

CODEX ALIMENTARIUS COMMISSION E



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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Agenda Item 9

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON PESTICIDE RESIDUES
44th Session
Shanghai, P.R. China, 23 - 28 April 2012

DISCUSSION PAPER ON THE GUIDANCE TO FACILITATE THE ESTABLISHMENT OF MAXIMUM RESIDUE LIMITS FOR
PESTICIDES FOR MINOR CROPS AND SPECIALTY CROPS

(Prepared by the Electronic Working Group¹ Chaired by
the United States of America and Co-Chaired by Kenya and Thailand)

I. BACKGROUND

At the 43rd Session of the Codex Committee on Pesticide Residues (CCPR), it was agreed to re-establish the Electronic Working Group (EWG) on Minor Uses and Specialty Crops. The Codex Committee determined that the EWG should focus on developing criteria for use by CCPR and the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) to determine the minimum number of field trials necessary to support the establishment of MRLs for minor crops/specialty crops in order to facilitate data submission to JMPR. Also, the CCPR decided that the EWG for Minor Uses and Specialty Crops would hold a physical meeting prior to the beginning of 44th Session of the CCPR and that both the electronic and physical working groups will work in English only (REP11/PR, para. 116).

The Committee agreed the re-established EWG will be Chaired by the United States of America and Co-Chaired by Kenya and Thailand. Tawanda Maignan (maignan.tawanda@epa.gov) from the United States Environmental Protection Agency (EPA) represents the United States on this group, Ms. Lucy Namu (Inamu@kephis.org) from the Kenya Plant Health Inspectorate Service represents Kenya and Mr. Pisan Pongsapitch (codex@acfs.go.th) from National Bureau of Agricultural Commodity and Food Standards represents Thailand.

This report summarizes the activities of the group to date and propose recommendations for future action.

II. SUMMARY OF ISSUES FOR CCPR CONSIDERATION

A. Criteria for Minor Crops for CCPR and JMPR:

- The EWG has developed criteria intended for use by CCPR and the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) to determine the minimum number of field trials necessary to support the establishment of MRLs and when it may be appropriate to require fewer than the 6-10 field trials outlined in the FAO manual. The proposal is based on the amount of consumption by humans of food items based on the FAO Stat Data Base and the GEMS Food Cluster Diets.

The EWG recommends the Committee consider the proposed approach when determining the appropriate number of residue field trials for crop commodities based on worldwide consumption as follows:

Category 1 - No data in FAO Stat and No GEMS Food Cluster data = 3 trials

Category 2 - <0.5% worldwide and \leq 0.5% in all of the clusters = 4 trials

Category 3 - <0.5% worldwide and \geq 0.5% in one to two clusters = 5 trials

Category 4 - <0.5% worldwide and \geq 0.5% in three or more clusters = 6 trials.

¹ Australia, Brazil, Canada, Chile, China, Columbia, Egypt, European Union, France, Germany, Ghana, Greece, Japan, Kenya, Philippines, Thailand, Uganda, United States, CropLife International, OECD (See Appendix 1 for Additional Information)

Does the Committee agree with this proposed approach?

- The EWG recognizes there is a need for flexibility regarding the criteria. The EWG recommends the Committee accepts the proposed approach with the provision for exceptions, such as tea.

B. Establishment of Codex MRLs for Minor Uses and Specialty Crops:

- The EWG continues to recommend that CCPR actively participate in and continue progress for the inclusion of new commodities into the *Revision of the Codex Classification on Foods and Animal Feeds* and progress steps for suitable implementation on the *Principles and Guidance on the Selection of Representative Commodities for the Extrapolation of MRLs to Commodity Groups*.
- The EWG supports the use of proportionality in MRL estimation and acceptance of the proportionality concept is expected to be another important tool for the establishment of Codex MRLs, especially for minor crops. The JMPR summary report from the September 2011 meeting provides recommendations for MRLs for five chemical/commodity combinations that would not have received MRL recommendations without the use of proportionality.
- The EWG supports the use of global datasets to determine MRL levels. Acceptance of global datasets is expected to result in a greater number of Codex MRLs and will support several proposals made by the EWG and agreed to by the CCPR regarding Member Countries working together to submit residue field trial data to JMPR (ALINORM 10/33/24).

C. Possible Future Work Of The EWG

- If the Committee determines it is appropriate to re-establish the EWG for work during 2012-2013, the EWG Members suggest that future work focus on two areas. First, the EWG recommends that work continue to resolve the remaining outstanding issues regarding the criteria, specifically the crops for which consumption is borderline as identified in *Annex I* with "?", for use by CCPR and JMPR to determine the minimum number of field trials necessary to support the establishment of MRLs for minor crops/specialty crops in order to facilitate data submission to JMPR. Second, the EWG would like to propose that the terms of reference include a proposal for the EWG to begin to develop a simple database to identify residue data needs for minor crops for specific chemicals according to the review schedule of chemicals for JMPR. The database is maintained by the chair of the EWG.

III. DISCUSSION

A. Criteria for Minimum Number of Field Trials for CCPR and JMPR

The Committee determined that the EWG should focus its work during 2011-2012 on developing criteria for use by CCPR and the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) to determine the minimum number of field trials necessary to support the establishment of MRLs for minor crops/specialty crops in order to facilitate data submission to JMPR. Therefore, the EWG members were asked to propose criteria to determine the minimum number of field trials for minor uses/specialty crops to be used by JMPR to conduct risk assessments. Based on the responses from Brazil, Canada, the European Union, Germany, Thailand, Uganda, and the United States, there was initially a divide between using total worldwide production versus consumption as the primary considerations for the criteria. These responses were similar to what was reported by the EWG in the February 2011 discussion paper (CX/PR 11/43/9). However, the Co-chair from Thailand offered an approach of using global diet data (WHO GEMS/Food) and a fixed percentage that could potentially address the concerns associated with consumption versus production as the primary factor for the criteria. The Thailand proposal was refined and re-circulated to the members of the EWG for comments. Based on the comments received from EWG members (Australia, Canada, China, France, Germany, Greece, Thailand, and the United States), the EWG was able to develop minor crop categories for consideration by the Committee.

To be clear these categories are not intended to be used to define a minor crop, a specialty crop or a minor use of a major crop. From 2008 – 2011 the EWG had been asked to develop such definitions. To date the Committee has not reached an agreement as to what these definitions should be. It was noted during the April 2011 meeting that clarity was needed on the terminology used regarding minor uses, minor crops and specialty crops. However, there was also discussion during the meeting that it does not seem likely that agreement can be reached as to what would be appropriate definitions for these terms on a worldwide basis. Therefore, the EWG was re-established but instead of developing definitions for these terms the EWG was asked to develop criteria for use by CCPR and JMPR to determine the minimum number of field trials necessary to support the establishment of MRLs for minor crops/specialty crops in order to facilitate data submission to JMPR.

As a first tier for these criteria the EWG proposes to use global diets to identify major/minor crops to determine the number of residue field trials required for Codex MRL establishment. Consumption data was used from FAOSTAT food supply quantity (g/capita/day) as a world food balance sheet. The EWG believes this source of data is suitable to be used as a first tier because it represents global consumption rather than the 13 clusters of the GEMS/Foods Cluster Diets. However, there are fewer food items in the FAOSTAT data source than those in the GEMS/Foods cluster diets and several fruits and vegetables items are grouped in fruits, others and vegetables, others. Therefore, a second tier is also needed to identify these food commodities. Based on these considerations the EWG proposes the following method for developing the criteria:

Based on the FAOSTAT, the total world food consumption per capita is 1787.98 g/capita/day. The EWG proposes to establish a cut-off 0.5% of the total consumption of a given commodity. This is the same percentage recommended in the previous joint OECD/EU effort from 1999 on minimum data requirement for establishing MRLs. Using the fixed amount 0.5% for a commodity in the diet and the 1787.98 g/capita/day the EWG then calculated the first tier between crops that would need 6-10 residue field trials and those where it would be appropriate to accept a fewer number of field trials. Using the 1787.98 g and 0.5% a cut-off of 8.94 g/day or rounded to 9 g/day was calculated. Using 9 g/day as a cut-off diet criterion based only on the FAOSTA Food balance Sheet, 17-18 crops were identified as major crops including tomatoes, onions, potatoes, cassava, sweet potatoes, yams, soybeans, wheat, rice, maize, millet, sorghum, beer, wine, sugar (sugar beets and sugar cane), bovine meat, pig meat, poultry meat, and freshwater fish. However, in addition to these commodities, for four (4) other individual crops, FAOSTAT Food Balance Sheets gives figures below 9 g/day, but the consumption figures reported in Cluster Diets result to an average consumption above 9 g/day. More specifically, for coconuts, sunflower, pineapple and lemons the average worldwide consumption (based on all 13 diets) is above 9 g/day. Therefore, regardless the figures reported in the FAOSTAT Food Balance Sheets, it is proposed that these crops be included in the list of major crops. Mandarins and lettuce appear to be marginal cases whereas for beans (dry) the different listing does not allow a clear classification. There were several individual crops where consumption is less than 9 g/day that could be identified such as pineapples, lemons, limes, dates and olives.

However, several fruits and vegetables commodities are not presented in the FAOSTAT database and are grouped into fruits, others (56.69 g/day) and vegetables, others (251.93 g/day).

The Members suggested that instead of grouping fruits and vegetables that were not presented in the FAOSTAT database, that the "Fruits, Other" and "Vegetables, Other" categories be separated into the specific crops that comprise the categories. By adjusting the consumption data to include the specific crops, the EWG could make a better determination of how appropriate the suggested cut-off of 0.5% will serve as a part of the criteria. Further, it was suggested that the data derived from FAOSTAT may be somewhat higher than GEMS/Foods diet because food waste and inedible portions were not excluded. For some crops that are slightly over the 0.5%, consumption amount as edible portion were calculated and used as cut-off amount. Therefore, contingent on an agreement among the EWG, it was clear that using the 0.5% diet criteria was suitable as the initial tier before moving forward to the second tier.

Annex 1 World Food Balance Sheet Year 2007 at the end of this document provides an example of the first tier comparison of the global consumption data sourced from FAOSTAT and the GEMS/Food Cluster Diet. The crops highlighted fall within the criteria for major crops while the crops without highlight or "?" are quite clear to be "minor". The crops with some questions (e.g. oil seeds, sugar crops, beverage crops) and also the crops for which consumption are in borderline are marked with "?".

The EWG proposes to use GEMS/Foods Cluster diets to determine this second tier. An issue that still needs to be resolved is whether a set minimum number of field trials will be acceptable for all commodities below the 9g per day or is it also appropriate to tier these data requirements. Full agreement was not reached on what the minimum number of field trials should be based on the responses received from the EWG members. Some member countries recommended 4 trials as the minimum, because with 4 trials there is increased confidence in the estimated MRL. On the other hand, for some commodities 3 trials were considered to be too much. Four or more trials may be a reasonable number of trials for commodities for which consumption data are available. However, if consumption data are not available, perhaps 3 trials would suffice. This is an issue that will require further discussion and agreement amongst the Member Countries.

The EWG would like the Committee to consider the proposed minor crop categories when determining the appropriate number of residue field trials. Category 1 would be for those commodities where there is no reported worldwide production data and there is no reported consumption in the GEMS Food Cluster diets, the EWG would like the Committee to consider requiring at least 3 residue field trials for these commodities. Category 2 would be for those commodities where worldwide production is less than 0.5 percent and consumption is less than or equal to 0.5% in all cluster diets, 4 trials would be needed. Category 3 would be for commodities where worldwide production is less than 0.5 percent and consumption is greater than or equal to 0.5% in one or two cluster diets, 5 trials would be needed. Finally, if the worldwide consumption is less than 0.5% but greater than or equal to 0.5% in three or more clusters, then a minimum of 6 trials are needed (Category 4). This proposed approach recognizes that a food item may be minor on a worldwide basis but major in one or more regional diets. The categories outlined below offer the proposed number of trials for crop commodities based on worldwide consumption:

Category 1 - No data in FAO Stat and No GEMS Food Cluster data = 3 trials

Category 2 - <0.5% worldwide and \leq 0.5% in all of the clusters = 4 trials

Category 3 - <0.5% worldwide and \geq 0.5% in one to two clusters = 5 trials

Category 4 - <0.5% worldwide and \geq 0.5% in three or more clusters = 6 trials.

Annex 2 Minimum Number of Field Trials Required to Support the Establishment of MRLs for Commodities at the end of this document provides examples of the number of trials that would be required based on the above proposed approach. It is noted that adding the world production/world population/365 approach there are some borderline commodities where the Committee may determine a reduced dataset is not appropriate.

There are also some case-by-case decisions that have to be made on specific commodities such as crops for beverages (coffee, tea) of which the consumption is not clear if it is on raw commodity or on brewed beverage, crops for sugar (sugar cane and sugar beet), beer consumption (included in barley). As discussed during the 2011 CCPR meeting there are certain commodities such as tea that may meet the proposed criteria and met the criteria for minor uses proposed in previous recommendations in the last discussion paper (CX/PR 11/43/9). However, there seems to be a consensus that a minimum of 6 field trials are needed for tea. The EWG recognizes there is a need for flexibility for commodities such as tea. Therefore, based on the current practices at JMPR, the EWG would like to propose using the categories with a provision for exceptions.

The EWG also determined that the proposed minor crop categories are not appropriate for the following: 1) crop groups (e.g., cereal grains); 2) non-specific commodities such as other tropical fruits, roots and tubers NES); 3) processed commodities (e.g., oils and raisins) or 4) secondary residues (i.e., livestock commodities and fish).

B. Facilitating the Establishment of Codex MRLs for Minor Uses and Specialty Crops

Crop Grouping

The EWG continues to recommend that CCPR actively participate in and continue progress for the inclusion of new commodities into the *Revision of the Codex Classification on Foods and Animal Feeds* and progress steps for suitable implementation on the *Principles and Guidance on the Selection of Representative Commodities for the Extrapolation of MRLs to Commodity Groups*.

A common approach utilized and accepted by regulators to support the registration of minor uses is to allow the scientific extrapolation of data between related commodities of the same crop group. This enables MRLs to be established for either individual commodities or for an entire crop group should data from identified representative commodities of that group be available.

Current work by the CCPR Electronic Working Group on the *Revision of the Codex Classification on Foods and Animal Feeds* is proposing the inclusion of many new commodities. The inclusion of new commodities will further serve to address some of the barriers for Codex MRLs on those commodities being considered for inclusion. However the benefits for the addition of new commodities into the *Codex Classification on Foods and Animal Feeds* may only be fully realized where Codex MRLs can be established for entire crop groups or proposed subgroups. This can only be accomplished after representative commodities are identified and accepted by the CCPR as discussed in the *Principles and Guidance on the Selection of Representative Commodities for the Extrapolation of MRLs to Commodity Groups*.

MRL estimation using the proportionality approach

During the April 2011 meeting CCPR recommended that the JMPR should provide more examples of the application of the proportionality concept that was introduced in the 2010 meeting. Specifically, when considered appropriate, JMPR would apply scaling factors to residue data not matching the critical GAP so that additional data would be available to support MRL recommendations. This approach would give greater flexibility to JMPR in the use of residue field trial data and would allow MRL estimates to be made in more situations. JMPR was asked to further test the concept of proportionality to ensure reliable results before the Committee will endorse this approach for use by JMPR. The draft summary report from the September 2011 meeting provides recommendations for MRLs for five chemical/commodity combinations that otherwise would not receive MRL recommendations. The EWG supports the use of proportionality in MRL estimation and acceptance of the proportionality concept is expected to be another important tool for the establishment of Codex MRLs, especially for minor crops.

Geographical Zones and Estimation of Maximum Residue Levels

As part of their review for sulfoxaflor, JMPR considered both regional zones (the method currently used) as well as the global dataset method for estimating MRLs. Three commodities, carrots, dry bean and common bean, did not receive MRL recommendations based on the regional dataset method due to insufficient field trial data. However, using the global dataset method, MRLs were recommended for all three commodities since all trials were considered for MRL setting purposes. The acceptance of the global dataset method, considered appropriate when a globally harmonized GAP is available, is an important step for minor crops and will also support collaborative efforts for developing residue data. Finally, it was noted that the global dataset method was likely to result in more robust MRL recommendations than would be expected from the regional dataset method, since the global approach uses larger residue datasets in the statistically-based OECD MRL calculator. The EWG supports the use of the global dataset to determine MRL levels. Acceptance of the global dataset is expected to result in a greater number of Codex MRLs and will support several proposals made by the EWG and agreed to by the CCPR regarding Member Countries working together to submit residue field trial data to JMPR (ALINORM 10/33/24).

D. Possible Future Work Of The EWG

If the Committee determines it is appropriate to re-establish the EWG for work during 2012-2013, the EWG Members suggest that future work focus on two areas. First, the EWG recommends that work continue to resolve the remaining outstanding issues regarding the criteria specifically the crops for which consumption are in borderline as identified in *Annex I* with "?", for use by CCPR and JMPR to determine the minimum number of field trials necessary to support the establishment of MRLs for minor crops/specialty crops in order to facilitate data submission to JMPR. Second, the EWG would like to propose that the terms of reference include a proposal for the EWG to begin to develop a simple database to identify residue data needs for minor crops for specific chemicals, which are on the review schedule for JMPR. This may be accompanied by a Circular Letter seeking information on similar developments elsewhere. This information could then be used to determine if there are any available data/GAPs that other Member Countries could submit within the data protection rules to JMPR that can be used to support the establishment of Codex MRLs for that commodity. Further, if data are not available, this information could be used to identify where there is overlap on the need for data so Member Countries could consider working together to develop the required data. This database would be patterned after the Excel database developed by the Codex Committee on Residues of Veterinary Drugs in Foods for the *List Veterinary Drugs of Potential Interest for Developing Countries*. This database is maintained by the chair of the EWG.

Annex 1: World Food Balance Sheet Year 2007

Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days

ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
FRUITS			
Watermelons	38.59		
Bananas & Plantains	39.49		
Oranges	26.65		
Apples	25.02		
Grapes	10.63		
Wine * add consumption to Grape?	10.01		
Mangoes	14.25	9.69	?
Other melons (incl. cantaloupes)	11.73	7.74	?
Pears	8.64		?
Tangerines, mandarins, clementines	8.47		?
Peaches and nectarines	7.89		?
Pineapples	7.72		?
Lemons, Limes	4.74		
Citrus fruit, nes	3.99		
Plums and sloes	3.98		
Papayas	3.92		
Dates	2.12		
Grapefruit	1.85		
Strawberries	1.65		
Avocados	1.51		
Persimmons	1.51		

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Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days

ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Apricots	1.39		
Olives	0.97		
Cherries	0.81		
Cashewapple	0.79		
Kiwi fruit	0.52		
Sour cherries	0.5		
Raisins	0.46		
Figs	0.43		
Berries Nes	0.38		
Raspberries	0.21		
Stone fruit, nes	0.2		
Quinces	0.19		
Cranberries	0.15		
Blueberries	0.12		
Gooseberries	0.06		
Pome fruit, nes	0.03		
Quinoa	0.02		
Fruit Fresh Nes	10.82		
Fruit, tropical fresh nes	7.01		
VEGETABLES			
Potatoes	86.88		
Tomatoes	49.23		

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Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days

ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Cassava	45.09		
Onions	26.31		
Cabbages and other brassicas	25.31		Individual Brassica other than Cabbages may be minor
Sweet Potatoes	22.97		
Cucumbers and gherkins	22.41		
Eggplants (aubergines)	15.56	12.91	
Carrots and turnips	12.26	9.93	? Carrots or Turnips each may be minor
Peppers (<i>chili peppers+sweet peppers</i>)?	11.35	10.22	? Chili pepper or Sweet pepper each may be minor
Lettuce and chicory	9.76	8.10	?
Yams	9.34	7.99	?
Pumpkins, squash and gourds	8.9		?
Garlic	8.3		?
Cauliflowers and broccoli	7.58		?
Beans, green	7.35		?
Spinach	6.66		
Peas, green	6.12		
Chick peas	4.03		
Asparagus	2.9		
Okra	2.7		
Mushrooms and truffles	2.47		
Onions (inc. shallots), green	1.47		
Pigeon peas	1.41		

Annex 1: World Food Balance Sheet Year 2007

Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days

ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Lentils	1.36		
Chillies and peppers, dry	1.25		
Pimento	1.14		
String beans	0.84		
Leeks, other alliaceouse veg	0.83		
Artichokes	0.62		
Leguminous vegetables, nes	0.56		
Chicory roots	0.24		
Pepper, Black, White	0.16		
Bambara beans	0.04		
Vegetables fresh nes	101.78		
PULSES			
Beans, dry	8.76		?
Peas, dry	3.85		
Cow peas, dry	2.03		
Broad beans, horse beans, dry	1.63		
OILS, OIL SEEDS & OTHER OIL CROPS			? consumption of oil is recommended for oil crops except
Soy bean Oil	10.45		oil crops that can be consumed as foods e.g. soybean,
Soy beans * major if include soybean oil	4.27		peanuts, sunflower seed for which sum of oil and seed
Oil palm fruit	79.85		consumption is recommended - comments requested
Rapeseed	21.29		?

Annex 1: World Food Balance Sheet Year 2007

Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days

ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Cottonseed	19.06		?
Cotton lint	10.41		?
Coconuts - Incl Copra	8.69		?
Palm Oil	5.03		
Palm kernels	4.59		
Rape and Mustard Oil	3.95		
Peanuts (Shelled Eq)	3.60		
Sunflower seed Oil	3.44		
Sunflower seed	0.21		
Peanut Oil	1.73		
Cottonseed Oil	1.61		
Olive Oil	1.17		
Oilseeds, Nes	0.93		
Maize Germ Oil	0.90		
Coconut Oil	0.81		
Oil crops Oil, Other	0.76		
Palm kernel Oil	0.72		
Linseed	0.69		
Castor oil seed	0.6		
Sesame seed	0.50		
Coir	0.48		
Rice bran Oil	0.35		

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Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days

ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Oil crops, Other	0.33		
Karite Nuts (Sheanuts)	0.32		
Melon seed	0.31		
Sesame seed Oil	0.30		
Safflower seed	0.26		
Mustard seed	0.17		
Kapok seed in Shell	0.12		
Kola nuts	0.09		
Canary seed	0.09		
Hops	0.05		
Hemp Tow Waste	0.03		
Poppy seed	0.03		
Hempseed	0.02		
Jojoba Seeds	0		
TREE NUTS			
Hazelnuts, with shell	0.34		
Chestnuts	0.52		
Brazil nuts, with shell	0.03		
Cashew nuts, with shell	1.53		
Areca nuts	0.39		
Tree nuts + (Total)	5.06		
Pistachios	0.28		

Annex 1: World Food Balance Sheet Year 2007			
Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days			
ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Tung Nuts	0.18		
Walnuts, with shell	0.8		
Nuts, nes	0.34		
CEREALS			
Wheat	180.61		
Rice (Milled Equivalent)	145.10		
Barley	55.46		
Beer * add consumption to Barley?	72.01		
Maize	45.93		
Sorghum	10.89		
Millet	10.75		
Rye	2.30		
Oats	1.45		
Buckwheat	0.98		
Cereals, nes	1.59		
OTHER FOOD CROPS			
Coffee	3.32		? comments requested for crops for beverages
Tea	1.90		
Cocoa Beans	1.73		
Tea Nes	0.07		
Beverages, Alcoholic	8.50		?
Beverages, Fermented	11.76		?

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Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days			
ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Ginger	0.65		
Cinnamon (canella)	0.06		
Peppermint	0.03		
Cloves	0.02		
Anise, badian, fennel, corian.	0.2		
Spices, Other	1.45		
Sugar cane	666.26		? Comments requested for crops for sugar
Sugar beet	101.95		?
Sugar, Raw Equivalent *Should Sugar cane and Sugar beet be major crops?	65.81		?
Sugar crops, nes	0.38		
Sweeteners, Other	8.00		
Molasses	0.02		
CROPS FOR FEEDS			? comments requested for crops for feeds
Leguminous for Silage	18.84		
Cabbage for Fodder	0.97		
Carrots for Fodder	0		
Pumpkins for Fodder	467.61		
Beets for Fodder	3.35		
Turnips for Fodder	1.06		
Vegetables Roots Fodder	6.96		
Green Oilseeds for Silage	23.79		

Annex 1: World Food Balance Sheet Year 2007

Source: FAOSTAT Food Balance Sheet 2007 or FAOSTAT World Production Divided By World Population and 365 Days

ITEM	food supply quantity (g/capita/day) (whole commodity)	food consumption (g/capita/day) (edible portion)	NOTES
Maize for forage and silage	149.83		
Rye grass for forage & silage	26.33		
Sorghum for forage and silage	10.41		
Clover for forage and silage	37.33		
ANIMAL PRODUCTS	441.22		
TOTAL	1,787.98		
Cut point >0.5% total consumption	8.9399		
Major consumption	≥ 9.0		
Minor consumption	<9.0		

Annex 2: Minimum Number of Field Trials Required to Support the Establishment of MRLs for Commodities		
Commodity	Number of Clusters \geq 0.5% Diet	Number of Trials
Cereals		
Buckwheat	0	4
Pop corn	0	4
Oats	2	5
Rye	3	6
Roots and Tubers		
Tapioca or Cassava	0	3
Yams	3	6
Tannia	0	4
Horseradish	0	4
Radish	0	4
Radish Japanese	0	4
Parsnip	0	4
Pulses		
Beans, dry	5	6
Lima bean (dry)	0	4
Beans broad dry	0	4
Soya bean (immature seed)	3	6
Lentils	0	4
Lupines	0	4
Field peas (dry)	0	4
Peas cow (dry)	1	5
Peas chick	0	4
Peas pigeon	0	4
Bambara (dry)	0	4
Tree Nuts		
Almonds	0	4
Cashew nuts	0	4
Chestnuts	0	4
Coconuts	6	6
Brazil nut	0	4
Hazelnuts	0	4
Pistachios	0	4
Kolanuts	0	4

Annex 2: Minimum Number of Field Trials Required to Support the Establishment of MRLs for Commodities		
Commodity	Number of Clusters \geq 0.5% Diet	Number of Trials
Walnuts	0	4
Pecan nuts	0	4
Oilseed		
Groundnuts [peanuts]	2	5
Mustard seed	0	4
Poppy seed	0	4
Safflower seed	0	4
Sesame seed	0	4
Sunflower seed	5	6
Olives	0	4
Palm kernels	1	5
Stimulants		
Chicory root	0	4
Cocoa bean	0	4
Coffee bean	3	6
Ginger root	0	4
Tea	0	4
Spices		
Hops, dry	0	4
Anise Badian Fennel	0	4
Nutmeg mace Cardamon	0	4
Parsley	0	4
Pepper White/long/black	0	4
Pimento allspice	0	4
Vegetables		
Artichoke, globe	0	4
Asparagus	0	4
Rhubarb	0	4
Bulb vegetables		
Fennel bulb	0	4
Garlic	0	4
Leek	0	4
Green onion	2	5
Onion welsh	0	4
Shallot	0	4

Annex 2: Minimum Number of Field Trials Required to Support the Establishment of MRLs for Commodities		
Commodity	Number of Clusters \geq 0.5% Diet	Number of Trials
Spring onion	0	4
Fruiting vegetables, cucurbit		
Squash, pumpkins, gourds	4	6
Fruiting vegetables, other than cucurbits		
Mushrooms	0	4
Okra	2	5
Chili peppers	3	6
Leafy vegetables		
Spinach	1	5
Turnip greens	0	4
Lettuce, head	4	6
Lettuce, leaf	1	5
Chicory leaves	0	4
Endive	0	4
Witloof chicory (sprouts)	0	4
Celery	0	4
Celery leaves	0	4
Chard	0	4
Watercress	0	4
Brassica vegetables		
Brussels sprouts	0	4
Cabbage, savoy	1	5
Chinese cabbage	0	4
Kale	0	4
Mustard greens	0	4
Flowerhead brassicas		
Cauliflower	0	4
Broccoli	0	4
Legume vegetables		
Common bean	1	5
Lima bean	0	4
Peas	1	5
Broad bean	0	4
Berries and other small fruits		
Vacinium berries	0	4

Annex 2: Minimum Number of Field Trials Required to Support the Establishment of MRLs for Commodities		
Commodity	Number of Clusters \geq 0.5% Diet	Number of Trials
Blueberries	0	4
Cranberries	0	4
Currants	0	4
Raspberries	0	4
Strawberries	0	4
Blackberries	0	4
Boysenberry	0	4
Dewberries	0	4
Citrus fruits		
Lemons and limes	6	6
Mandarins	4	6
Grapefruit	0	4
Pome fruits		
Pears	2	5
Quince	0	4
Stone fruits		
Apricots	0	4
Cherries	0	4
Plums	0	4
Peaches	1	5
Nectarines	1	4
Other fruits		
Avocados	1	5
Cashewapple	2	5
Dates	1	5
Figs	0	4
Kiwi	0	4
Mangoes	3	6
Papayas	3	6
Persimmons	0	4
Pineapples	6	6
Tree tomatoes	0	4
Passion fruit	0	4

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