method. The Government Laboratory will provide further information and discuss with the trade regarding testing as necessary.

6. Will the Government specify a limit of detection (LOD) for pesticide-food pairs for which no MRL/EMRL has been specified in the Regulation such that any detectable level of pesticide residues under the LOD would be considered not contravening the Regulation?

Where pesticide residues outside the list are found, unless the pesticide is an exempted pesticide, import and sale of the concerned food will only be allowed if the consumption of the food concerned is not dangerous or prejudicial to health. To this end, DFEH will conduct risk assessment.

As the Regulation has adopted the risk assessment approach, it is considered not necessary to specify a LOD.

The Government Laboratory will continue to provide technical assistance to private laboratories to familiarise them with the Regulation.

7. Is it appropriate if I only test the edible portion (e.g., orange pulp) of a food sample?

The Government Laboratory would take reference from the Codex's recommendation on "Portion of Commodities to which Codex Maximum Residue Limits Apply and Which is Analysed" (Ref: *Codex Alimentarius* Vol. 2, Section 2.1). Codex MRLs are in most cases stated in terms of a specific

whole raw agricultural commodity as it moves in international trade. For citrus fruits, the whole fruit will be analysed as the fruit is fully exposed to pesticides during the growing season and the entire fruit (not only the fruit pulp) may be used for consumption.

In some instances, a qualification is included that describes the part of the raw agricultural commodity to which the MRL applies, for example, almonds on a shell-free basis and beans without pods. In other instances, such qualifications are not provided.

Risk Assessment

8. How does CFS conduct risk assessment when there is no MRL/EMRL specified for the pesticide-food pair?

Risk assessment is a science-based method which has been well-recognised in the international arena. The acceptability of the potential risks upon consumption of a food sample containing pesticide residues is judged on the basis of comparison of safety reference values (e.g., acceptable daily intakes (ADI) for long-term exposure, or acute reference dose (ARfD) for short-term exposure), with dietary exposure estimates as determined by appropriate exposure studies, i.e., on the outcome of risk assessment process. CFS conducts risk assessment on the detected level of pesticide residues in a food sample based on local food consumption pattern and the available safety reference values. The local food consumption pattern is obtained from the Hong Kong Population-Based Food Consumption Survey conducted in 2005-2007.

The Joint Food and Agriculture Organization (FAO)/World Health Organization (WHO) Meeting on Pesticide Residues (JMPR) is responsible for evaluating the toxicological and related data of the pesticide and estimating the safety reference values, including ADI and ARfD for humans. Besides JMPR, regulatory agencies worldwide may also conduct toxicological evaluation and establish safety reference values during pesticide registration.