附件一

CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

Agenda Item 1 **CX/PR 16/48/1**
January 2016

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON PESTICIDE RESIDUES

48th Session
Chongqing, P.R. China, 25-30 April 2016

To be held in the Radisson Blu Plaza Chongqing, Chongqing, P.R. China
from Monday 25 April, at 9:30 hours, through Saturday 30 April 2016.

PROVISIONAL AGENDA

Agenda Item	Subject Matter	Doc. Ref. No.
1	Adoption of the Agenda	CX/PR 16/48/1
2	Appointment of Rapporteurs	
3	Matters referred to the Committee by the Codex Alimentarius Commission and/or other subsidiary bodies	CX/PR 16/48/2
4(a)	Matters of interest arising from FAO and WHO in addition to 2015 JMPR activities	CX/PR 16/48/3
4(b)	Matters of interest arising from other international organizations	CX/PR 16/48/4
5(a)	Report on items of general consideration by the 2015 JMPR	Section 2 of the 2015 JMPR Report (English only)
5(b)	Report on 2015 JMPR responses to specific concerns raised by CCPR	Section 3 of the 2015 JMPR Report (English only)
6	Draft and proposed draft maximum residue limits for pesticides in food and feed at steps 7 and 4	CX/PR 16/48/5 (English only)
	– Comments at steps 6 and 3 (in reply to CL 2015/25-PR)	CX/PR 16/48/5-Add.1
7	Discussion paper on the impact of the relocation of *Vigna* spp under the Beans on the CXLs for Peas	CX/PR 16/48/6
8(a)	Draft revision of the *Classification of Food and Feed* at Step 7: Selected vegetable commodity groups (Group 015 - Pulses)	REP15/PR-Appendix IX CX/PR 16/48/7
	– Comments (pending issues in REP15/PR-Appendix IX raised in CX/PR 16/48/7)	CX/PR 16/48/7-Add.1
8(b)	Proposed draft revision of the *Classification of Food and Feed* at Step 4: Selected vegetable commodity groups (Group 014 Legume vegetables)	REP15/PR-Appendix X CX/PR 16/48/7
	– Comments (pending issues in REP15/PR-Appendix X raised in CX/PR 16/48/7)	CX/PR 16/48/7-Add.1
8(c)	Proposed draft revision of the *Classification of Food and Feed* at Step 4: Selected vegetable commodity groups (Group 011 - Fruiting vegetables, cucurbits)	CX/PR 16/48/8
	– Comments at Step 3	CX/PR 16/48/8-Add.1

Agenda Item	Subject Matter	Doc. Ref. No.
8(d)	Proposed draft revision of the *Classification of Food and Feed* at Step 4: Selected commodity groups (Group 020 – Grasses of cereal grains)	CX/PR 16/48/9
	– Comments at Step 3	CX/PR 16/48/9-Add.1
8(e)	Proposed draft revision of the *Classification of Food and Feed* at Step 4: Selected commodity groups (Group 021 - Grasses for sugars or syrup production)	CX/PR 16/48/10
	– Comments at Step 3	CX/PR 16/48/10-Add.1
8(f)	Proposed draft revision of the *Classification of Food and Feed* at Step 4: Selected commodity groups (Group 024 - Seeds for beverages and sweets)	CX/PR 16/48/11
	– Comments at Step 3	CX/PR 16/48/11-Add.1
8(g)	Proposed draft Tables 2 and 3 - Examples of selection of representative commodities (vegetable and other commodity groups) (for inclusion in the *Principles and guidance for the selection of representative commodities for the extrapolation of maximum residue limits for pesticides to commodity groups*) at Step 4	CX/PR 16/48/12
	– Comments at Step 3	CX/PR 16/48/12-Add.1
9	Proposed draft Guidance on performance criteria for methods of analysis for the determination of pesticide residues	CX/PR 16/48/13
	– Comments at Step 3	CX/PR 16/48/13-Add.1
10	Establishment of Codex Schedules and Priority Lists of Pesticides	CX/PR 16/48/14
11	Other Business and Future Work	
12	Date and Place of the Next Session	
13	Adoption of the Report	

NOTES ON THE PROVISIONAL AGENDA

Item 7 Discussion paper on the impact of the relocation of *Vigna* spp under the Beans (dry) on the CXLs for Peas (dry)

Item 8 Revision of the *Classification on Food and Feed*

Item 8a – Group 015: Pulses

Item 8b – Group 014: Legume Vegetables

CCPR47 finalized Group 014 and Group 015 with the exception of the following issues on the classification of certain commodities in these groups:

- The relocation of Bambara groundnut and Kersting groundnut (and possibly peanuts) in a separate sub-group either within the pulses group or elsewhere in the Classification and that options for the location of immature peanuts and immature Bambara groundnuts should be consistent with those to be proposed for similar (mature) commodities (REP15/PR, paras 121, 125).
- The implications of classifying all *Vigna* spp under the beans sub-groups on the existing CXLs established for *Vigna* spp. currently classified as peas (REP15/PR, paras 121, 125).

CCPR47 therefore agreed to:

- consider options for the location of groundnuts, i.e. Bambara and Kerstin (and possibly peanuts) within the Classification system for both dry (mature) and immature commodities (REP15/PR, paras 122, 126).
- retain two separate codes for Beans (*Phaseolus* spp.) and Beans (*Vigna* spp.) awaiting the conclusions and recommendations of the discussion paper on the impact of the relocation of *Vigna* spp under the Beans on the CXLs for Peas for both dry (mature) and immature commodities (REP15/PR, paras 122, 126).

Codex Members and Observers wishing to comments on this matter should do so taking into account the conclusions and recommendations as set out in CX/PR 16/48/6 (Item 7) and CX/PR 16/48/7 (Items 8a&b) as well as the discussion and conclusions on these items at CCPR47 (REP15/PR, paras 121, 122, 125, 126 & 138).

The conclusions and recommendations in CX/PR 16/48/6 (Item 7) and CX/PR 16/48/7 (Items 8a&b) together with the comments submitted and compiled in CX/PR 16/48/7-Add.1 will be considered by CCPR48 to finalize Group 014 and Group 015 as per the right allocation of groups (or sub-groups) and codes to these commodities in the Classification.

Item 10 Establishment of Codex Priority List of Pesticides

The elaboration of the Priority List corresponds to Step 1 of the Codex MRLs Elaboration Procedure. The Committee will consider a document prepared by the Chair of the Working Group on Priorities (presented as a conference room document) based on CX/PR 16/48/14 which contains collated proposals for priority lists of pesticides based on comments submitted in reply to CL 2016/1-PR.

Working documents and other logistic information
will be uploaded onto the Codex website
Delegates are kindly requested to bring with them to the meeting all documents,
which have been distributed, as no printed copies will be available at the session.

附件二

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Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

REP16/PR

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

39th Session
Rome, Italy, 27 June – 1 July 2016

REPORT OF THE 48th SESSION OF THE CODEX COMMITTEE ON PESTICIDE RESIDUES

Chongqing, China, 25 - 30 April 2016

Note: This report includes Codex Circular Letter CL 2016/14-PR.

CODEX ALIMENTARIUS COMMISSION

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Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

CL 2016/14-PR
May 2016

To: - Codex Contact Points
- Interested International Organizations

From: Secretariat,
Codex Alimentarius Commission,
Joint FAO/WHO Food Standards Programme,
Email: codex@fao.org
Viale delle Terme di Caracalla,
00153 Rome, Italy

SUBJECT: DISTRIBUTION OF THE REPORT OF THE 48TH SESSION OF THE CODEX COMMITTEE ON PESTICIDE RESIDUES (REP16/PR)

The report of the 48th Session of the Codex Committee on Pesticide Residues will be considered by the 39th Session of the Codex Alimentarius Commission (Rome, Italy, 27 June - 1 July 2016).

PART A: MATTERS FOR ADOPTION BY THE 39TH SESSION OF THE CODEX ALIMENTARIUS COMMISSION:

1. **Proposed draft maximum residue limits for pesticides at Step 5/8** (para. 113, Appendix II).

2. **Proposed draft revision of the Classification of Food and Feed: Selected commodity groups - Group 21 Grasses of cereal grains at Step 5** (para. 141, Appendix X).

3. **Proposed draft Guidelines on performance criteria for methods of analysis for the determination of pesticide residue at Step 5** (para. 163, Appendix XI).

Governments and observer international organizations wishing to submit comments on the above matters, should do so in writing, in conformity with the *Procedure for the Elaboration of Codex Standards and Related Texts* (Part 3 – *Uniform Procedure for the Elaboration of Codex Standards and Related Texts*, Procedural Manual of the Codex Alimentarius Commission) by e-mail, to the above address **before 31 May 2016**.

PART B: REQUEST FOR COMMENTS AND INFORMATION:

4. **2017 Schedule for JMPR evaluations** (paras 169 and 182, Appendix XII)

Governments and observer international organizations (sponsors) who have nominated compounds for the 2017 JMPR evaluation for new uses (additional MRLs) are invited to send documented evidence of authorized labels and GAPs **before 31 May 2016** to:

- Ian Reichstein, Director, National Residue Survey, Department of Agriculture and Water Resources, Email: Ian.Reichstein@agriculture.gov.au;
- Yong Zhen Yang, FAO JMPR Secretary, E-mail: YongZhen.Yang@fao.org;
- Philippe Verger, WHO JMPR Secretary, E-mail: vergerp@who.int;
- CCPR Secretariat, Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA), E-mail: ccpr@agri.gov.cn; and
- Codex Secretariat, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, E-mail: codex@fao.org

5. Matters related to the 2016 JMPR Meeting including concern forms (paras 28 – 112, Appendix XII).

Those countries and observers specified under individual compounds concerning matters related to the 2016 JMPR (e.g. GAP, residue evaluation, intake assessment, etc.) on specific pesticide/commodity(ies) to be considered by 2016 JMPR, including submission of concern forms together with necessary data, are invited to send information or data **before 30 June 2016** to:

- Yong Zhen YANG, FAO JMPR Secretary, E-mail: YongZhen.Yang@fao.org;
- Philippe VERGER, WHO JMPR Secretary, E-mail: vergerp@who.int;
- CCPR Secretariat, Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA), E-mail: ccpr@agri.gov.cn; and
- Codex Secretariat, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, E-mail: codex@fao.org

Governments and observer international organizations (sponsors) specified under individual compounds in REP16/PR, Appendix XII concerning matters related to the future JMPR meetings (GAPs, residue evaluation, intake assessment, etc.) on specific pesticide/commodity(ies) to be considered at subsequent years by JMPR, are invited to send information or data **one year before** JMPR considers these compounds at the addresses indicated above.

SUMMARY AND CONCLUSIONS

The 48th Session of the Codex Committee on Pesticide Residues reached the following conclusions:

MATTERS FOR ADOPTION BY THE 39TH SESSION OF THE COMMISSION

Proposed draft standards and related texts

- Proposed draft MRLs for pesticide at Step 5/8 (with omission of Steps 6/7) (para 113. Appendix II);
- Proposed draft revision of the *Classification of Food and Feed*: Selected commodity groups - Group 021 Grasses of cereal grains at Step 5 (para 141, Appendix X);
- Proposed draft Guidelines for performance criteria for methods of analysis for the determination of pesticide residues at Step 5 (para 163, Appendix XI).

Other matters for adoption / approval

- Maximum residue limits for pesticides recommended for revocation (para 113, Appendix III);
- Codex schedules and priority list of pesticides for evaluation by JMPR (para 182, Appendix XII).

MATTERS OF INTEREST TO THE COMMISSION

The Committee:

- noted matters referred to the Committee by the Commission and its subsidiary bodies and confirmed that guidance provided in the Procedural Manual and in the *Risk Analysis principles applied by the Codex Committee on Pesticide Residues* were sufficient to ensure transparent and efficient work management and therefore no additional guidance was needed (para 9);
- agreed to retain several draft and proposed draft MRLs for pesticides awaiting for JMPR evaluations (para 114, Appendices IV and V);
- agreed to withdraw several draft and proposed draft MRLs for pesticides in view of the advancement of corresponding MRLs to the Commission for adoption (para 114, Appendix VI);
- agreed to hold Group 011 - Fruiting vegetables, cucurbits, Group 015 – Pulses, Group 014 – Legume vegetables pending finalization of the *Classification of Food and Feed* in relation to the vegetable commodity groups at its next session (paras 126 and 134, Appendices VII, VIII and IX);
- agreed to further consider crop grouping for Group 021 Grasses for sugars or syrup production and Group 024 Seeds for beverages and sweets at its next session as part of the ongoing revision of the *Classification of Food and Feed* (paras 145 and 150);
- agreed to continue to work on examples of selection of representative commodities for vegetable and other commodity groups in parallel with the revision of the *Classification of Food and Feed* for inclusion in the *Principles and Guidance for the Selection of Representative Commodities for the Extrapolation of Maximum Residue Limits for Pesticides to Commodity Groups* (para 157);
- agreed to consider advantanges and challengues that might arise from the possible revision of the IESTI equations and the impact on risk management, risk communication, consumer protection goals and trade at its next session (para 193).

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LIST OF ABBREVIATIONS

ADI	Acceptable Daily Intake
ALINA	The Latinamerican Association of the National Agrochemical Industries
ARfD	Acute Reference Dose
AU	African Union
CAC	Codex Alimentarius Commission
CCMAS	Codex Committees on Methods of Analysis and Sampling
CCPR	Codex Committee on Pesticide Residues
CCRVDF	Codex Committee on Residues of Veterinary Drugs in Foods
CLI	CropLife International
CRD	Conference Room Document
CXL	Codex Maximum Residue Limit for Pesticide
DIE	Daily Intake Estimate
EFSA	European Food Safety Authority
EHC	Environmental Health Criteria
EMRL	Extraneous Maximum Residue Limit
EU	European Union
EWG	Electronic Working Group
FAO	Food and Agricultural Organization of the United Nations
GAP	Good Agricultural Practice (in the use of pesticides)
GEMS/Food	Global Environment Monitoring System - Food Contamination Monitoring and Assessment Programme
GLP	Good laboratory practices
HR	Highest residue in edible portion of a commodity found in trials used to estimate a maximum residue level of pesticide(s) in the commodity
IAEA	International Atomic Energy Agency
IEDI	International Estimated Daily Intake
IESTI	International Estimated of Short-Term Intake
IGG	FAO Intergovernmental Group (IGG) on Tea
JECFA	Joint FAO/WHO Expert Committee on Food Additives
JMPR	Joint FAO/WHO Meeting on Pesticide Residues
LOQ	Limit of Quantification

MRL	Maximum Residue Limit
OECD	Organization for Economic Co-operation and Development
PAD	Pesticide Attributes Database
PWG	Physical Working Group
RIVM	National Institute for Public Health and the Environment
STMR	Supervised Trial Median Residues
TDI	Tolerable Daily Intake
TTC	Threshold of Toxicological Concern
USA	United States of America
WG	Working group
WHO	World Health Organization
WTO	World Trade Organization

INTRODUCTION

1. The 48th Session of the Codex Committee on Pesticide Residues (CCPR) was held in Chongqing, China, from 25 – 30 April 2016 at the kind invitation of the Government of China. Professor Xiongwu QIAO, Director of the Shanxi Academy of Agricultural Science chaired the Session, assisted by Dr Guibiao YE, Director of CCPR Secretariat, Institute for Control of Agrochemicals, Ministry of Agriculture of the People's Republic of China. Representatives from 49 Member countries, one Member organisation, nine international organisations attended the Session. The list of participants, including FAO, WHO, the CCPR and Codex Secretariats is attached as Appendix I.

OPENING OF THE SESSION

2. Mr Zhonghua SUN, General Agronomist, Ministry of Agriculture of the People's Republic of China, opened the session. In his remarks, Mr SUN informed the Committee that China in 2015 had released a revised food safety law with stricter standards and penalty and accountability systems; the law had come into force in October 2015. China had also launched in 2015 a five-year programme for the use of pesticides with a target of zero growth in the use of agriculture chemicals by 2020. China was improving the safety and quality of the agro and food production, developing MRLs for pesticides and planning to harmonise with Codex by 2020. In closing, Mr SUN reiterated China's commitment to actively participate in Codex and support the work of CCPR.

3. Mr Qiang LIU, Vice Major of Chongqing, welcomed the participants and noted the important economic growth, including the IT and agriculture sector, of Chongqing Municipality in recent years. Efforts were underway to improve the efficiency of the agriculture sector and modernise agriculture production. The Municipality was committed to ensuring the production of safe and quality food products according to standards and to reducing the use of pesticides.

4. Dr Percy Wachata MISIKA, FAO Representative in China, also addressed the Committee on behalf of FAO and WHO and thanked China for hosting CCPR. The FAO Representative drew the Committee's attention to the UN Sustainable Development Goals (SDGs) and noted the contribution of Codex work to Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture and Goal 3: Ensure healthy lives and promote well-being for all at all ages. Dr Misika also highlighted the contribution of FAO and WHO to Codex work, in particular the scientific advice of JMPR, and confirmed the continued support of the two organizations to Codex.

Division of Competence[1]

5. The Committee noted the division of competence between the European Union and its Member States, according to paragraph 5, Rule II of the Procedure of the Codex Alimentarius Commission.

ADOPTION OF THE PROVISIONAL AGENDA (Agenda Item 1)[2]

6. The Committee adopted the Provisional Agenda and agreed to:

i. Consider under Agenda Item 11:

- Revisiting the IESTI equations – proposed by EU and Australia;
- Emerging Issues: A proposed risk management approach to address detection in food of chemicals of very low public health concern – proposed by New Zealand;
- Guidance document on risk assessment using brew factor for the establishment of MRLs for pesticides in tea - proposed by India.

ii. Establish an in-session WG chaired by USA and co-chaired by China and India to address comments submitted on the Guidance on performance criteria for methods of analysis for the determination of pesticide residues in order to prepare a revised version for consideration by the plenary.

APPOINTMENT OF RAPPORTEURS (Agenda Item 2)

7. The Committee appointed Mr David LUNN (New Zealand) and Mr Kevin BODNARUK (Australia) to act as rapporteurs.

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1 CRD1.
2 CX/PR 16/48/1.

MATTERS REFERRED TO THE COMMITTEE BY THE CODEX ALIMENTARIUS COMMISSION AND/OR OTHER SUBSIDIARY BODIES (Agenda Item 3)[3]

8. The Committee noted that matters referred from CAC38 (2015) were for information only.

Work management

9. The Committee confirmed that guidance provided in the Procedural Manual and in the *Risk Analysis Principles applied by the Codex Committee on Pesticide Residues* were sufficient to ensure transparent and efficient work management and therefore no additional guidance was needed.

MATTERS OF INTEREST ARISING FROM FAO AND WHO (Agenda Item 4a)[4]

Feedback from JECFA81 (2015)

10. The WHO Representative noted relevant considerations for CCPR arising from JECFA regarding:

- Coordination of the priorities to be assigned to JECFA and JMPR for substances that are used both as pesticides and as veterinary drugs; and
- Development of an approach for long-term dietary exposure assessment of compounds used for multiple purposes (i.e. veterinary drugs and pesticides).

11. The WHO Representative also informed the Committee of the decisions of JECFA concerning: teflubenzuron, for which had established an ADI of 0–0.005 mg/kg bw for teflubenzuron (half of the value established for this insecticide by the 1994 JMPR); and diflubenzuron, for which was not able to propose health based guidance value or MRLs for (insecticide last evaluated by the 2001 JMPR) due to the absence of adequate information on exposure to 4-chloroaniline (PCA), a genotoxic and carcinogenic metabolite and/or degradate of diflubenzuron.

Review of the WHO guidelines for drinking-water quality

12. The WHO Representative also informed CCPR that the new studies on acute toxicity of bentazone identified by the experts of WHO Guidelines for Drinking-water Quality had not yet been submitted to JMPR following the 2016 call for data. The sponsor of this compound agreed to submit the two studies for evaluation by the 2016 JMPR.

Report of the WHO Expert Task Force on Diazinon, Glyphosate and Malathion

13. The WHO Representative further informed CCPR that a meeting of JMPR would take place in May 2016 to re-evaluate these compounds. The re-evaluation should consider all end-points, including carcinogenicity. In accordance with its mandate and expertise, the work of JMPR should focus on exposure from residues in food.

MATTERS OF INTEREST ARISING FROM OTHER INTERNATIONAL ORGANISATIONS (Agenda Item 4b)[5]

Organisation for Economic Cooperation and Development (OECD)

14. The Committee noted information provided by OECD relevant to the work of CCPR.

Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture

15. The Representative of the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture reported on the division's projects relevant to the work of CCPR. In addition to the research and capacity building activities detailed in CX/PR 16/48/4, the Representative highlighted the response of the Joint FAO/IAEA Division to a request from the Republic of the Marshall Islands for urgent assistance in mitigating toxic chemical residues in foods and developing a food safety programme in their country.

16. Several delegations expressed support for the work of the Joint Division and stressed on the need for additional resources to be dedicated to capacity building activities in developing countries.

17. The Committee concurred and thanked the Joint Division for their excellent work in building much needed food safety monitoring capacity in developing countries and for their contribution to the work of CCPR.

Other

18. The Delegation of Australia drew the attention of the Committee on the capacity building activities within the framework of APEC related to the harmonisation of MRLs for pesticides in the Asia-Pacific region as detailed in CRD28.

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3 CX/PR 16/48/2; Comments of Kenya and AU (CRD4); Mali (CRD13).
4 CX/PR 16/48/3; Comments of Kenya and AU (CRD5); Mali (CRD13).
5 CX/PR 16/48/4; Comments of Kenya and AU (CRD5); Australia (CRD28).

REPORT ON ITEMS OF GENERAL CONSIDERATION BY THE 2015 JMPR (Agenda Item 5a)[6]

19. The Committee noted the information contained in Section 2 of the 2015 JMPR Report and the support of Codex members for such activities as follows:

Item 2.1 EFSA workshop, co-sponsored by WHO and FAO, revisiting the IESTI equations

20. A scientific workshop co-sponsored by FAO and WHO was organised by EFSA and RIVM to discuss the methodology used to estimate the short-term dietary exposure for compounds having an ARfD. The workshop identified several elements, which could improve the scientific basis for the IESTI equations for further consideration by JMPR. The workshop also made other recommendations related to risk management and risk communication for consideration by CCPR.

Item 2.2 Shorter than lifetime exposure

21. Besides the model to assess dietary exposure on a single day or a single eating occasion (IESTI), the JMPR was estimating the long-term dietary exposure (IEDI) based on multi-annual consumption data averaged over the whole population to capture the per capita dietary pattern over a lifetime. The JMPR noted that adverse effects considered for establishing the ADIs could occur over a wide exposure duration range. It would therefore be necessary to develop an additional model to cover dietary exposure longer than one day and shorter than life-time. FAO and WHO had established an expert working group to develop such model.

Item 2.3 Update on the revision of Principles and methods for risk assessment of chemicals in food (EHC 240) EFSA

22. The JMPR recommended FAO and WHO to revise the EHC 240 to take account of recent developments on risk assessment methodologies.

Item 2.4 A Report on the Joint expert meeting on hazards associated with animal feed

23. The FAO and WHO Joint Expert Meeting recommended CCPR and Codex members to establish MRLs for pesticides of concern in feed and encouraged countries to submit data and processing studies for the development of MRLs for feed (e.g. biofuel by products).

Item 2.5 Minimum number of supervised field trials for MRL setting for minor crops

24. The Committee noted that JMPR would start using the CCPR guidance on the minimum number of supervised field trials for setting MRLs for minor crops from the 2016 JMPR meeting and that on a case-by-case basis, fewer trials might be acceptable.

25. The Committee agreed to consider the possibility for an interim transition period prior to the application of CCPR guidance under Agenda Item 10.

Item 2.6 Revision of the FAO manual on the submission and evaluation of pesticide residue data for the estimation of maximum residue levels in food and feed

26. The Committee noted that the FAO manual had been recently revised. The JMPR Secretariat clarified that the principles incorporated in the revised manual were the current JMPR working procedures, which were regularly presented to CCPR as items of general considerations by JMPR. The publication of the manual was to assist in the systematic application of these principles by and to ensure transparency in the work of JMPR.

REPORT ON 2015 JMPR RESPONSES TO SPECIFIC CONCERNS RAISED BY CCPR (Agenda Item 5b)[7]

27. The Committee noted that specific concerns raised by CCPR would be addressed when discussing the relevant compounds under Agenda Item 6.

DRAFT AND PROPOSED DRAFT MAXIMUM RESIDUE LIMITS FOR PESTICIDES IN FOOD AND FEED AT STEPS 7 AND 4 (Agenda Item 6)[8]

General remarks

28. The Delegation of EU explained to the Committee that it was current EU policy to align EU MRLs with Codex MRLs (CXLs) if three conditions are fulfilled: (i) that the EU sets MRLs for the commodity under consideration; (ii) that the current EU MRL is lower than the CXL; and (iii) that the CXL is acceptable to the EU with respect to areas such as consumer protection, supporting data, and extrapolations.

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6 Section 2 of the 2015 JMPR Report; Comments of China, EU, Ghana, AU (CRD6); Mali (CRD13); CropLife (CRD15)
7 Section 3 of the 2015 JMPR Report; Comments of China, EU, AU (CRD7); Mali (CRD13).
8 CX/PR 16/48/5; Comments of Australia, Canada (CX/PR 16/48/5-Add.1); China, EU, Ghana, Japan, Paraguay, AU (CRD8); Mali (CRD13).

29. In the interest of transparency the Delegation advised the Committee that they would be making reservations during the discussions on the individual compounds where they considered the third criterion had not been met (CRD7 and CRD8).

30. The Delegation of Norway advised the Committee that they supported all EU reservations as their residue risk assessment approach was the same as that of the EU.

31. The Committee agreed that these reservations, where relevant, would be noted in the report.

32. The Delegation of EU informed the Committee that they were conducting a study on the relevance of triazole derivative metabolites and that their position with respect to MRLs for triazole compounds might change, depending upon the outcome of this work.

33. The Committee made several editorial changes to the proposed draft and draft MRLs under consideration and clarified the descriptors for plums and prunes namely: plums (including fresh prunes) (includes all commodities in this subgroup) (FS 0014) and prunes, dried (DF 0014).

LINDANE (48)

34. The Committee agreed to advance the proposed draft EMRLs for adoption at Step 5/8. The Committee also decided to withdraw all CXLs as recommended by the 2015 JMPR.

METHIDATHION (51)

35. The JMPR Secretariat confirmed the public health concern raised by CCPR47 based on current CXLs the acute dietary exposure would be 10 times above the ARfD.

36. The Committee agreed to keep this compound in the list of pesticides, wait for data on peach and mango submission to the 2020 JMPR, and agreed to consider withdrawing all existing CXLs at CCPR49 (2017).

CHLOROTHALONIL (81)

37. The Committee noted the reservations of the Delegations of EU and Norway on the advancement of the proposed draft MRLs for cherries (includes all commodities in this subgroup); ginseng, dried, including red ginseng; horseradish; onion, bulb; peaches (including nectarine and apricots) (includes all commodities in this subgroup); peppers; pistachio nuts; rhubarb; root and tuber vegetables; and shallot as they consider separate MRLs for the SDS-3701 metabolite are needed for plant commodities.

38. The Committee agreed to advance all the proposed draft MRLs for adoption at Step 5/8, with the subsequent revocation of the associated CXLs as recommended by the 2015 JMPR.

39. The Committee agreed to maintain the CXL for cranberry, until the submission of data for evaluation by the 2018 JMPR.

ETHEPHON (106)

40. The Committee noted the reservation of the Delegations of EU and Norway on the advancement of the proposed draft MRLs for barley; rye; and wheat (due to their different residue definition for cereal commodities) and for figs (insufficient residue data set).

41. The Committee agreed to advance all proposed draft MRLs for adoption at Step 5/8, with the subsequent revocation of the associated CXLs, as recommended by the 2015 JMPR.

PHORATE (112)

42. The Committee agreed to advance the proposed draft MRLs for adoption at Step 5/8, with the subsequent revocation of the associated CXLs, as recommended by the 2015 JMPR.

CYPERMETHRINS (118)

43. The Committee decided to advance the proposed draft MRL for cardamom seed for adoption at Step 5/8, as recommended by the 2015 JMPR.

TRIAZOPHOS (143)

44. The Committee agreed to advance all the proposed draft MRLs to Step 5/8, with the subsequent revocation of the associated CXL, as recommended by the 2015 JMPR.

CYHALOTHRIN (includes lambda-cyhalothrin) (146)

45. The Committee noted that the Delegation of EU commented that toxicological information available for a recent EU assessment had not been available for JMPR, and encouraged the manufacturer to submit the relevant data for evaluation by JMPR.

46. The Committee agreed to advance all the proposed draft MRLs to Step 5/8, with the subsequent revocation of the associated CXLs, as recommended by the 2015 JMPR.

PROPICONAZOLE (160)

47. The Committee noted the general reservation expressed by the Delegations of EU and Norway, pending the outcome of their review of triazole metabolites.

48. The Delegation of Japan asked the JMPR Secretariat how the dietary exposure to the common metabolites derived from different triazole-containing pesticides is assessed. The JMPR Secretariat responded that the method to estimate combined exposure to multiple residue with a similar health endpoint is not in place in JMPR.

49. The Committee agreed to advance all the proposed draft MRLs to Step 5/8, with the subsequent revocation of the associated CXLs, as recommended by the 2015 JMPR.

PROFENOFOS (171)

50. The Committee agreed to advance all the proposed draft MRLs to Step 5/8, with the subsequent revocation of the associated CXLs, as recommended by the 2015 JMPR.

BENTAZONE (172)

51. The Committee noted that data on field peas would be available for evaluation by the 2018 JMPR.

BUPROFEZIN (173)

52. The Committee noted that the Delegations of EU and Norway confirmed its 2015 reservation to the advancement of the proposed draft MRL for coffee beans due to toxic metabolite aniline.

53. The JMPR Secretariat responded that aniline can occur naturally in some foods and may also originate from many chemicals, it should be considered as a contaminant. JMPR recommended that the JECFA Secretariat place aniline on the agenda for an evaluation to both characterise hazard and estimate exposure from the diet, including exposure from the use of pesticides.

ABAMECTIN (177)

54. The Committee noted the short-term intake concern identified by the 2015 JMPR, and agreed to maintain the draft MRL for spinach at Step 4, awaiting advice on the availability of alternative GAP information.

55. The Committee noted that the Delegations of EU and Norway expressed general reservation on the advancement of all proposed draft MRLs due to a different residue definition for enforcement.

56. The Committee agreed to advance all the proposed draft MRLs to Step 5/8, followed by the subsequent revocation of the associated CXLs, as recommended by the 2015 JMPR.

57. The Committee also decided to withdraw the CXLs for cattle fat; cattle kidney; cattle liver; cattle meat; cattle milk; goat meat; goat milk; goat, edible offal of; lettuce, leaf; squash, summer and watermelon as recommended by 2015 JMPR.

BIFENTHRIN (178)

58. The Committee agreed to advance the proposed draft MRLs for blueberries; grapes; peas (pods and succulent=immature seeds) and peas, shelled (succulent seeds) for adoption at Step 5/8, and to retain the proposed draft MRLs for strawberry; celery and lettuce, head at Step 4 (in light of acute intake risk identified by the 2015 JMPR) and await an alternative GAP for review by the 2017 JMPR.

59. The Committee noted that the draft MRLs for mango; okra and papaya were retained at Step 7, awaiting the 2017 JMPR review of new data submitted by Kenya.

60. The Committee agreed to retain the existing CXLs for barley and barley straw and fodder, dry, awaiting the outcome of the 2018 JMPR.

DITHIANON (180)

61. The Committee agreed to revoke the CXLs for mandarin and pummelo and grapefruits (including shaddock-like hybrids, among others grapefruit) as recommended by the 2013 JMPR.

PENCONAZOLE (182)

62. The Committee noted that a revised ADI of 0-0.03 mg/kg bw and an ARfD of 0.8 mg/kg bw had been established by the 2015 JMPR.

63. The Delegations of EU and Norway informed the Committee of their general reservation on this compound, pending the outcome of their evaluation of triazole derivative metabolites.

FENPROPATHRIN (185)

64. The Committee agreed to withdraw the proposed draft MRLs for cherries (includes all commodities in this subgroup); peaches (including nectarine and apricots) (includes all commodities in this subgroup) and pome fruits and to recommend revocation of the existing CXL for pome fruits, because no alternative GAP was available to resolve the short-term intake concerns for these commodities.

TEBUCONAZOLE (189)

65. The Delegations of EU and Norway expressed a reservation on the advancement of the proposed draft MRL for sunflower seed because the OECD calculator suggested a lower level.

66. The JMPR Secretariat responded that the higher MRL recommendation took account of the higher uncertainty associated with a small data set.

67. The Committee agreed to advance all the proposed draft MRLs for adoption to Step 5/8 as recommended by the 2015 JMPR, with the subsequent revocation of the associated CXLs for banana; cucumber and onion, bulb.

68. The Committee maintained the draft MRL for common bean (pods and/or immature seeds) at Step 7, until the 2017 JMPR evaluation of data from Kenya.

IMIDACLOPRID (206)

69. The Delegations of EU and Norway reserved their position on the advancement of all proposed draft MRLs pending the outcome of their ongoing review of this compound. And also informed the Committee of their acute intake concern with respect to the proposed draft MRL for kale, noting that this concern was based on their lower ARfD and higher variability factor.

70. The Committee agreed to advance all the proposed draft MRLs for adoption to Step 5/8, with the subsequent revocation of the associated CXLs as recommended by the 2015 JMPR.

CYPRODINIL (207)

71. The Committee agreed to advance the proposed draft MRL for rape seed for adoption at Step 5/8 as recommended by the 2015 JMPR.

TRIFLOXYSTROBIN (213)

72. The Committee agreed to advance all the proposed draft MRLs for adoption at Step 5/8 as recommended by the 2015 JMPR.

DIFENOCONAZOLE (224)

73. The Committee agreed to advance all proposed draft MRLs for adoption at Step 5/8, with the subsequent revocation of the associated CXLs, as recommended by the 2015 JMPR.

DIMETHOMORPH (225)

74. The Committee agreed to retain the proposed draft MRL for lettuce, leaf at Step 4, and await the outcome of the 2016 JMPR alternative GAP evaluation.

PYRIMETHANIL (226)

75. The Committee agreed to advance the proposed draft MRLs for blackberries; blueberries; cucumber and raspberries, red, black for adoption at Step 5/8 as recommended by the 2015 JMPR.

SPIROTETRAMAT (234)

76. The Committee agreed to advance the proposed draft MRLs for avocado; guava and sweet corn for adoption at Step 5/8 as recommended by the 2015 JMPR.

77. The Delegations of EU and Norway expressed a reservation on the advancement of all proposed draft MRLs pending the outcome of their review of the residue definition for this compound.

FLUOPYRAM (243)

78. The Committee agreed to hold the proposed draft MRLs for peppers and peppers chilli, dried at Step 4, awaiting the outcome of the 2017 JMPR evaluation.

79. The Committee agreed to advance all other proposed draft MRLs for adoption at Step 5/8, and to recommend revocation of the associated CLXs.

80. The Committee agreed to revoke the existing CXLs for eggs; kidney of cattle, goats, pigs and sheep; liver of cattle, goats, pigs and sheep; meat (from mammals other than marine mammals); milks; poultry meat and poultry, edible offal of.

ACETAMIPRID (246)

81. The Committee noted the acute intake concern expressed by the 2015 JMPR for mustard green and agreed to advance the proposed draft MRL to Step 4, awaiting the evaluation of alternative GAP by the 2017 JMPR.

82. The Committee agreed to advance all other proposed draft MRLs for adoption at Step 5/8.

FLUTRIAFOL (248)

83. The Committee noted the reservations of the Delegations of EU and Norway on the advancement of the proposed draft MRLs for brassica vegetables and celery (acute intake concern); cucurbits, peppers and pome fruit (residue data assessment, pooling and extrapolation) and animal commodities (livestock dietary burden calculation).

84. The Committee agreed to withdraw the proposed draft MRLs for lettuce, leaf; mustard greens; and spinach, in light of acute intake risks identified by the 2015 JMPR.

85. The Committee agreed to advance the remaining proposed draft MRLs for adoption at Step 5/8, with the subsequent revocation of the associated CXLs.

FLUXAPYROXAD (256)

86. The Committee noted the reservations of the Delegations of EU and Norway on the advancement of proposed draft MRLs for celery (acute intake concern); banana; berries and other small fruits (except grapes), brassica vegetables; brassica leafy vegetables; carrot; fruiting vegetables, cucurbits; garlic; onion, bulb; oranges, sweet, sour; parsnip; and shallot (different methodology on residue data extrapolation, pooling, trial numbers); rice (processing factor) and different policy for acute exposure estimation.

87. The Committee agreed to withdraw the proposed draft MRL for spinach, in light of acute intake risks identified by the 2015 JMPR.

88. The Committee agreed to advance all remaining draft MRLs for adoption at Step 5/8, with the subsequent revocation of the associated CXLs.

CYANTRANILIPROLE (263)

89. The Committee noted the reservation of the Delegations of EU and Norway on the advancement of the proposed draft MRLs for milk (long term intake risk) and cotton seed, rapeseed, sunflower seed (inclusion of outliers in residue data set). The JMPR Secretariat responded that the JMPR policy is to consider outliers if there are valid reasons for excluding the result. In this case, no valid reason was identified.

90. The Committee agreed to advance all draft MRLs for adoption at Step 5/8, with the subsequent revocation of the associated CXLs.

IMAZAPIC (266)

91. The Committee agreed to advance the proposed draft MRL for soya bean (dry) to Step 5/8.

IMAZAPYR (267)

92. The Committee agreed to advance all the proposed draft MRLs to Step 5/8, with the subsequent revocation of the associated CXLs.

IMAZAMOX (276)

93. In response to the concern from the Delegation of USA on the need to establish ARfD, the JMPR Secretariat explained that the ARfD of 3 mg/kg bw was based on malformations observed in a developmental toxicology study. This effect was considered relevant for acute toxicity and therefore JMPR reaffirmed its conclusions.

ACETOCHLOR (280)

94. The Committee noted that the Delegations of EU and Norway expressed a general reservation on the advancement of all proposed draft MRLs due to their different interpretation of the toxicology (genotoxicity) studies.

95. In response to the genotoxicity of metabolites, the JMPR Secretariat explained that they would raise this issue for further discussion, and seek agreement on a robust indicator of genotoxicity among authorities. The JMPR Secretariat added that JMPR has developed draft guidance to evaluate genotoxicity, which might be adopted in the 2016 JMPR meeting.

96. The Committee agreed to advance all the proposed draft MRLs for adoption at Step 5/8.

97. The Committee noted that the Delegation of USA had submitted a concern form requesting a review of the soya bean MRL decision and that this would be reconsidered by the 2016 JMPR.

CYAZOFAMID (281)

98. The Delegations of EU and Norway advised the Committee that this compound is under evaluation in the EU and expressed a reservation on the advancement of all proposed draft MRLs, pending the outcome of their evaluation.

99. The Committee agreed to advance all the proposed draft MRLs for adoption at Step 5/8.

FLONICAMID (282)

100. The JMPR Secretariat advised the Committee that the livestock dietary burden for flonicamid would be reviewed by the 2016 JMPR and the Committee agreed to hold the proposed draft MRLs for commodities of animal origin and for animal feed (and associated) commodities at Step 4 and to advance all other proposed draft MRLs to Step 5/8.

101. The Delegations of EU and Norway expressed a reservation on the advancement of all the proposed draft MRLs for plant commodities due to their different residue definition.

102. The Committee noted that the Delegation of USA had submitted a concern form requesting a review of the JMPR decision on MRLs for cucurbits based upon the green house cucumber data. The JMPR Secretariat clarified that with the current principle JMPR was not able to make an estimation on MRLs for cucurbits but that the 2016 JMPR would provide a reply to the concern form for consideration by CCPR49.

FLUAZIFOP-P-BUTYL (283)

103. The JMPR Secretariat informed the Committee that the toxicological evaluation had been postponed due to an incomplete data package.

FLUMIOXAZIN (284)

104. The Delegations of EU and Norway advised that this compound was under re-evaluation in the EU and they expressed a reservation on the advancement of the proposed draft MRLs pending the outcome of this re-evaluation.

105. The Committee agreed to advance all the proposed draft MRLs for adoption at Step 5/8 as recommended by the 2015 JMPR.

FLUPYRADIFURONE (285)

106. The Committee noted the ADI of 0-0.08 mg/kg bw and ARfD of 0.2 mg/kg bw proposed by the 2015 JMPR.

LUFENURON (286)

107. The Delegations of EU and Norway expressed a reservation on the advancement of the proposed draft MRLs due to potential chronic risk concern for European consumers.

108. The Committee agreed to advance all the proposed draft MRLs for adoption at Step 5/8 as recommended by the 2015 JMPR.

QUINCLORAC (287)

109. The Committee agreed to advance the proposed draft MRLs (cranberry, rhubarb) for adoption at Step 5/8 as recommended by the 2015 JMPR 2015.

110. The Delegations of EU and Norway expressed a reservation on the advancement of these proposed draft MRLs because the more toxic metabolite was not included in the JMPR residue definition.

111. The Delegation of USA supported the JMPR, parent only residue definition as the metabolite was only a small proportion of the total residue and not found in the mature crop. The Delegation also stated that they believed the parent compound served as an adequate marker and requested the Delegation of EU to consider withdrawing its reservation.

REMOVAL OF COMPOUNDS FROM THE CODEX PESTICIDE LIST

112. The Committee agreed to revoke all the existing CXLs related to Dichlofluanid (82); Bioresmethrin (93); Tecnazene (115) and Tolylfluanid (162) as the compounds were not supported and no authorised uses have been notified to the Committee. The compounds would also be removed from the pesticide list.

STATUS OF THE MAXIMUM RESIDUE LIMITS FOR PESTICIDES

113. The Committee agreed to forward to CAC39 (2016):

- Proposed draft MRLs for adoption at Steps 5/8 (Appendix II).
- Codex MRLs (CXLs) for revocation (Appendix III).

114. The Committee noted that:

- Draft and proposed draft MRLs retained at Steps 7 and 4 are attached as Appendices IV and V.
- Draft and proposed draft MRLs withdrawn are attached as Appendix VI.

DISCUSSION PAPER ON THE IMPACT OF THE RELOCATION OF *VIGNA* SPP. UNDER THE BEANS ON THE CXLS FOR PEAS (Agenda Item 7)[9]

115. The Delegation of Thailand introduced the item and summarised the main findings in CX/PR 16/48/6 on the impact of the relocation of *Vigna* spp. from the peas to the beans group on the CXLs for *Vigna* spp. and drew the attention of the Committee to the recommendations in paragraph 14 of the discussion paper.

Discussion

116. The Committee noted general agreement on Recommendation 1 related to the extrapolation and application of the CXLs of *Phaseolus* spp. to *Vigna* spp. to both immature and dry beans.

117. The Committee however recognised that the Recommendation 2 was not necessary and agreed to retain two separate codes for *Phaseolus* spp. and *Vigna* spp. as currently proposed in the revised Groups 014 and 015 (See Agenda Items 8(a)-(b)).

118. The Committee recognised that this would allow the carry-over of CXLs currently available for *Vigna* spp. under the peas group thereby avoiding potential trade disruptions. It was recognised that the transfer of *Vigna* spp. to the beans group could in some cases decrease or increase the CXLs. This situation was considered acceptable as a transitional step until such time as JMPR assessed the compounds as per the agreed priority schedule.

119. The Committee recalled that this decision was consistent with the decision taken when finalizing the fruit commodity groups i.e. no changes would be made to existing CXLs until such time as JMPR reviews were completed as per current procedures for the establishment of Codex schedules and priority list of pesticides. The Committee agreed that the same approach would be taken when reviewing other commodity groups in the database following the adoption of revised commodity groups in the Classification.

120. The Committee further noted a comment from a delegation that it was necessary to compare GAPs and pesticide residue levels after pesticide uses following the same the GAP between mature and immature beans of *Phaesouleus* spp. and those of *Vigna* spp.

Conclusion

121. The Committee agreed to apply the CXLs from peas to *Vigna* spp until such time as JMPR assess the compound as per the agreed priority schedule and to retain two separate codes for both commodities to allow availability of CXLs for *Vigna* spp. The Committee also agreed on the extrapolation of MRLs of *Phsaesoleus* spp. to *Vigna* spp.

DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED* AT STEP 7: SELECTED VEGETABLE COMMODITY GROUPS (GROUP 015 - PULSES) (Agenda Item 8a)[10]

PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED* AT STEP 4: SELECTED VEGETABLE COMMODITY GROUPS – GROUP 014 LEGUME VEGETABLES (Agenda Item 8b)[11]

122. The Delegation of USA, as Chair of the EWG, introduced the item and explained that the EWG had considered the pending issues identified by CCPR47 (2015) related to this group. The Delegation referred to CRD24, which contained revised Groups 014 and 015 which was based on the crop grouping agreed to by CCPR47 as described in CX/PR 16/48/7. The revision included proposals for inclusion of commodities as contained in written comments submitted to this session and editorial amendments to ensure consistency in the terminology applied to the group, subgroups and commodities.

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9 CX/PR 16/48/6; Comments of China, Colombia, Costa Rica, El Salvador, EU, Ghana, Kenya, Paraguay, Uruguay, USA, AU (CRD9); Mali (CRD13); Republic of Korea (CRD18); Japan (CRD19).

10 REP15/PR-Appendix IX; CX/PR 16/48/7; Comments of Australia, Canada, Chile, El Salvador, EU, Kenya, Thailand, USA, AU (CX/PR 16/48/7-Add.1); China, Colombia, Costa Rica, El Salvador, EU, Ghana, Kenya, Paraguay, Uruguay, USA, AU (CRD9); Mali (CRD13); Morocco (CRD17); Japan (CRD19); Ecuador (CRD22); Group 014 Legume vegetables and Group 015 Pulses as revised by the Chair and Co-Chair of the EWG on the Classification (CRD24).

11 REP15/PR-Appendix X; CX/PR 16/48/7; Comments of Australia, Canada, Chile, El Salvador, EU, Kenya, Thailand, USA, AU (CX/PR 16/48/7-Add.1); China, Colombia, Costa Rica, El Salvador, EU, Ghana, Kenya, Paraguay, Uruguay, USA, AU (CRD9); Mali (CRD13); Morocco (CRD17); Japan (CRD19); Ecuador (CRD22); Group 014 Legume vegetables and Group 015 Pulses as revised by the Chair and Co-Chair of the EWG on the Classification (CRD24).

123. The Delegation noted that following conclusion on the issue of the codes for *Phaseolus* spp. and *Vigna* spp. (see Agenda Item 7) the only remaining issue was the allocation of certain groundnuts under a separate subgroup 015C and 014E to better reflect the criteria for crop grouping in the Classification.

Discussion

124. The Committee noted general agreement for the inclusion of groundnuts into two separate subgroups under Groups 014 and 015 as presented in CRD24. In addition, the Committee agreed on a number of editorial changes and inclusion of additional commodities.

Conclusion

125. The Committee agreed to include a separate subgroup 014E and 015C to accommodate underground beans and peas (immature and dry) and to keep two separate codes for *Phaseolus* spp. and *Vigna* spp. to facilitate allocation of CXLs for *Vigna* spp. until such time as JMPR revises the CXLs for *Vigna* spp. under the beans group.

STATUS OF THE DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED VEGETABLE COMMODITY GROUPS (GROUP 015 – PULSES) AND PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED VEGETABLE COMMODITY GROUPS (GROUP 014 – LEGUME VEGETABLES)

126. The Committee agreed to retain the draft revision of Group 015 and the proposed draft revision of Group 014 at Steps 7 and 4 respectively awaiting final compilation of all vegetable commodity groups at its next session (Appendices VII and VIII).

PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED* AT STEP 4: SELECTED VEGETABLE COMMODITY GROUPS – GROUP 011 FRUITING VEGETABLES, CUCURBITS (Agenda Item 8c)[12]

127. The Delegation of USA, as Chair of the EWG, introduced the item and explained that the EWG had considered the pending issues identified by CCPR47 related to this group. The Delegation referred to CRD25, which contained a revised Group 011 - Fruiting vegetables, cucurbits for consideration by CCPR. The revised Group 011 was based on Option 3 of CX/PR 16/48/8, compromise solution reached by members of the EWG to cluster this commodity group. The revision took into account written comments submitted to this session in particular: the inclusion of provisions to address the concern regarding the different consumption patterns of winter squashes (with or without peel) to avoid underestimation of the dietary intake of pesticide residues; the inclusion of several cultivars in the different subgroups; the deletion of the commodity code VC 2682 for Korean Melon in subgroup 011B as it was unnecessary.

Discussion

128. The Committee noted that delegations generally supported Option 3. Those delegations supporting Option 1 could accept Option 3 in a spirit of compromise.

129. The Committee further noted a comment from one delegation that, while supporting Option 3, pumpkins and squashes should not be considered in this subgroup as they usually had few phytosanitary problems as opposed to melons and watermelons.

130. The Committee corrected a number of editorial inconsistencies, including commodity codes.

Conclusion

131. The Committee agreed that the revised Option 3 for crop group of fruiting vegetables, cucurbits as presented in CRD25 (with the additional editorial amendments made in plenary) addressed the comments and concerns submitted to this session and would therefore conclude the discussion of this commodity group.

132. The Committee noted that the concerns expressed on the selection of representative commodities for this group would be considered under Agenda Item 8(g).

133. The Committee further noted that, with the conclusion of Agenda Items 8(a), 8(b) and 8(c), the consideration of all vegetable commodity groups had been completed. The Committee thus agreed to request the EWG to compile all vegetable commodity groups finalised by CCPR to ensure consistency throughout the groups in order to send the entire vegetable commodity group to CAC40 (2017) for final adoption (see Terms of Reference of the EWG, paragraph 158).

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[12] CX/PR 16/48/8; Comments of Australia, Canada, Chile, El Salvador, EU, Japan, Kenya, USA, AU (CX/PR 16/48/8-Add.1); China, Colombia, Costa Rica, El Salvador, EU, Ghana, Paraguay, Uruguay (CRD10); Mali (CRD13); Morocco (CRD17); Republic of Korea (CRD18); Ecuador (CRD22); Group 011 Fruiting vegetables, cucurbits (Crop group – Option 3) as revised by the Chair and Co-Chair of the EWG on the Classification (CRD25).

STATUS OF THE PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED VEGETABLE COMMODITY GROUPS – GROUP 011, FRUITING VEGETABLES, CUCURBITS

134. The Committee agreed to retain the proposed draft revision of Group 011 at Step 4, awaiting final compilation of all vegetable commodity group at its next session (Appendix IX).

PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED COMMODITY GROUPS – GROUP 020 GRASSES OF CEREAL GRAINS (Agenda Item 8d)[13]

135. The Delegation of USA, as Chair of the EWG, introduced the item and explained that the EWG had considered the pending issues related to Group 020 identified by CCPR47. The EWG had prepared two compromise proposals as described in CX/PR 16/48/9. Both proposals addressed five subgroups and separated wheat and barley into two subgroups but mainly differed on the attribution of pseudo-cereals to specific subgroups, namely: Proposal 1 (Canada), which combined pseudo-cereals in the subgroup of wheat (020A); and Proposal 2 (Japan), which separated pseudo-cereals into the two subgroups of 020A (wheat) and 020B (barley) on the basis of whether or not the kernels were protected by husks during the growing season and whether or not the kernels were traded with husks and the impact of husks on residue levels (higher or lower residue levels depending on the presence or absence of the husk) and clarified the portion of the commodity to which the MRL applied and was analysed.

Discussion

136. Delegations in support of Proposal 1 noted that: the division into the five subgroups was a good compromise among regulatory and trade practices worldwide (e.g. MRLs usually apply to the whole grain kernel and do not distinguish between whole commodity with or without husk); the proposal acknowledged the need to keep barley and wheat separated into two different subgroups which was an important element of compromise; separating the pseudo-cereals into two subgroups could create additional difficulties for the establishment and enforcement of MRLs for these minor crops (e.g. need for more residue field trials due to different representative commodities).

137. Delegations in support of Proposal 2 noted that: the proposals also acknowledged the need to keep barley and wheat separated into two different subgroups; the proposal had the same subgroups of proposal 1 but took into account the presence of husk during the growing season or when they are distributed in trade - as this can have a significant impact on residue levels and consequently on the portion of the commodity to which the MRL applies (and is analised); residue trials data have shown that residue levels in barley are generally higher than those found in wheat when pesticides are applied in accordance to the same or similar GAP based on the presence of the husk; a similar situation could be expected in pseudo-cereals which would justify their distribution between subgroups 020A (wheat) and 020B (barley).

138. Some delegations also noted the following in relation to subgroup 20E (sweet corn cereals): there are differences between sweet corn, baby corn and corn on the cob; consideration should be given to the need to keep separate codes for these commodities; CXLs have previously been set for some of these commodities therefore existing codes previously allocated should be kept in the revised subgroup 20E to avoid problems with the CXLs.

Conclusion

139. The Committee noted that the Delegation of Canada agreed to withdraw Proposal 1 as there was greater support for Proposal 2. The Committee therefore agreed to the grouping as in Proposal 2 and noted the spirit of compromise of delegations in favour of this proposal.

140. The Committee also agreed to request the EWG to continue working on the commodities to be included in the different subgroups, with the understanding that the crop subgrouping for Group 020 would not be subject to any further discussion (see Terms of Reference of the EWG, paragraph 158).

STATUS OF THE PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED COMMODITY GROUPS – GROUP 020, GRASSES OF CEREAL GRAINS

141. The Committee agreed to forward the proposed draft revision of Group 020 to the Commission for adoption at Step 5 (Appendix X).

[13] CX/PR 16/48/9; Comments of Australia, Canada, Chile, Japan, Kenya, Thailand, USA, AU (CX/PR 16/48/9-Add.1); China, Colombia, Costa Rica, El Salvador, EU, Ghana, Paraguay, Uruguay (CRD10); Morocco (CRD17); Japan (CRD19).

PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED COMMODITY GROUPS – GROUP 021, GRASSES FOR SUGARS OR SYRUP PRODUCTION (Agenda Item 8e)[14]

142. The Delegation of USA, as Chair of the eWG, introduced the item and noted that there were proposals for inclusion of several commodities. There were also proposals for the expansion of the group to plants (other than grasses) that could also be used for the production of sugars or syrups, and for the possibility to have multiple entries for the same commodities in the different commodity groups of the Classification.

Discussion

143. Delegations noted that it was premature to consider the inclusion of additional commodities, e.g. sugar beet, or other elements, e.g. portion of the commodity to which the MRL applies (and is analysed), before agreeing on whether the group should be expanded to plants other than grasses for sugar and syrup production. In addition, it was noted that guidance was needed on the possibility of listing commodities in more than one group, as different methods of production might lead to different traded products, which in turn might require the allocation of a commodity to more than one group of the Classification.

Conclusion

144. The Committee agreed to request the EWG to look into the possible expansion and grouping of Group 021 including the possibility for multiple entries of commodities in different groups of the Classification and report back at the next session with a proposal for consideration (see Terms of Reference of the EWG, paragraph 158).

STATUS OF THE PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED COMMODITY GROUPS – GROUP 021, GRASSES FOR SUGARS OR SYRUP PRODUCTION

145. The Committee agreed to return the proposed draft revision of Group 021 to Step 2/3 for further discussion, comments and consideration by the next session of the Committee.

PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED COMMODITY GROUPS – GROUP 024, SEEDS FOR BEVERAGES AND SWEETS (Agenda Item 8f) [15]

146. The Delegation of USA, as Chair of the EWG, introduced the item and noted that there were proposals for inclusion of several commodities and for the expansion of the group to plants other than seeds that could also be used for the production of beverages or sweets, and the possibility of having multiple entries for the same commodities in different commodity groups of the Classification.

Discussion

147. A similar discussion for Group 021 occurred for Group 024 in relation to the possible expansion of the group to plants other than seeds that could also be used for the production of beverages or syrups. The Committee noted the need for guidance on the possibility of listing commodities in more than one group as different methods of production might lead to different products which might require the allocation of a commodity to more than one group of the Classification.

148. Delegations gave specific examples of a number of commodities e.g. ground nuts, soya beans, etc. that were already included in other groups of the Classification and noted that commodities originally included in this group were used after extensive processing e.g. coffee and cocoa beans, while some of the proposed commodities for inclusion in this group required limited processing e.g. basil seeds and therefore guidance was needed on how to deal with commodities that might fall into more than one commodity group.

Conclusion

149. The Committee agreed to request the EWG to explore the possible expansion and grouping of Group 024 including the possibility for multiple entries of commodities in different groups of the Classification and report back at the next session on a proposal for consideration (see Terms of Reference of the EWG, paragraph 158).

STATUS OF THE PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED COMMODITY GROUPS – GROUP 024, SEEDS FOR BEVERAGES AND SWEETS

150. The Committee agreed to return the proposed draft revision of Group 024 to Step 2/3 for further discussion, comments and consideration by the next session of the Committee.

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[14] CX/PR 16/48/10; Comments of Canada, Kenya, USA, AU (CX/PR 16/48/10-Add.1); China, Colombia, Costa Rica, El Salvador, EU, Ghana, Paraguay, Uruguay (CRD10); Mali (CRD13); Japan (CRD19).

[15] CX/PR 16/48/11; Comments of Canada, Kenya, Thailand, USA, AU (CX/PR 16/48/11-Add.1); China, Colombia, Costa Rica, El Salvador, EU, Ghana, Paraguay, Uruguay (CRD10); Mali (CRD13); China (CRD20).

PROPOSED DRAFT TABLES ON EXAMPLES OF SELECTION OF REPRESENTATIVE COMMODITIES (VEGETABLE AND OTHER COMMODITY GROUPS) FOR INCLUSION IN THE *PRINCIPLES AND GUIDANCE FOR THE SELECTION OF REPRESENTATIVE COMMODITIES FOR THE EXTRAPOLATION OF MAXIMUM RESIDUE LIMITS FOR PESTICIDES FOR COMMODITY GROUPS* (Agenda Item 8g)[16]

151. The Delegation of USA, as Chair of the EWG, introduced CRD26, which contained a proposal for changes to the examples of representative commodities related to Groups 011 Fruiting vegetables, cucurbits; 014 Legume vegetables; and 015 Pulses.

Discussion

Group 011 – Fruiting vegetables, cucurbits

152. One delegation noted that since commodities of Group 011 were consumed either raw or cooked, representative commodities of each type of commodity needed to be added and suggested including gourd in subgroup 011A (and pumpkin in 011B). The proposal was supported by a number of delegations, which noted that the inclusion of additional commodities would allow flexibility for countries in selecting the more representative commodity in the region.

153. Other delegations noted that the main purpose of crop grouping was to set MRLs for multiple commodities based on data from the representative commodity(ies). These delegations considered that the inclusion of more representative commodities could result in unnecessary additional requirements for field trials and therefore could jeopardise the establishment of group MRLs for minor crops. It was further noted that there were already limited residue field trial data for the proposed representative commodities i.e. gourd for subgroup 011A and pumpkin for subgroup 011B for use as representative commodities for the extrapolation of MRL to the commodities in these subgroups. In addition, the representative commodities listed for both groups had the highest residue potential and were best suited for extrapolation to the commodities under these subgroups.

154. The Committee noted that there was a footnote in Table 1 – Examples of the selection of representative commodities, Type 01 Fruits in the *Principles and Guidance on the selection of representative commodities for the extrapolation of maximum residue limits for pesticides to commodity groups* (CAC/GL 84-2012) indicating that countries could use alternative representative commodities or regional or national purposes.

Conclusion

155. The Committee agreed:

- In Group 011: to list as examples of representative commodity for subgroup 011A “cucumber and summer squash and/or gourd” as this would allow for flexibility in the selection of the appropriate representative commodity without introducing unnecessary additional field trials and to keep only melon as an example of representative commodity of subgroup 011B.
- In Groups 014 and 015: to make a number of editorial changes to harmonise the language and correct commodity names and codes.

156. In view of the finalisation of the discussion on all vegetable commodity groups (Agenda Items 8a-c), the Committee further agreed to request the EWG to check and finalise Table 2 on the examples of representative commodities for vegetable commodity groups. The EWG should also take into account the vegetable commodity groups as finalised by CCPR for consideration at the next session of the Committee (see Terms of Reference of the EWG, paragraph 158).

STATUS OF THE PROPOSED DRAFT TABLES ON EXAMPLES OF SELECTION OF REPRESENTATIVE COMMODITIES (VEGETABLES AND OTHER COMMODITY GROUPS) FOR INCLUSION IN THE *PRINCIPLES AND GUIDANCE FOR THE SELECTION OF REPRESENTATIVE COMMODITIES FOR THE EXTRAPOLATION OF MAXIMUM RESIDUE LIMITS FOR PESTICIDES FOR COMMODITY GROUPS*

157. The Committee agreed to return the proposed draft Tables to Step 2/3 for further discussion, comments and consideration by the next session of the Committee.

Terms of Reference of the EWG on the revision of the Classification

158. The Committee agreed to re-establish the EWG chaired by USA and co-chaired by the Netherlands working in English only with the following Terms of Reference:

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[16] CX/PR 16/48/12; Comments of Australia, Canada, Kenya, Thailand, USA, AU (CX/PR 16/48/12-Add.1); China, Colombia, Costa Rica, El Salvador, EU, Ghana, Paraguay, Uruguay (CRD10); Mali (CRD13); Morocco (CRD17); Japan (CRD19); Table 2 - Examples of representative commodities for vegetable commodity groups (Groups 011, 014 and 015) as revised by the Chair and Co-Chair of the EWG on the Classification (CRD26).

i. Determine if commodities can be included in more than one group.

ii. Continue work on group 021 Grasses for sugar or syrup production and determine if these groups can be expanded to other plants.

iii. Continue work on group 024 Seeds for beverages and sweets and determine if these groups can be expanded to other plants.

iv. Review all of the vegetables and their codes and their location in Table 2.

v. Continue work on Table 3, Type 03 Grasses

vi. Report back on how the CXLs in the database would be impacted under the proposed vegetable commodity groups and subgroups.

vii. Consider the need for separate codes for sweet corn (kernels), sweet corn (corn-on-the cob) and baby corn.

PROPOSED DRAFT GUIDANCE ON PERFORMANCE CRITERIA FOR METHODS OF ANALYSIS FOR THE DETERMINATION OF PESTICIDE RESIDUES (Agenda Item 9)[17]

159. The Delegation of USA, as Chair of the in-session WG, introduced the item and highlighted the main changes made to the Guidelines to take account of written comments submitted to this session in addition to those provided by members and observers in the in-session WG as contained in CRD27. The in-session WG was co-chaired by China and India.

Discussion

160. The Committee considered the Guidelines and made a number of editorial changes to improve the accuracy and clarity of the document as well as to remove references to documents other those adopted by the Codex Alimentarius Commission or developed by international organisations. The Committee further agreed that such references should be kept as footnotes.

161. Delegations generally supported the revision and good progress made throughout the document. A number of delegations however requested additional time to consult internally with their experts and other relevant stakeholders in order to fully assess the technical requirements in the Guidelines. It was noted that this was a particular sensitive issue for developing countries and thus the Guidelines should not jeopardise the laboratory capacity for the determination of pesticide residues in these countries.

Conclusion

162. The Committee noted general agreement on the Guidelines. However, in light of the changes made to the document, the Committee agreed to reconsider the Guidelines at its next session for completion and final adoption by CAC40. This would allow broad national consultation between various stakeholders taking into account the relevance of this document for the determination of pesticide residues and its impact on regulatory practices for enforcement of MRLs for pesticides.

STATUS OF THE PROPOSED DRAFT GUIDELINES ON PERFORMANCE CRITERIA FOR METHODS OF ANALYSIS FOR THE DETERMINATION OF PESTICIDE RESIDUES

163. The Committee agreed to forward the proposed draft Guidelines to the Commission for adoption at Step 5 (Appendix XI).

ESTABLISHMENT OF CODEX SCHEDULES AND PRIORITY LISTS OF PESTICIDES (Agenda Item 10)[18]

164. The Delegation of Australia, as Chair of the EWG on Priorities, introduced the revised Schedules and Priority Lists of Pesticides (CRD2).

2017 Schedule for JMPR evaluations

165. The Chair of the EWG provided the list of 7 new compounds to be scheduled for JMPR evaluation plus one reserve compound triflumezopyrim.

166. The proposed 2017 Schedule of Periodic Reviews was confirmed with five compounds plus two reserves Clethodim (187) and Kresoxim-methyl.

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[17] CX/PR 16/48/13; Comments of Australia, Canada, Chile, El Salvador, Japan, AU (CX/PR 16/48/13-Add.1); Argentina, China, Colombia, Costa Rica, EU, Ghana, Philippines, Thailand, Uruguay (CRD11); Mali (CRD13); ALINA (CRD14); Ecuador (CRD22); Brazil (CRD23); Report of the in-Session WG on Methods of Analysis (CRD27).

[18] CX/PR 16/48/14; CRD2 (Revised Schedules and Priority Lists of Pesticides); Comments of China, EU, Kenya, Philippines, Uruguay, AU (CRD12); ALINA (CRD14); Morocco (CRD17).

167. The Committee confirmed 12 full evaluations plus three reserves listed in order of priority: Triflumezopyrim, Kresoxim-methyl and Clethodim (187).

168. The Chair of the EWG advised the Committee that there were 33 new use and other evaluations listed in the proposed 2017 Schedule. The JMPR Secretariat advised that this far exceeded the quota of approximately 20 evaluations.

169. After lengthy discussion, the Chair of the EWG indicated that in accordance with paragraph 66 of the *Risk Analysis Principles applied by CCPR* (Codex Procedural Manual), all members / observers nominating compounds in the 2017 proposed schedule for new use and other evaluations must lodge documented evidence of an authorised label and GAP by 31 May 2016. Those complying with this request would be given Priority 1. Those providing evidence of having lodged a dossier with a national registration authority would be given Priority 2. Non-compliant nominations would be deferred to 2018 if the number of Priority 1 and 2 compounds exceeded 20.

2018-2021 Priority Lists

170. The Chair of the EWG informed the Committee that the 2018 priority list of new compounds, periodic reviews and new use and other evaluations contained more nominations than 2017 and thus was likely to create greater issues in regard to establishing a proposed 2018 Schedule within JMPR resource constraints.

171. In regard to Table 2A (compounds listed for periodic review), the Chair of the EWG indicated that 50 percent were not supported by the manufacturer and a large proportion of those had been nominated for review on the basis of public health concerns.

Balance of new and old compound evaluations

172. The Chair of the EWG opened discussion on the balance of new and old compounds listed for inclusion in the proposed Schedule. Following interventions from several members and observers, the Chair of the EWG concluded that a level of flexibility was warranted and could be determined each year on the basis of the number of new and old compound nominations and levels of concern relating to public health. The Committee noted that the 2017 proposed schedule included seven new compounds and five periodic reviews.

Fenbutatin oxide (109)

173. At CCPR47, the Chair of the EWG had indicated that unless support for fenbutatin oxide (109) was presented, the compound would be recommended for removal and all CXLs revoked. The Committee noted that several members appeared to have national registrations for the compound and no concern form had been lodged with regard to public health. Following a number of interventions, and noting the proposal for a circular letter seeking formal guidance on national registrations, the Chair of the EWG suggested the compound remain on the Codex pesticide list. As there have been no public health concerns raised in regard to the compound, the Committee agreed to retain fenbutatin oxide (109).

Improved administration and management of the Priority Lists and Schedules

174. The Chair of the EWG informed the committee that as of 2017 all nominations would be ‘date stamped’ in accordance with paragraph 65 of the *Risk Analysis Principles applied by CCPR* (Codex Procedural Manual). Nominations would be initially prioritised on this basis followed by the assessment of compounds against other nomination requirements and prioritisation criteria listed in paragraphs 67, 68 and 69.

175. In cases where the evaluation workload exceeded available JMPR resources, the EWG on Priorities would apply prioritisation criteria relating to date received, national registration, labels and authorised GAP.

176. The Chair of the EWG indicated that efforts would be made to minimise the prevalence of consecutive nominations for new uses and other evaluations for the same compound where practicable.

177. The Chair of the EWG indicated that compounds listed for new use and other evaluations would be cross-checked with compounds listed in Table 2A. The Chair of the EWG suggested that it would be reasonable to transfer new and other evaluations to the periodic review in cases where there was a gap of two years or less between the new use and other evaluation, and the scheduled periodic review. This would be considered further in the review of the EWG on Priorities administration and management.

178. The Chair of the EWG proposed a Sunday meeting of the EWG and other interested parties before commencement of CCPR49 to finalise the proposed 2018 Schedule.

179. The Chair of the EWG indicated that further elaboration of these and other proposed administrative criteria consistent with the *Risk Analysis Principles applied by CCPR* (Codex Procedural Manual) would occur following CAC39 via the EWG broadcast email. The Chair of the EWG invited all members and observers to provide suggestions to further improve the administration and management of the priority lists and schedules.

Circular Letter on national registrations and approved uses

180. The Committee noted that a Circular Letter seeking documented evidence of national registrations for all compounds on the CCPR pesticide list would be prepared. In addition, the CL would ask members and observers to list commodities for which as registered use was in place. Following a request for assistance by the Chair of the EWG, the Delegation of Germany indicated their willingness to act as co-chair of the EWG on Priorities to assist in this work.

Transition period for the application of the criteria for minimum number of field trials for the establishment of MRLs for minor crops

181. The Committee noted that the JMPR Secretariat would apply the criteria for minimum number of field trials for the establishment of MRLs for minor crops[19] as a general principle starting from the 2018 JMPR.

Conclusion

182. The Committee agreed to forward the proposed Schedule of Pesticides for evaluation by the 2017 JMPR to CAC39 for approval (Appendix XII) noting that the new use and other evaluation list would not be finalised until 31 May 2016 (paragraph 169).

183. The Committee further agreed to re-convene the EWG on Priorities, chaired by Australia and co-chaired by Germany and working in English to provide a report on the schedules and priority list for consideration at CCPR49.

OTHER BUSINESS AND FUTURE WORK (Agenda Item 11)

Revisiting the IESTI equations[20]

184. The Delegation of the EU introduced CRD3 on a proposal for new work on a possible revision of the IESTI equations, prepared by EU and Australia. Recognising the short time available for other delegations to analyse the proposal, the Delegation expressed their appreciation to the Committee for discussing the matter under this agenda item.

185. The Delegation informed the Committee about the challenges the EU was facing in risk communication in relation to residue levels in enforcement samples that were compliant with the MRL but could lead to an exposure estimate exceeding the ARfD. It expressed concerns that in the long term, this might undermine public trust in the regulatory system for pesticide residues and contribute to the proliferation of private standards.

186. The Delegation underlined the importance the EU was placing on a methodology for acute exposure assessment of pesticide residues that was harmonised at the international level, and notably within CCPR. It further recalled the considerations of JMPR in recent years on the need to revisit the IESTI equations.

187. The Delegation clarified that the intention of their proposal was to facilitate further work to better understand the potential impact of possible changes to the IESTI equations, and encouraged other delegations to actively participate in such work.

188. The Delegation reported on the outcome of the international EFSA/RIVM workshop, co-sponsored by FAO and WHO, in September 2015 in Geneva. It presented the recommendations of the workshop and referred to CRD3 and to the workshop's report - available on the EFSA website - for further information.

189. The Delegation of Australia, co-author of the paper, explained that the IESTI, as developed by JMPR, had been in use in their country for 15 years for the purposes of conducting dietary exposure assessments for registration and for re-evaluation of existing compounds. It was important for Australia and other members to make reference to best international practice for exposure assessments as endorsed by FAO and WHO for harmonisation and risk communication. Science changes over time and there is an expectation that assessment methodologies should reflect best science and best practice.

Discussion

190. The discussion indicated general support for the proposal to explore the potential impact of possible changes to the IESTI equations and highlighted the need to clearly define the issues to be addressed, how it had developed and what should be done. Delegations also acknowledged that it was timely for JMPR to review the IESTI procedure, which has been in place for more than a decade, and for CCPR to address the need to harmonise approaches for risk assessment, risk management and risk communication.

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[19] *Risk Analysis Principles applied by the Codex Committee on Pesticide Residues*, Annex D Guidance to facilitate the establishment of MRLs for minor crops (Procedural Manual).

[20] Revisiting the International Estimate of Short-Term Intake (IESTI) (CRD3).

191. More specifically, delegations highlighted the need: to examine the impact of the parameters on the intake assessments derived by the current and proposed IESTI; to clearly define the protection goals of the proposed IESTI equations; to identify any positive or negative impact of the proposed changes in terms of number of Codex MRLs; to have a broader participation in the EWG (if established) reflecting a wide spectrum of economic development; for FAO and WHO advice on the new equation and its parameters to assist CCPR to reach a conclusion on this matter; and to evaluate the wider acceptability of the changed equation.

192. A number of delegations also noted that the proposal had been submitted very late and was available in English only and therefore countries had limited time to examine it in detail. In addition, it was noted that the EFSA report issued in December 2016 was also available in English only.

Conclusion

193. In view of the general support to the proposal, the Committee agreed to establish an EWG, chaired by Netherlands and co-chaired by Australia, and working in English only with the following Terms of Reference:

- To identify advantages and challenges that might arise from the possible revision of the current IESTI equations and the impact on risk management, risk communication, consumer protection goals, and trade. The recommendations of the international EFSA/RIVM workshop cosponsored by FAO and WHO and the discussions in CCPR48 should be taken into account.

194. The Committee noted the offer of Spain and ALINA to provide informal translation to facilitate the participation of Spanish speaking countries.

Emerging Issues: A proposed risk management approach to address detection in food of chemicals of very low public health concern[21]

195. The Delegation of New Zealand introduced CRD16 that was presented at CCGP30 (April 2016) and indicated the following:

- The purpose of the paper is to inform members of the value of promoting an internationally harmonised risk management approach to address detections in food of traces of chemicals (such as cleaning compounds or fertilisers) presenting very low exposure and very low potential public health concern.
- Many of these chemicals might have already been determined by different national regulatory authorities as chemicals of very low public health concern and of little or no public health or food safety consequence. However, there is a need to look beyond those chemicals already dealt with by existing Codex processes and address issues arising from the use and detection of these chemicals of very low exposure and very low public health concern that might be inadvertently present in food at trace levels.
- Codex has a clear interest and responsibility to take a proactive approach to address the issues in the New Zealand information paper and support the development of an internationally harmonised risk management approach. Therefore, New Zealand will be presenting a new work proposal for consideration at CCEXEC71 and CAC39.

Guidance document on risk assessment using brew factor for the establishment of MRLs for pesticides in tea[22]

196. The Delegation of India recalled that CCPR44 (2012) had encouraged countries to submit relevant data/information on brewing factors and standard method to JMPR for consideration in estimation of MRLs for pesticides in tea[23]. India, explained that following the CCPR's decision, the IGG in 2015 had endorsed a guidance document (CRD21), jointly prepared by India and China, which aimed at providing guidance on the establishment of MRLs for pesticides in dry tea leaves using brew factors for risk assessment.

197. The JMPR Secretariat informed the Committee that the use of available tea brew studies to estimate processing factors was part of the current JMPR procedures for the establishment of MRLs for dry tea leaves and encouraged countries when submitting their trials to also include tea brew studies.

DATE AND PLACE OF THE NEXT SESSION (Agenda Item 12)

198. The Committee was informed that its 49th session was tentatively scheduled to be held in China, in one year's time, the final arrangements being subject to confirmation by the Host Country and the Codex Secretariats.

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21 Information paper on emerging issues: A proposed risk management approach to address detection in food of chemicals of very low public health concern (CRD16).

22 Guidance document on risk assessment using brew factor for fixation of MRLs for pesticides in tea (CRD21).

23 REP12/PR, para 178.

SUMMARY STATUS OF WORK

Subject	Step	Action by	Reference REP16/PR
Proposed draft MRLs for pesticides	5/8	Governments CAC39	para 113 Appendix II
Codex MRLs for revocation	CXL	CAC39	para 113 Appendix III
Draft MRLs for pesticides	7	CCPR49 (JMPR 2016)	para 114 Appendix IV
Proposed draft MRLs for pesticides	4	CCPR49 (JMPR 2016)	para 114 Appendix V
Draft and proposed draft MRLs for pesticides	Withdrawn	CCPR48	para 114 Appendix VI
Draft revision to the *Classification of Food and Feed* (vegetable commodity groups: Group 015 - Pulses)	7	CCPR49	para 126 Appendix VII
Proposed draft revision to the *Classification of Food and Feed* (selected commodity groups: Group 015 – Grasses of cereal grains)	5	Governments CAC39 Governments CCPR49	para 141 Appendix X
Proposed draft revision to the *Classification of Food and Feed* (other vegetable commodity groups: • Group 014 Legume vegetables • Group 011 - Fruiting vegetables, cucurbits	4	CCPR49	paras 126, 134 Appendices VIII, IX
Proposed draft revision to the *Classification of Food and Feed*: • Group 021 - Grasses for sugars or syrup production and • Group 024 - Seeds for beverages and sweets	2/3	EWG (USA and the Netherlands) Governments CCPR49	paras 145, 150
Proposed draft Tables on examples of selection of representative commodities (for inclusion in the *Principles and guidance for the selection of representative commodities for the extrapolation of maximum residue limits for pesticides for commodity groups*)			para 157
Proposed draft Guidance on performance criteria for methods of analysis for the determination of pesticide residues	5	Governments CAC39 Governments CCPR49	para 163 Appendix XI
Establishment of Codex schedules and priority list of pesticides for evaluation by JMPR	1/2/3	Governments CAC39 EWG on Priorities (Australia and Germany) Governments CCPR49	paras 182-183 Appendix XII
Discussion paper on the possible revision of the IESTI equations	---	EWG (EU and Australia) CCPR49	para 193

APPENDIX I

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APPENDIX II

PROPOSED DRAFT MAXIMUM RESIDUE LIMITS FOR PESTICIDES

(At Step 5/8)

	Commodity		EMRL (mg/kg)		Step	Note
48	**Lindane**					
	GC 0080	Cereal grains	0.01		5/8	(except rice)
	WD 0120	Diadromous fish	0.01		5/8	
	MO 0105	Edible offal (mammalian)	0.001		5/8	
	PE 0112	Eggs	0.001		5/8	
	WS 0125	Marine fish	0.01		5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.01	(fat)	5/8	
	ML 0106	Milks	0.001		5/8	
	PM 0110	Poultry meat	0.005	(fat)	5/8	
	PO 0111	Poultry, Edible offal of	0.005		5/8	
	AS 0081	Straw and fodder (dry) of cereal grains	0.01		5/8	
	VO 1275	Sweet corn (kernels)	0.01		5/8	
	Commodity		**MRL (mg/kg)**		**Step**	**Note**
81	**Chlorothalonil**					
	VS 0621	Asparagus	0.01	(*)	5/8	
	FS 0013	Cherries (includes all commodities in this subgroup)	3		5/8	
	DV 0604	Ginseng, dried including red ginseng	2		5/8	
	VR 0583	Horseradish	1		5/8	
	VA 0385	Onion, Bulb	1.5		5/8	
	FS 2001	Peaches (including Nectarine and Apricots) (includes all commodities in this subgroup)	1.5		5/8	
	VO 0051	Peppers	7		5/8	
	HS 0444	Peppers Chili, dried	70		5/8	
	TN 0675	Pistachio nuts	0.3		5/8	
	VS 0627	Rhubarb	7		5/8	
	VR 0075	Root and tuber vegetables	0.3		5/8	(except horseradish)
	VA 0388	Shallot	1.5		5/8	
	VO 0448	Tomato	5		5/8	
106	**Ethephon**					
	FP 0226	Apple	0.8		5/8	
	GC 0640	Barley	1.5		5/8	
	AS 0640	Barley straw and fodder, Dry	7	(dw)	5/8	
	FS 0013	Cherries (includes all commodities in this subgroup)	5		5/8	
	SO 0691	Cotton seed	6		5/8	
	MO 0105	Edible offal (mammalian)	0.4		5/8	
	PE 0112	Eggs	0.01	(*)	5/8	
	FT 0297	Fig	3		5/8	
	FB 0269	Grapes	0.8		5/8	
	MF 0100	Mammalian fats (except milk fats)	0.01	(*)	5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.01	(*)	5/8	
	ML 0106	Milks	0.01	(*)	5/8	
	FI 0353	Pineapple	1.5		5/8	

	Commodity		MRL (mg/kg)		Step	Note
	PF 0111	Poultry fats	0.04		5/8	
	PM 0110	Poultry meat	0.02		5/8	
	PO 0111	Poultry, Edible offal of	0.08		5/8	
	GC 0650	Rye	0.5		5/8	
	AS 0650	Rye straw and fodder, Dry	7	(dw)	5/8	
	FT 0305	Table Olives	7		5/8	
	VO 0448	Tomato	2		5/8	
	GC 0653	Triticale	0.5		5/8	
	AS 0653	Triticale straw and fodder, Dry	7	(dw)	5/8	
	GC 0654	Wheat	0.5		5/8	
	CM 0654	Wheat bran, Unprocessed	1.5		5/8	
	CF 1210	Wheat germ	1		5/8	
	AS 0654	Wheat straw and fodder, Dry	7	(dw)	5/8	
112	**Phorate**					
	HS 0779	Coriander, seed	0.1		5/8	
	HS 0731	Fennel, seed	0.1		5/8	
	HS 0190	Spices, Seeds	0.5		5/8	(except coriander seed and fennel seed)
118	**Cypermethrins (including alpha- and zeta- cypermethrin)**					
	HS 0775	Cardamom	3		5/8	
143	**Triazophos**					
	HS 0775	Cardamom	4		5/8	
	HS 0779	Coriander, seed	0.1		5/8	
	HS 0731	Fennel, seed	0.1		5/8	
	HS 0191	Spices, Fruits and Berries	0.07		5/8	(except cardamom)
146	**Cyhalothrin (includes lambda-cyhalothrin)**					
	HH 0722	Basil	0.7		5/8	
	HS 0775	Cardamom	2		5/8	
	SB 0716	Coffee beans	0.01	(*)	5/8	
	HS 0191	Spices, Fruits and Berries	0.03		5/8	(except cardamom)
160	**Propiconazole**					
	GC 0640	Barley	2		5/8	
	GC 0647	Oats	0.7		5/8	
	GC 0650	Rye	0.09		5/8	
	GC 0653	Triticale	0.09		5/8	
	GC 0654	Wheat	0.09		5/8	
171	**Profenofos**					
	HS 0775	Cardamom	3		5/8	
	HS 0779	Coriander, seed	0.1		5/8	
	HS 0780	Cumin seed	5		5/8	
	HS 0731	Fennel, seed	0.1		5/8	
	HS 0191	Spices, Fruits and Berries	0.07		5/8	(except cardamom)
177	**Abamectin**					
	AM 0660	Almond hulls	0.2		5/8	
	FI 0326	Avocado	0.015		5/8	
	VD 0071	Beans (dry)	0.005		5/8	
	VP 0061	Beans, except broad bean and soya bean	0.08		5/8	(immature beans with pods)
	FB 0264	Blackberries	0.05		5/8	
	VS 0624	Celery	0.03		5/8	

	Commodity		MRL (mg/kg)		Step	Note
	FS 0013	Cherries (includes all commodities in this subgroup)	0.07		5/8	
	FC 0001	Citrus fruits	0.02		5/8	
	SO 0691	Cotton seed	0.015		5/8	
	VC 0424	Cucumber	0.03		5/8	
	DF 0269	Dried grapes (=currants, raisins and sultanas)	0.03		5/8	
	VO 0440	Egg plant	0.05		5/8	
	VA 0381	Garlic	0.005		5/8	
	VC 0425	Gherkin	0.03		5/8	
	JF 0269	Grape juice	0.015		5/8	
	FB 0269	Grapes	0.01		5/8	
	DH 1100	Hops, Dry	0.15		5/8	
	VA 0384	Leek	0.005		5/8	
	VL 0482	Lettuce, Head	0.15		5/8	
	FI 0345	Mango	0.01		5/8	
	VC 0046	Melons, except watermelon	0.01		5/8	
	VA 0385	Onion, Bulb	0.005		5/8	
	FI 0350	Papaya	0.015		5/8	
	FS 2001	Peaches (including Nectarine and Apricots) (includes all commodities in this subgroup)	0.03		5/8	
	SO 0697	Peanut	0.005	(*)	5/8	
	VO 0444	Peppers Chili	0.005	(*)	5/8	
	HS 0444	Peppers Chili, dried	0.5		5/8	
	VO 0445	Peppers, Sweet (including pimento or pimiento)	0.09		5/8	
	FS 0014	Plums (including fresh prunes) (includes all commodities in this subgroup)	0.005		5/8	
	FP 0009	Pome fruits	0.01		5/8	
	VR 0589	Potato	0.005	(*)	5/8	
	FB 0272	Raspberries, Red, Black	0.05		5/8	
	AS 0649	Rice straw and fodder, Dry	0.001		5/8	
	CM 0649	Rice, Husked	0.002		5/8	
	VA 0388	Shallot	0.005		5/8	
	FB 0275	Strawberry	0.15		5/8	
	VR 0508	Sweet potato	0.005	(*)	5/8	
	VO 0448	Tomato	0.05		5/8	
	TN 0085	Tree nuts	0.005	(*)	5/8	
	VR 0600	Yams	0.005	(*)	5/8	
178	**Bifenthrin**					
	FB 0020	Blueberries	3		5/8	
	FB 0269	Grapes	0.3		5/8	
	VP 0063	Peas (pods and succulent=immature seeds)	0.9		5/8	
	VP 0064	Peas, Shelled (succulent seeds)	0.05	(*)	5/8	
189	**Tebuconazole**					
	VS 0621	Asparagus	0.02	(*)	5/8	
	FI 0327	Banana	1.5		5/8	
	VC 0424	Cucumber	0.2		5/8	
	VR 0604	Ginseng	0.15		5/8	

	Commodity		MRL (mg/kg)		Step	Note
	DV 0604	Ginseng, dried including red ginseng	0.4		5/8	
	DM 0604	Ginseng, extracts	0.5		5/8	
	VA 0385	Onion, Bulb	0.15		5/8	
	VA 0388	Shallot	0.15		5/8	
	VA 0389	Spring Onion	2		5/8	
	SO 0702	Sunflower seed	0.1		5/8	
206	**Imidacloprid**					
	HH 0722	Basil	20		5/8	
	FS 0013	Cherries (includes all commodities in this subgroup)	4		5/8	
	VL 0480	Kale (including among others: Collards, Curly kale, Scotch kale, thousand-headed kale; not including Marrow-stem kele)	5		5/8	
	SO 0305	Olives for oil production	2		5/8	
	FS 2001	Peaches (including Nectarine and Apricots) (includes all commodities in this subgroup)	1.5		5/8	
	FS 0014	Plums (including fresh prunes) (includes all commodities in this subgroup)	1.5		5/8	
	DF 0014	Prunes, dried	5		5/8	(dry)
	VD 0541	Soya bean (dry)	3		5/8	
	AL 0541	Soya bean fodder	50		5/8	
	FT 0305	Table Olives	2		5/8	
	DT 1114	Tea, Green, Black (black, fermented and dried)	50		5/8	
207	**Cyprodinil**					
	SO 0495	Rape seed	0.02		5/8	
213	**Trifloxystrobin**					
	VD 0071	Beans (dry)	0.01	(*)	5/8	
	VD 0533	Lentil (dry)	0.01		5/8	
	VD 0072	Peas (dry)	0.01		5/8	
	VD 0541	Soya bean (dry)	0.05		5/8	
224	**Difenoconazole**					
	FI 0326	Avocado	0.6		5/8	
	SO 0697	Peanut	0.01	(*)	5/8	
	SO 0495	Rape seed	0.15		5/8	
	VD 0541	Soya bean (dry)	0.1		5/8	
226	**Pyrimethanil**					
	FB 0264	Blackberries	15		5/8	
	FB 0020	Blueberries	8		5/8	
	VC 0424	Cucumber	0.7		5/8	
	FB 0272	Raspberries, Red, Black	15		5/8	
234	**Spirotetramat**					
	FI 0326	Avocado	0.4		5/8	
	FI 0336	Guava	2		5/8	
	GC 0447	Sweet Corn	1.5		5/8	
243	**Fluopyram**					
	VP 0061	Beans, except broad bean and soya bean	1		5/8	
	VP 0062	Beans, Shelled	0.2		5/8	

	Commodity		MRL (mg/kg)		Step	Note
	SO 0691	Cotton seed	0.01		5/8	
	PE 0112	Eggs	1		5/8	
	MO 0098	Kidney of cattle, goats, pigs and sheep	0.8		5/8	
	MO 0099	Liver of cattle, goats, pigs & sheep	5		5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.8		5/8	
	ML 0106	Milks	0.6		5/8	
	AL 0072	Pea hay or pea fodder (dry)	40		5/8	
	VP 0064	Peas, Shelled (succulent seeds)	0.2		5/8	
	PM 0110	Poultry meat	0.5		5/8	
	PO 0111	Poultry, Edible offal of	2		5/8	
	VD 4521	Soybean (dry)	0.05		5/8	
246	**Acetamiprid**					
	VS 0621	Asparagus	0.8		5/8	
	HS 0775	Cardamom	0.1		5/8	
	VC 0424	Cucumber	0.3		5/8	
	MO 0105	Edible offal (mammalian)	1		5/8	
	VC 0045	Fruiting vegetables, Cucurbits	0.2		5/8	(except cucumber)
	MF 0100	Mammalian fats (except milk fats)	0.3		5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.5		5/8	
	ML 0106	Milks	0.2		5/8	
	HS 0790	Pepper, Black; White	0.1		5/8	
	VO 0447	Sweet corn (corn-on-the-cob)	0.01	(*)	5/8	
	AS 0447	Sweet corn fodder	40		5/8	
248	**Flutriafol**					
	VB 0040	Brassica (Cole or Cabbage) Vegetables, Head Cabbage, Flowerhead Brassicas	1.5		5/8	
	VS 0624	Celery	3		5/8	
	FS 0013	Cherries (includes all commodities in this subgroup)	0.8		5/8	
	SO 0691	Cotton seed	0.5		5/8	
	MO 0105	Edible offal (mammalian)	1		5/8	
	PE 0112	Eggs	0.01	(*)	5/8	
	VC 0045	Fruiting vegetables, Cucurbits	0.3		5/8	
	VL 0482	Lettuce, Head	1.5		5/8	
	GC 0645	Maize	0.01	(*)	5/8	
	AS 0645	Maize fodder (dry)	20		5/8	
	MF 0100	Mammalian fats (except milk fats)	0.02		5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.02	(fat)	5/8	
	ML 0106	Milks	0.01	(*)	5/8	
	FS 2001	Peaches (including Nectarine and Apricots) (includes all commodities in this subgroup)	0.6		5/8	
	VO 0051	Peppers	1		5/8	
	FS 0014	Plums (including fresh prunes) (includes all commodities in this subgroup)	0.4		5/8	
	FP 0009	Pome fruits	0.4		5/8	
	PF 0111	Poultry fats	0.02		5/8	

	Commodity		MRL (mg/kg)		Step	Note
	PM 0110	Poultry meat	0.01	(*)	5/8	
	PO 0111	Poultry, Edible offal of	0.03		5/8	
	DF 0014	Prunes, dried	0.9		5/8	
	SO 0495	Rape seed	0.5		5/8	
	GC 0651	Sorghum	1.5		5/8	
	AS 0651	Sorghum straw and fodder, Dry	7		5/8	
	FB 0275	Strawberry	1.5		5/8	
	VR 0596	Sugar beet	0.02		5/8	
	AV 0596	Sugar beet leaves or tops(dry)	3	(dw)	5/8	
	VO 0448	Tomato	0.8		5/8	
256	**Fluxapyroxad**					
	FI 0327	Banana	3		5/8	
	FB 0018	Berries and other small fruits	7		5/8	(except grapes)
	VB 0040	Brassica (Cole or Cabbage) Vegetables, Head Cabbage, Flowerhead Brassicas	2		5/8	
	VL 0054	Brassica leafy vegetables	4		5/8	
	VR 0577	Carrot	1		5/8	
	VS 0624	Celery	10		5/8	
	FS 0013	Cherries (includes all commodities in this subgroup)	3		5/8	
	SO 0691	Cotton seed	0.3		5/8	
	DF 0269	Dried grapes (=currants, raisins and sultanas)	15		5/8	
	VC 0045	Fruiting vegetables, Cucurbits	0.2		5/8	
	VA 0381	Garlic	0.6		5/8	
	AB 0269	Grape pomace, Dry	150		5/8	
	FB 0269	Grapes	3		5/8	
	VL 0482	Lettuce, Head	4		5/8	
	VA 0385	Onion, Bulb	0.6		5/8	
	FC 0004	Oranges, Sweet, Sour (including Orange-like hybrids): several cultivars	0.3		5/8	
	VR 0588	Parsnip	1		5/8	
	FS 2001	Peaches (including Nectarine and Apricots) (includes all commodities in this subgroup)	1.5		5/8	
	FS 0014	Plums (including fresh prunes) (includes all commodities in this subgroup)	1.5		5/8	
	VR 0494	Radish	0.2		5/8	
	VL 0494	Radish leaves (including radish tops)	8		5/8	
	GC 0649	Rice	5		5/8	
	AS 0649	Rice straw and fodder, Dry	50	(dw)	5/8	
	CM 0649	Rice, Husked	3		5/8	
	CM 1205	Rice, Polished	0.4		5/8	
	VA 0388	Shallot	0.6		5/8	
	GC 0651	Sorghum	0.7		5/8	
	AS 0651	Sorghum straw and fodder, Dry	7	(dw)	5/8	
	TN 0085	Tree nuts	0.04		5/8	
263	**Cyantraniliprole**					
	AL 0061	Bean fodder	40	(DM)	5/8	
	VD 0071	Beans (dry)	0.3		5/8	

	Commodity		MRL (mg/kg)		Step	Note
	VP 0062	Beans, Shelled	0.3		5/8	
	FC 0001	Citrus fruits	0.7		5/8	
	OR 0001	Citrus oil, edible	4.5		5/8	
	SB 0716	Coffee beans	0.05		5/8	
	VP 0526	Common bean (pods and/or immature seeds)	1.5		5/8	
	SO 0691	Cotton seed	1.5		5/8	
	MO 0105	Edible offal (mammalian)	1.5		5/8	
	PE 0112	Eggs	0.15		5/8	
	GC 0645	Maize	0.01 (*)		5/8	
	MF 0100	Mammalian fats (except milk fats)	0.5		5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.2		5/8	
	ML 0106	Milks	0.6		5/8	
	AL 0072	Pea hay or pea fodder (dry)	60	(DM)	5/8	
	VP 0063	Peas (pods and succulent=immature seeds)	2		5/8	
	VP 0064	Peas, Shelled (succulent seeds)	0.3		5/8	
	FI 0355	Pomegranate	0.01 (*)		5/8	
	PF 0111	Poultry fats	0.04		5/8	
	PM 0110	Poultry meat	0.02		5/8	
	PO 0111	Poultry, Edible offal of	0.15		5/8	
	SO 0495	Rape seed	0.8		5/8	
	VD 0541	Soya bean (dry)	0.4		5/8	
	VP 0541	Soya bean (immature seeds)	0.3		5/8	
	AL 0541	Soya bean fodder	80	(DM)	5/8	
	SO 0702	Sunflower seed	0.5		5/8	
	TN 0085	Tree nuts	0.04		5/8	
266	**Imazapic**					
	VD 0541	Soya bean (dry)	0.5		5/8	
267	**Imazapyr**					
	MO 0105	Edible offal (mammalian)	0.2		5/8	
	AS 0162	Hay or fodder (dry) of grasses	6		5/8	
	VD 0541	Soya bean (dry)	5		5/8	
280	**Acetochlor**					
	GC 0640	Barley	0.04 (*)		5/8	
	AS 0640	Barley straw and fodder, Dry	0.3		5/8	
	VP 0061	Beans, except broad bean and soya bean	0.02 (*)		5/8	
	VD 0523	Broad bean (dry)	0.15		5/8	
	GC 0641	Buckwheat	0.04 (*)		5/8	
	AS 0641	Buckwheat fodder	0.3		5/8	
	VD 0524	Chick-pea (dry)	0.15		5/8	
	MO 0105	Edible offal (mammalian)	0.02 (*)		5/8	
	PE 0112	Eggs	0.02 (*)		5/8	
	VD 0531	Hyacinth bean (dry)	0.15		5/8	
	AL 0157	Legume animal feeds	3		5/8	
	VD 0533	Lentil (dry)	0.15		5/8	
	VD 0545	Lupin (dry)	0.15		5/8	
	GC 0645	Maize	0.02		5/8	
	MF 0100	Mammalian fats (except milk fats)	0.02 (*)		5/8	

	Commodity		MRL (mg/kg)	Step	Note
	MM 0095	Meat (from mammals other than marine mammals)	0.02 (*)	5/8	
	ML 0106	Milks	0.02 (*)	5/8	
	GC 0646	Millet (Including Barnyard Millet, Bulrush Millet, Common Millet, Finger Millet, Foxtail Millet, Little Millet)	0.04 (*)	5/8	
	AS 0646	Millet fodder, dry	0.3	5/8	
	AS 0647	Oat straw and fodder, Dry	0.3	5/8	
	GC 0647	Oats	0.04 (*)	5/8	
	VD 0072	Peas (dry)	0.02 (*)	5/8	
	VD 0537	Pigeon pea (dry)	0.15	5/8	
	VR 0589	Potato	0.04 (*)	5/8	
	PM 0110	Poultry meat	0.02 (*)	5/8	
	PO 0111	Poultry, Edible offal of	0.02 (*)	5/8	
	GC 0650	Rye	0.04 (*)	5/8	
	AS 0650	Rye straw and fodder, Dry	0.3	5/8	
	VR 0596	Sugar beet	0.15	5/8	
	AV 0596	Sugar beet leaves or tops (dry)	3	5/8	
	DM 0596	Sugar beet molasses	0.3	5/8	
	AB 0596	Sugar beet pulp, Dry	0.3	5/8	
	SO 0702	Sunflower seed	0.04 (*)	5/8	
	VO 0447	Sweet corn (corn-on-the-cob)	0.04	5/8	
	AS 0447	Sweet corn fodder	1.5	5/8	
	GC 0657	Teosinte	0.04 (*)	5/8	
	AS 0657	Teosinte fodder	0.3	5/8	
	GC 0653	Triticale	0.04 (*)	5/8	
	GC 0654	Wheat	0.02 (*)	5/8	
	AS 0654	Wheat straw and fodder, Dry	0.2	5/8	
	GC 0655	Wild rice	0.04 (*)	5/8	
281	**Cyazofamid**				
	VP 0061	Beans, except broad bean and soya bean	0.4	5/8	
	VP 0062	Beans, Shelled	0.07	5/8	
	VB 0040	Brassica (Cole or Cabbage) Vegetables, Head Cabbage, Flowerhead Brassicas	1.5	5/8	
	VL 0054	Brassica leafy vegetables	15	5/8	
	VO 0440	Egg plant	0.2	5/8	
	VC 0045	Fruiting vegetables, Cucurbits	0.09	5/8	
	FB 0269	Grapes	1.5	5/8	
	DH 1100	Hops, Dry	15	5/8	
	VL 0053	Leafy vegetables	10	5/8	(except brassica leafy vegetables)
	VO 0444	Peppers Chili	0.8	5/8	
	VO 0445	Peppers, Sweet (including pimento or pimiento)	0.4	5/8	
	VR 0589	Potato	0.01 (*)	5/8	
	VO 0448	Tomato	0.2	5/8	

	Commodity		MRL (mg/kg)		Step	Note
282	**Flonicamid**					
	VS 0624	Celery	1.5		5/8	
	FS 0013	Cherries (includes all commodities in this subgroup)	0.9		5/8	
	SO 0691	Cotton seed	0.6		5/8	
	VO 0050	Fruiting vegetables other than cucurbits	0.4		5/8	(except mushrooms and sweet corn)
	VC 0045	Fruiting vegetables, Cucurbits	0.2		5/8	
	DH 1100	Hops, Dry	20		5/8	
	VL 0482	Lettuce, Head	1.5		5/8	
	VL 0483	Lettuce, Leaf	8		5/8	
	FB 2009	Low growing berries	1.5		5/8	
	HH 0738	Mints	6		5/8	
	FS 2001	Peaches (including Nectarine and Apricots) (includes all commodities in this subgroup)	0.7		5/8	
	TN 0672	Pecan	0.01	(*)	5/8	
	FS 0014	Plums (including fresh prunes) (includes all commodities in this subgroup)	0.1		5/8	
	VR 0494	Radish	0.4		5/8	
	VL 0494	Radish leaves (including radish tops)	20		5/8	
	VL 0502	Spinach	20		5/8	
	VW 0448	Tomato paste	7		5/8	
284	**Flumioxazin**					
	AL 1020	Alfalfa fodder	3	(dw)	5/8	
	VS 0620	Artichoke, Globe	0.02	(*)	5/8	
	VS 0621	Asparagus	0.02		5/8	
	VD 0071	Beans (dry)	0.07		5/8	
	FB 2006	Bush berries	0.02	(*)	5/8	
	VB 0041	Cabbages, Head	0.02	(*)	5/8	
	VD 0524	Chick-pea (dry)	0.07		5/8	
	SO 0691	Cotton seed	0.01		5/8	
	MO 0105	Edible offal (mammalian)	0.02	(*)	5/8	
	PE 0112	Eggs	0.02	(*)	5/8	
	VO 0050	Fruiting vegetables other than cucurbits	0.02	(*)	5/8	(except sweet corn and mushrooms)
	VC 0045	Fruiting vegetables, Cucurbits	0.02	(*)	5/8	
	FB 0269	Grapes	0.02	(*)	5/8	
	AS 0162	Hay or fodder (dry) of grasses	0.02	(*)	5/8	Wheat hay
	VD 0533	Lentil (dry)	0.07		5/8	
	VD 0545	Lupin (dry)	0.07		5/8	
	GC 0645	Maize	0.02	(*)	5/8	
	AS 0645	Maize fodder (dry)	0.02	(*)	5/8	
	MF 0100	Mammalian fats (except milk fats)	0.02	(*)	5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.02	(*)	5/8	
	ML 0106	Milks	0.02	(*)	5/8	
	HH 0738	Mints	0.02		5/8	
	VA 0385	Onion, Bulb	0.02	(*)	5/8	
	SO 0697	Peanut	0.02	(*)	5/8	
	VD 0072	Peas (dry)	0.07		5/8	

	Commodity		MRL (mg/kg)		Step	Note
	FP 0009	Pome fruits	0.02 (*)		5/8	
	FI 0355	Pomegranate	0.02 (*)		5/8	
	VR 0589	Potato	0.02 (*)		5/8	
	PF 0111	Poultry fats	0.02 (*)		5/8	
	PM 0110	Poultry meat	0.02 (*)		5/8	
	PO 0111	Poultry, Edible offal of	0.02 (*)		5/8	
	VD 0541	Soya bean (dry)	0.02 (*)		5/8	
	FS 0012	Stone fruits	0.02 (*)		5/8	
	SO 0702	Sunflower seed	0.5		5/8	
	VR 0508	Sweet potato	0.02 (*)		5/8	
	FT 0305	Table Olives	0.02 (*)		5/8	
	TN 0085	Tree nuts	0.02 (*)		5/8	
	GC 0654	Wheat	0.4		5/8	
	AS 0654	Wheat straw and fodder, Dry	7	(dw)	5/8	
286	**Lufenuron**					
	VC 0424	Cucumber	0.09		5/8	
	MO 0105	Edible offal (mammalian)	0.04		5/8	
	PE 0112	Eggs	0.02		5/8	
	MF 0100	Mammalian fats (except milk fats)	0.7		5/8	
	MM 0095	Meat (from mammals other than marine mammals)	0.7	(fat)	5/8	
	VC 0046	Melons, except watermelon	0.4		5/8	
	FM 0183	Milk fats	2		5/8	
	ML 0106	Milks	0.1		5/8	
	VO 0445	Peppers, Sweet (including pimento or pimiento)	0.8		5/8	
	VR 0589	Potato	0.01 (*)		5/8	
	PF 0111	Poultry fats	0.04		5/8	
	PM 0110	Poultry meat	0.02		5/8	
	PO 0111	Poultry, Edible offal of	0.02	(fat)	5/8	
	VD 0541	Soya bean (dry)	0.01 (*)		5/8	
	VO 0448	Tomato	0.4		5/8	
287	**Quinclorac**					
	FB 0265	Cranberry	1.5		5/8	
	VS 0627	Rhubarb	0.5		5/8	

APPENDIX III

CODEX MAXIMUM RESIDUE LIMITS FOR PESTICIDES

(For Revocation)

	Commodity		MRL (mg/kg)			Step	Note
48	**Lindane**						
	GC 0640	Barley	0.01			CXL-D	
	MO 0105	Edible offal (mammalian)	0.01	(*)		CXL-D	
	PE 0112	Eggs	0.01	(*)		CXL-D	
	GC 0645	Maize	0.01	(*)		CXL-D	
	MM 0095	Meat (from mammals other than marine mammals)	0.1		(fat)	CXL-D	
	ML 0106	Milks	0.01	(*)		CXL-D	
	GC 0647	Oats	0.01	(*)		CXL-D	
	PM 0110	Poultry meat	0.05		(fat)	CXL-D	
	PO 0111	Poultry, Edible offal of	0.01	(*)		CXL-D	
	GC 0650	Rye	0.01	(*)		CXL-D	
	GC 0651	Sorghum	0.01	(*)		CXL-D	
	AS 0081	Straw and fodder (dry) of cereal grains	0.01	(*)		CXL-D	
	VO 1275	Sweet corn (kernels)	0.01	(*)		CXL-D	
	GC 0654	Wheat	0.01	(*)		CXL-D	
81	**Chlorothalonil**						
	FS 0013	Cherries (includes all commodities in this subgroup)	0.5			CXL-D	
	VP 0526	Common bean (pods and/or immature seeds)	5			CXL-D	
	VR 0581	Galangal, Greater	0.2			CXL-D	
	VA 0385	Onion, Bulb	0.5			CXL-D	
	HS 0444	Peppers Chili, dried	70			CXL-D	
	VO 0445	Peppers, Sweet (including pimento or pimiento)	7			CXL-D	
	VR 0075	Root and tuber vegetables	0.3			CXL-D	
	VO 0448	Tomato	5			CXL-D	
82	**Dichlofluanid**						
	FP 0226	Apple	5			CXL-D	
	VC 0424	Cucumber	5			CXL-D	
	FB 0021	Currants, Black, Red, White	15			CXL-D	
	FB 0268	Gooseberry	7			CXL-D	
	FB 0269	Grapes	15			CXL-D	
	VL 0482	Lettuce, Head	10			CXL-D	
	VA 0385	Onion, Bulb	0.1			CXL-D	
	FS 0247	Peach	5			CXL-D	
	FP 0230	Pear	5			CXL-D	
	VO 0051	Peppers	2			CXL-D	
	HS 0444	Peppers Chili, dried	20			CXL-D	
	VR 0589	Potato	0.1			CXL-D	
	FB 0272	Raspberries, Red, Black	15			CXL-D	
	FB 0275	Strawberry	10			CXL-D	
	VO 0448	Tomato	2			CXL-D	
93	**Bioresmethrin**						
	GC 0654	Wheat	1		Po	CXL-D	
	CM 0654	Wheat bran, Unprocessed	5		PoP	CXL-D	

	Commodity		MRL (mg/kg)		Step	Note
	CF 1211	Wheat flour	1	PoP	CXL-D	
	CF 1210	Wheat germ	3	PoP	CXL-D	
	CF 1212	Wheat wholemeal	1	PoP	CXL-D	
106	**Ethephon**					
	FP 0226	Apple	5		CXL-D	
	GC 0640	Barley	1		CXL-D	
	AS 0640	Barley straw and fodder, Dry	5		CXL-D	
	FB 0020	Blueberries	20		CXL-D	
	VC 4199	Cantaloupe	1		CXL-D	
	FS 0013	Cherries (includes all commodities in this subgroup)	10		CXL-D	
	PE 0840	Chicken eggs	0.2 (*)		CXL-D	
	SO 0691	Cotton seed	2		CXL-D	
	DF 0269	Dried grapes (=currants, raisins and sultanas)	5		CXL-D	
	MO 0096	Edible offal of cattle, goats, horses, pigs & sheep	0.2 (*)		CXL-D	
	DF 0297	Figs, Dried or dried and candied	10		CXL-D	
	FB 0269	Grapes	1		CXL-D	
	TN 0666	Hazelnuts	0.2		CXL-D	
	MM 0096	Meat of cattle, goats, horses, pigs & sheep	0.1 (*)		CXL-D	
	ML 0107	Milk of cattle, goats & sheep	0.05 (*)		CXL-D	
	VO 0051	Peppers	5		CXL-D	
	HS 0444	Peppers Chili, dried	50		CXL-D	
	FI 0353	Pineapple	2		CXL-D	
	PM 0110	Poultry meat	0.1 (*)		CXL-D	
	PO 0111	Poultry, Edible offal of	0.2 (*)		CXL-D	
	GC 0650	Rye	1		CXL-D	
	AS 0650	Rye straw and fodder, Dry	5		CXL-D	
	VO 0448	Tomato	2		CXL-D	
	TN 0678	Walnuts	0.5		CXL-D	
	GC 0654	Wheat	1		CXL-D	
	AS 0654	Wheat straw and fodder, Dry	5		CXL-D	
112	**Phorate**					
	HS 0190	Spices, Seeds	0.5		CXL-D	
115	**Tecnazene**					
	VR 0589	Potato	20	Po	CXL-D	Washed before analysis
143	**Triazophos**					
	HS 0191	Spices, Fruits and Berries	0.07		CXL-D	
146	**Cyhalothrin (includes lambda-cyhalothrin)**					
	HS 0191	Spices, Fruits and Berries	0.03		CXL-D	
160	**Propiconazole**					
	GC 0640	Barley	0.2		CXL-D	
	GC 0650	Rye	0.02		CXL-D	
	GC 0653	Triticale	0.02		CXL-D	
	GC 0654	Wheat	0.02		CXL-D	

	Commodity	MRL (mg/kg)		Step	Note
162	**Tolylfluanid**				
	FB 0264 Blackberries	5		CXL-D	
	VC 0424 Cucumber	1		CXL-D	
	FB 0021 Currants, Black, Red, White	0.5		CXL-D	
	FB 0269 Grapes	3		CXL-D	
	DH 1100 Hops, Dry	50		CXL-D	
	VA 0384 Leek	2		CXL-D	
	VL 0482 Lettuce, Head	15		CXL-D	
	HS 0444 Peppers Chili, dried	20		CXL-D	
	VO 0445 Peppers, Sweet (including pimento or pimiento)	2		CXL-D	
	FP 0009 Pome fruits	5		CXL-D	
	FB 0272 Raspberries, Red, Black	5		CXL-D	
	FB 0275 Strawberry	5		CXL-D	
	VO 0448 Tomato	3		CXL-D	
171	**Profenofos**				
	HS 0191 Spices, Fruits and Berries	0.07		CXL-D	
177	**Abamectin**				
	AM 0660 Almond hulls	0.1		CXL-D	
	TN 0660 Almonds	0.01	(*)	CXL-D	
	FP 0226 Apple	0.02		CXL-D	
	MF 0812 Cattle fat	0.1		CXL-D	The MRL accommodates external animal treatment
	MO 1280 Cattle kidney	0.05		CXL-D	The MRL accommodates external animal treatment
	MO 1281 Cattle liver	0.1		CXL-D	The MRL accommodates external animal treatment
	MM 0812 Cattle meat	0.01	(*)	CXL-D	
	ML 0812 Cattle milk	0.005		CXL-D	
	FC 0001 Citrus fruits	0.01	(*)	CXL-D	
	SO 0691 Cotton seed	0.01	(*)	CXL-D	
	VC 0424 Cucumber	0.01		CXL-D	
	MM 0814 Goat meat	0.01	(*)	CXL-D	
	ML 0814 Goat milk	0.005		CXL-D	
	MO 0814 Goat, Edible offal of	0.1		CXL-D	
	DH 1100 Hops, Dry	0.1		CXL-D	
	VL 0483 Lettuce, Leaf	0.05		CXL-D	
	VC 0046 Melons, except watermelon	0.01	(*)	CXL-D	
	FP 0230 Pear	0.02		CXL-D	
	HS 0444 Peppers Chili, dried	0.2		CXL-D	
	VO 0445 Peppers, Sweet (including pimento or pimiento)	0.02		CXL-D	
	VR 0589 Potato	0.01	(*)	CXL-D	
	VC 0431 Squash, summer	0.01	(*)	CXL-D	
	FB 0275 Strawberry	0.02		CXL-D	
	VO 0448 Tomato	0.02		CXL-D	
	TN 0678 Walnuts	0.01	(*)	CXL-D	
	VC 0432 Watermelon	0.01	(*)	CXL-D	
180	**Dithianon**				
	FC 0206 Mandarin	3		CXL-D	

	Commodity		MRL (mg/kg)		Step	Note
	FC 0005	Pummelo and Grapefruits (including Shaddock-like hybrids, among others Grapefruit)	3		CXL-D	
185	**Fenpropathrin**					
	FP 0009	Pome fruits	5		CXL-D	
189	**Tebuconazole**					
	FI 0327	Banana	0.05		CXL-D	
	VC 0424	Cucumber	0.15		CXL-D	
	VA 0385	Onion, Bulb	0.1		CXL-D	
206	**Imidacloprid**					
	FS 0240	Apricot	0.5		CXL-D	
	FS 0244	Cherry, Sweet	0.5		CXL-D	
	FS 0245	Nectarine	0.5		CXL-D	
	FS 0247	Peach	0.5		CXL-D	
	FS 0014	Plums (including fresh prunes) (includes all commodities in this subgroup)	0.2		CXL-D	
224	**Difenoconazole**					
	SO 0495	Rape seed	0.05		CXL-D	
	VD 0541	Soya bean (dry)	0.02	(*)	CXL-D	
243	**Fluopyram**					
	PE 0112	Eggs	0.3		CXL-D	
	MO 0098	Kidney of cattle, goats, pigs and sheep	0.5		CXL-D	
	MO 0099	Liver of cattle, goats, pigs & sheep	3		CXL-D	
	MM 0095	Meat (from mammals other than marine mammals)	0.5		CXL-D	
	ML 0106	Milks	0.3		CXL-D	
	PM 0110	Poultry meat	0.2		CXL-D	
	PO 0111	Poultry, Edible offal of	0.7		CXL-D	
246	**Acetamiprid**					
	MO 0105	Edible offal (mammalian)	0.05		CXL-D	
	VC 0045	Fruiting vegetables, Cucurbits	0.2		CXL-D	
	MF 0100	Mammalian fats (except milk fats)	0.02		CXL-D	
	MM 0095	Meat (from mammals other than marine mammals)	0.02		CXL-D	
	ML 0106	Milks	0.02		CXL-D	
248	**Flutriafol**					
	VO 0445	Peppers, Sweet (including pimento or pimiento)	1		CXL-D	
	FP 0009	Pome fruits	0.3		CXL-D	
256	**Fluxapyroxad**					
	SO 0691	Cotton seed	0.01	(*)	CXL-D	
	FS 0012	Stone fruits	2		CXL-D	
263	**Cyantraniliprole**					
	SB 0716	Coffee beans	0.03		CXL-D	
	MO 0105	Edible offal (mammalian)	0.05		CXL-D	
	PE 0112	Eggs	0.015		CXL-D	
	MF 0100	Mammalian fats (except milk fats)	0.01		CXL-D	
	MM 0095	Meat (from mammals other than marine mammals)	0.01		CXL-D	
	ML 0106	Milks	0.02		CXL-D	
	PF 0111	Poultry fats	0.01		CXL-D	

	Commodity	MRL (mg/kg)	Step	Note
	PM 0110 Poultry meat	0.01	CXL-D	
	PO 0111 Poultry, Edible offal of	0.01	CXL-D	
267	**Imazapyr**			
	MO 0105 Edible offal (mammalian)	0.05 (*)	CXL-D	

APPENDIX IV

DRAFT MAXIMUM RESIDUE LIMITS FOR PESTICIDES

(At Step 7)

	Commodity	MRL (mg/kg)		Source	Step	Note
90	**Chlorpyrifos-Methyl**					
	GC 0640 Barley	3	Po		7	
	GC 0640 Barley	10	Po		7	
	GC 0647 Oats	10	Po		7	
	GC 0649 Rice	10	Po		7	
	GC 0654 Wheat	3	Po		7	
	CM 0654 Wheat bran, unprocessed	6	PoP		7	
	CF 1210 Wheat germ	5	PoP		7	
126	**Oxamyl**					
	FC 0001 Citrus fruits	3			7	
	VC 0424 Cucumber	1			7	
	VC 0046 Melons, except watermelon	1			7	
	VO 0051 Peppers	5			7	
178	**Bifenthrin**					
	FI 0345 Mango	0.5			7	
	VO 0442 Okra	0.2			7	
	FI 0350 Papaya	0.4			7	
189	**Tebuconazole**					
	VP 0526 Common bean (pods and/or immature seeds)	2			7	
212	**Metalaxyl-M**					
	FP 0226 Apple	0.02	(*)		7	
	SB 0715 Cacao beans	0.02			7	
	FB 0269 Grapes	1			7	
	VL 0482 Lettuce, Head	0.5			7	
	VA 0385 Onion, Bulb	0.03			7	
	VO 0445 Peppers, sweet (including pimento or pimiento)	0.5			7	
	VR 0589 Potato	0.02	(*)		7	
	VL 0502 Spinach	0.1			7	
	SO 0702 Sunflower seed	0.02	(*)		7	
	VO 0448 Tomato	0.2			7	

APPENDIX V

PROPOSED DRAFT MAXIMUM RESIDUE LIMITS FOR PESTICIDES

(At Step 4)

	Commodity	MRL (mg/kg)		Source	Step	Note
31	**Diquat**					
	VD 0071 Beans (dry)	0.05			4	
	MO 0105 Edible offal (mammalian)	0.01	(*)		4	
	PE 0112 Eggs	0.01	(*)		4	
	MM 0095 Meat (from mammals other than marine mammals)	0.01	(*)		4	
	ML 0106 Milks	0.001	(*)		4	
	PM 0110 Poultry meat	0.01	(*)		4	
	PO 0111 Poultry, Edible offal of	0.01	(*)		4	
90	**Chlorpyrifos-Methyl**					
	GC 0080 Cereal grains	5		Po	4	(except maize and rice)
	CM 0649 Rice, Husked	1.5		Po	4	
	CM 1205 Rice, Polished	0.2		Po	4	
148	**Propamocarb**					
	VB 0041 Cabbages, Head	1			4	
	VL 0480 Kale (including among others: Collards, Curly kale, Scotch kale, thousand-headed kale; not including Marrow-stem kele)	20			4	
177	**Abamectin**					
	VL 0502 Spinach	0.15			4	
178	**Bifenthrin**					
	VS 0624 Celery	3			4	
	VL 0482 Lettuce, Head	4			4	
	FB 0275 Strawberry	3			4	
225	**Dimethomorph**					
	VL 0483 Lettuce, Leaf	20			4	
243	**Fluopyram**					
	VO 0051 Peppers	0.5			4	
	HS 0444 Peppers Chili, dried	5			4	
246	**Acetamiprid**					
	VL 0485 Mustard greens	15			4	
252	**Sulfoxaflor**					
	TN 0085 Tree nuts	0.015			4	
253	**Penthiopyrad**					
	AS 0645 Maize fodder (dry)	10		(DM)	4	
	VL 0485 Mustard greens	50			4	

	Commodity	MRL (mg/kg)	Source	Step	Note
264	**Fenamidone**				
	VL 0485 Mustard greens	60		4	
	VL 0502 Spinach	60		4	
282	**Flonicamid**				
	TN 0660 Almonds	0.01 (*)		4	
	AM 0660 Almond hulls	9		4	
	VB 0040 Brassica (Cole or Cabbage) Vegetables, Head Cabbage, Flowerhead Brassicas	2		4	
	VL 0054 Brassica leafy vegetables	15		4	
	MO 0105 Edible offal (mammalian)	0.06		4	
	PE 0112 Eggs	0.03		4	
	MF 0100 Mammalian fats (except milk fats)	0.02		4	
	MM 0095 Meat (from mammals other than marine mammals)	0.05		4	
	ML 0106 Milks	0.04		4	
	FP 0009 Pome fruits	0.8		4	
	VR 0589 Potato	0.015		4	
	PF 0111 Poultry fats	0.02		4	
	PM 0110 Poultry meat	0.02		4	
	PO 0111 Poultry, Edible offal of	0.02		4	
	SO 0495 Rape seed	0.5		4	
	GC 0654 Wheat	0.08		4	
	AS 0654 Wheat straw and fodder, Dry	0.3		4	

APPENDIX VI

DRAFT AND PROPOSED DRAFT MAXIMUM RESIDUE LIMITS FOR PESTICIDES

(Withdrawn by CCPR)

	Commodity		MRL (mg/kg)	Step	Note
185	**Fenpropathrin**				
	FS 0013	Cherries (includes all commodities in this subgroup)	7	MRL-W	
	FS 2001	Peaches (including Nectarine and Apricots) (includes all commodities in this subgroup)	3	MRL-W	
	FP 0009	Pome fruits	3	MRL-W	
248	**Flutriafol**				
	VL 0483	Lettuce, Leaf	5	MRL-W	
	VL 0485	Mustard greens	7	MRL-W	
	VL 0502	Spinach	10	MRL-W	
256	**Fluxapyroxad**				
	VL 0502	Spinach	30	MRL-W	

APPENDIX VII

DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED VEGETABLE COMMODITY GROUPS (GROUP 015 - PULSES)

(At Step 7)

PULSES

Class A

Type 2 Vegetables Group 015 Group Letter Code VD

Group 015. Pulses are derived from the mature seeds, naturally or artificially dried, of leguminous plants known as beans (dry) and peas (dry). Pulses are dry seeds without the pods.

The seeds in the pods are protected from most pesticides applied during the growing season except pesticides which show a systemic action. The dry beans and peas however are often exposed to post harvest treatments.

The dry pulses are consumed after processing or household cooking.

Commodities in this group are grouped in 3 subgroups:

15A Dry beans

15B Dry peas

15C Dry Underground pulses

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

Group 015 Pulses

Code No.	**Commodity**
VD 0070	**Pulses**
Subgroup 015A	***Dry beans***
Code No.	**Commodity**
VD 2065	**Dry beans** (includes all commodities in this subgroup)
VD 0071	**Beans (*Phaseolus* spp.)** (dry) *Phaseolus* spp.; several species and cultivars
VD 2891	**Beans (*Vigna* spp.)** (dry) *Vigna* spp.; several species and cultivars
VD 0560	**Adzuki bean** (dry) *Vigna angularis* (Willd.) Ohwi & Ohashi syn: *Phaseolus angularis* (Willd.) W. Wight;
VD 2890	**African yam bean** (dry) *Sphenostylis stenocarpa* (Hochst. Ex A. Rich.) Harms
-	**Asparagus pea**, see Goa bean (dry), VD 0530
-	**Black-eyed pea**, see Cowpea (dry), VD 0526 *Vigna unguiculata* (L.) Walp. subsp. *unguiculata*
-	**Black gram** (dry), see Urd bean (dry), VD 0521
-	**Black turtle beans,** see Common bean, VD 0526
-	**Bonavist bean (dry),** see Lablab bean (dry), VD 0531
VD 0523	**Broad bean** (dry) *Vicia faba* L, subsp. *faba*, var. *faba* Syn: *V. faba* L. var. *major* (Harz) Beck
-	**Butter bean** (dry), see Lima bean (dry), VD 0534
-	**Catjang** (dry), see Cowpea, Dry, VD 0527 *Vigna unguiculata* (L.) Walp. subsp. *cylindrica* (L.) Verdc. syn: *Dolichos catjang* Burm.

VD 0526 **Common bean** (dry)

Phaseolus vulgaris L.

VD 2892 **Common vetch** (dry)

Vicia sativa L.

VD 0527 **Cowpea** (dry)

Vigna unguiculata (L.) Walp;

syn: *V. sinensis* (L.) Savi ex Hassk.; *Dolichos sinensis* L.

- **Cranberry bean** (dry), see Common bean (dry), VD 0526
- **Dwarf bean** (dry), see Common bean (dry), VD 0526
- **Fava bean** (dry), see Broad bean (dry), VD 0523
- **Field bean** (dry), see Common bean (dry), VD 0526
- **Flageolet** (dry), see Common bean (dry), VD 0526
- **French bean**, see Group 014: Legume vegetables

VD 0530 **Goa bean** (dry)

Psophocarpus tetragonolobus (L.) DC.

- **Gram** (dry), see Chick-pea (dry), VD 0524
- **Green beans**, see Group 014: Legume vegetables
- **Green gram** (dry), see Mung bean (dry), VD 0536

VD 0525 **Guar** (dry)

Cyamopsis tetragonoloba (L.) Taub;

syn: *C. psoralioides* (lam.) DC.

- **Haricot bean**, see Group 014: Legume vegetables
- **Horse bean** (dry), see Broad bean (dry), VD 0523

VD 0562 **Horse gram** (dry)

Macrotyloma uniflorum (Lam.) Verdc.

syn: *Dolichos uniflorus* Lam.; *D. biflorus* auct. non L.

- **Hyacinth bean** (dry), see Lablab bean (dry), VD 0531

VD 0532 **Jack bean**, (dry)

Canavalia ensiformis (L.) DC.

- **Kidney bean** (dry), see Common bean (dry), VD 0526

VD 0531 **Lablab bean** (dry)

Lablab purpureus (L.) Sweet spp. *purpureus*

syn: *Dolichos lablab* L.; *Lablab niger* Medik; *L. vulgaris* Savi

VD 0534 **Lima bean** (dry)

Phaseolus lunatus L.;

syn: *Ph. limensis* Macf.; *Ph. inamoenus* L.

VD 0545 **Lupin** (dry)

Lupinus spp., sweet spp. varieties and cultivars

- **Mat bean** (dry), see Moth bean (dry), VD 0535

VD 2893 **Morama bean** (dry)

Tylosema esculentum (Burch.) A. Schreib.

VD 0535	**Moth bean** (dry)
	Vigna aconitifolius (Jacq.) Verde.
	syn: *Phaseolus aconitifolius* Jacq.; *Ph. trilobus* Ait;
VD 0536	**Mung bean** (dry)
	Vigna radiata (L.) Wilczek, var. *radiata*;
	syn: *Phaseolus aureus* Roxb;
-	**Navy bean** (dry), see Common bean (dry), VD 0526
-	**Pinto bean** (dry), see Common bean (dry), VD 0526
VD 0539	**Rice bean** (dry)
	Vigna umbellata (Thunb.) Ohwi & Ohashi;
	syn: *V. calcarata* (Roxb.) Kurz; *Phaseolus calcaratus* Roxb.
-	**Runner bean**, see Group 014: Legume vegetables
VD 0540	**Scarlet runner bean** (dry)
	Phaseolus coccineus L.
-	**Sieva bean** (dry), see Lima bean (dry), VD 0534
-	**Southern pea**, see Cowpea (dry), VD 0527
	Vigna unguiculata (L.) Walp. subsp. *unguiculata*
VD 0541	**Soya bean** (dry)
	Glycine max (L.) Merr.;
-	**Soya bean, black** (dry), see Soya bean (dry), VD 0541
-	**Soybean** (dry), see Soya bean (dry), VD 0541
VD 2898	**Sword bean** (dry)
	Canavalia gladiata (Jacq.) DC.
VD 0564	**Tepary bean** (dry)
	Phaseolus acutifolius Gray, var. *acutifolius*
	Syn: *Phaseolus acutifolius* Gray, var. *latifolius* Freem.
VD 2894	**Tick bean** (dry)
	Vicia faba L. var. *minuta* (hort. Ex Alef.) Mansf.
VD 0521	**Urd bean** (dry)
	Phaseolus mungo L.;
	syn: *Vigna mungo* (L.) Hepper
VD 2852	**Velvet bean** (dry)
	Mucuna Pruriens (L.) DC.
VD 2895	**Vetches** (*Vicia* spp.) (dry)
-	**White bean** (dry), see Navy bean (dry)
VD 0543	**Winged pea** (dry)
	Lotus tetragonolobus L.
	syn: *Tetragonolobus purpureus* Moench
VD 2896	**Yardlong bean** (dry)
-	*Vigna unguiculata* (L.) Walp. subsp. *unguiculata* forma *group sesquipedalis*

Subgroup 015B	***Dry peas***
Code No.	**Commodity**
VD 2066	**Dry peas**
	(includes all commodities in this subgroup)
VD 0072	**Peas** (dry, of *Pisum* spp)
	Pisum spp. several species and cultivars
-	**Angola pea** (dry), see Pigeon pea
-	**Ben Moringa seed** (dry), see Ben Moringa seed, Group 023: Oilseed
-	**Cajan pea** (dry), see Pigeon pea (dry), VD 0537
-	**Chickling vetch** (dry), see Grass-pea (dry), VD 2860
VD 0524	**Chick-pea** (dry)
	Cicer arietinum L.
VD 0561	**Field pea** (dry)
	Pisum sativum L., subsp. *sativum* var. *arvense* (L.) Poir.
	syn: *Pisum arvense* L.
-	**Garden pea**, see Group 014: Legume vegetables
-	**Gram** (dry), see Chick-pea (dry), VD 0524
VD 2860	**Grass-pea** (dry)
	Lathyrus sativus L.
VD 0533	**Lentil** (dry)
	Lens culinaris Medik subsp. *culinaris*
	syn: *Lens esculenta* Moench.; *Ervum lens* L.
-	**Pea** (dry), *Pisum sativum*, see Field pea (dry) VD 0561
VD 0537	**Pigeon pea** (dry)
	Cajanus cajan (L.) Huth
	syn: *C. indicus* Spreng.
-	**Red gram** (dry), see Pigeon pea (dry), VD 0537
-	**Wrinkled pea** (dry), see Field pea (dry), VD 0561
Subgroup 015C	***Dry underground pulses***
Code No.	**Commodity**
VD 2067	**Dry underground pulses**
	(includes all commodities in this subgroup)
VD 0520	**Bambara groundnut** (dry seed)
	Vigna subterranea (L.) Verde.;
	syn: *Voandzeia subterranea* (L.) Thou.
-	**Geocarpa groundnut or Geocarpa bean** (dry), see Kersting's groundnut, VD 0563
-	**Groundnut** (dry), see Peanut, Group 023: Oilseed
VD 0563	**Kersting's groundnut** (dry)
	Macrotyloma geocarpum (Harms) Marcechal & Baudet;
	syn: *Kerstingiella geocarpa* Harms.
-	**Peanut** (dry), see Peanut, Group 023: Oilseed

APPENDIX VIII

PROPOSED DRAFT REVISION OF THE *CLASSIFICATION OF FOOD AND FEED*: SELECTED VEGETABLE COMMODITY GROUPS (GROUP 014 - LEGUME VEGETABLES)

(At Step 4)

LEGUME VEGETABLES

Class A

Type 2 Vegetables Group 014 Group Letter Code VP

Group 014. Legume vegetables are derived from the succulent seed and immature pods of leguminous plants commonly known as beans and peas.

Pods are fully exposed to pesticides during the growing season, whereas the succulent seed is protected within the pod from most pesticides; except pesticides with systemic action and underground beans and peas.

The succulent forms may be consumed as whole pods or without pods. Immature soya bean is usually marketed and served with pods, but pods are not edible and only succulent seeds are eaten.

This group contains 5 subgroups based on the morphology and growing practices:

14A Beans with pods

14B Peas with pods

14C Succulent beans without pods

14D Succulent peas without pods

14E Underground beans and peas

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

Group 014	***Legume vegetables***
Code No.	**Commodity**
VP 0060	**Legume vegetables**
Subgroup 14A	***Beans with pods***
Code No.	**Commodity**
VP 2060	**Beans with pods**
	(includes all commodities in this subgroup)
VP 0061	**Beans with pods (*Phaseolus* spp.)** immature pods and succulent seeds)
VP 2840	**Beans with pods (*Vigna* spp.)** (immature pods and succulent seeds)
-	**Asparagus bean** (pods), see Yard-long bean, VP 0544
-	**Asparagus pea** (pods), see Goa bean, VP 0530
-	**Black gram** (immature pods), see Urd bean, VP 0521
-	**Bonavist bean** (immature pods and succulent seeds), see Lablab bean, VP 0531
VP 0522	**Broad bean** (immature pods and succulent seeds)
	Vicia faba L. subsp. *faba*, var. *faba*
VP 2841	**Catjang** (immature pods and succulent seeds)
	Vigna unguiculata (L.) Walp. subsp *cylindrica* (L.) Verdc.
	syn: *Dolichos catjang* Burm.
-	**Chinese longbean**, see Yard-long bean, VP 0544
-	**Cluster bean** (immature pods), see Guar, VP 0525

VP 0526 **Common bean (poroto)** (pods and succulent seeds)

Phaseolus vulgaris L., several cultivars

VP 0527 **Cowpea** (immature pods)

Vigna unguiculata (L) Walp. subsp. *unguiculata*

- **Four-angled bean** (immature pods), see Goa bean, VP 0530

- **French bean** (immature pods and seeds), see Common bean (pods and succulent seeds), VP 0526

- **Garden bean**, see Common bean, VP 0526

VP 0530 **Goa bean** (immature pods)

Psophocarpus tetragonolobus (L.) DC.

- **Green bean** (immature pods and succulent seeds), see Common bean (pods and succulent seeds), VP 0526

- **Green gram** (immature pods), see Mung bean, VP 0536

- **Green soya bean**, see Soya bean (succulent seeds in pods), VP 0546

VP 0525 **Guar** (immature pods)

Cyamopsis tetragonoloba (L.) Taub; syn: *C. psoralioides* (lam.) DC.

- **Haricot bean** (immature pods and succulent seeds), see Common bean (pods and succulent seeds), VP 0526

- **Hyacinth bean** (immature pods and succulent seeds), see Lablab bean (pods and succulent seeds), VP 0531

VP 0532 **Jack bean** (immature pods and succulent seeds)

Canavalia ensiformis (L.) DC.

- **Kidney bean** (pods), see Common bean (pods and succulent seeds), VP 0526

VP 0531 **Lablab bean** (pods and succulent seeds)

Lablab purpureus (L.) Sweet spp. *purpureus*

syn: *Dolichos lablab* L.; *Lablab niger* Medik; *L. vulgaris* Savi

- **Manila bean** (immature pods), see Goa bean (immature pods), VP 0530

- **Mat bean** (immature pods), see Moth bean (immature pods), VP 0535

VP 0535 **Moth bean** (immature pods)

Vigna aconitifolius (Jacq.) Verde.

syn: *Phaseolus aconitifolius* Jacq.; *Ph. trilobus* Ait;

VP 0536 **Mung bean** (immature pods)

Vigna radiata (L.) Wilczek, var. *radiata*; syn: *Phaseolus aureus* Roxb;

- **Navy bean** (immature pods and/or succulent seeds), see Common bean VP 0526

- **Poroto** (pods and succulent seeds) see Common Bean (pods and succulent seeds), VP 0526

VP 0539 **Rice bean** (immature pods)

Vigna umbellata (Thunb.) Ohwi eg Ohashi;

syn: *V. calcarata* (Roxb.) Kurz; *Phaseolus calcaratus* Roxb.

- **Runner bean**, see Common bean, VP 0526

VP 0540 **Scarlet runner bean** (pods and seeds)

Phaseolus coccineus L.

- **Slicing bean**, see Common bean (pods and succulent seeds), VP 0526

- **Snap bean** (immature pods), see Common bean, VP 0526

VP 0546	**Soya bean** (succulent seeds in pods)
	Glycine max (L.) Merr.;
VP 2842	**Stink bean** (pods and succulent seeds)
	Parkia speciosa Hassk.
VP 0542	**Sword bean** (immature pods and beans)
	Canavalia gladiata (Jacq.) DC.
VP 0521	**Urd bean** (immature pods)
	Vigna mungo (L.) Hepper var. *mungo*
	syn: *Phaseolus mungo* L.;
-	**Vegetables soybean (edamame)**, see Soya bean (succulent seeds in pods),
VP 0546	**Wax bean**, see Common bean, VP 0526
-	**Winged bean** (immature pods), see Goa bean, VP 0530
VP 0544	**Yard-long bean** (pods)
	Vigna unguiculata subsp *sesquipedalis* (L.) Verdc.
Subgroup 14B	***Peas with pods***
Code No.	**Commodity**
VP 2061	**Peas with pods**
	(includes all commodities in this subgroup)
VP 0063	**Peas** (pods and succulent seeds of *Pisum* spp.)
	Pisum spp.
VP 0690	**Ben Moringa** (pods)
	Moringa oleifera
	syn: *Moriga pterygosperma*.
VP 0524	**Chick-pea** (immature pods)
	Cicer arietinum L.
-	**Dwarf pea**, see pigeon pea with pods (immature pods), VP 0537
VP 0528	**Garden pea** (immature pods)
	Pisum sativum L. var. *sativum*
VP 2860	**Grass pea** (immature pods)
	Lathyrus sativus L.
VP 0533	**Lentil** (immature pods)
	Lens culinaris Medik subsp. *culinaris*
	syn: *Lens esculenta* Moench.; *Ervum lens* L.
-	**Mangetout or Mangetout pea**, see Podded pea, VP 0538
VP 0537	**Pigeon pea** (immature pods and young seeds)
	Cajanus cajan (L.) Millsp. syn: *C. indicus* Spreng.
VP 0538	**Podded pea** (immature pods)
	Pisum sativum L., subsp. *sativum* var. *macrocarpon* Ser.; *P. sativum* L., spp. *sativum*, var. *sacharatum*
-	**Red gram** (immature pods and immature seeds), see Pigeon pea, VP 0537
-	**Snow pea**, see Pigeon pea (immature pods), VP 0537
-	**Sugar pea** (immature pods), see Podded pea, VP 0538

VP 0543	**Winged pea** (immature pods)
	Lotus tetragonolobus L.
	syn: *Tetragonolobus purpureus* Moench
Subgroup 14C	***Succulent beans without pods***
Code No.	**Commodity**
VP 2062	**Succulent beans without pods**
	(includes all commodities in this subgroup)
VP 0062	**Beans without pods (*Phaseolus* spp.)** (succulent seeds) VP 2843
	Beans without pods (*Vigna* spp.) (succulent seeds)
-	**Blackeyed peas** (succulent seeds), see Cowpea (succulent seeds), VP 2846
-	**Bonavist bean** (succulent seeds), see Lablab bean, VP 2848
VP 0523	**Broad bean, without pods** (succulent seeds)
	Vicia faba L. subsp. *faba*, var. *faba*
VP 2844	**Catjang** (succulent seeds)
	Vigna unguiculata (L.) Walp. subsp *cylindrica* (L.) Verdc. syn: *Dolichos catjang* Burm.
VP 2845	**Common bean** (succulent seeds)
	Phaseolus vulgaris L., several cultivars
VP 2846	**Cowpea** (succulent seeds)
	Vigna unguiculata (L) Walp. subsp. *unguiculata*
-	**Fava bean** (succulent beans), see Broad bean, without pods, VP 0523
-	**Flageolet** (succulent beans), see Common bean (succulent seeds), VP 2845
VP 2847	**Goa bean** (succulent seeds)
	Psophocarpus tetragonolobus (L.) DC.
-	**Hyacinth bean** (succulent seeds), see Lablab bean (succulent seeds), VP 2848
VP 2853	**Jack bean** (succulent seeds)
	Canavalia ensiformis (L.) DC.
VP 2848	**Lablab bean** (succulent seeds)
	Lablab purpureus (L.) Sweet spp. *purpureus*
	syn: *Dolichos lablab* L.; *Lablab niger* Medik; *L. vulgaris* Savi
VP 0534	**Lima bean** (succulent seeds)
	Phaseolus lunatus L.;
	syn: *Ph. limensis* Macf.; *Ph. inamoenus* L.
VP 0545	**Lupin**
	Lupinus ssp, sweet spp., varieties and cultivars
-	**Mat bean** (succulent seeds), see Moth bean (succulent seeds), VP 2849
VP 2849	**Moth bean** (succulent seeds)
	Vigna aconitifolius (Jacq.) Verde.
	syn: *Phaseolus aconitifolius* Jacq.; *Ph. trilobus* Ait;
VP 2850	**Scarlet runner bean** (succulent seeds)
	Phaseolus coccineus L.
-	**Sieva bean** (fresh beans), see Lima bean, VP 0534
-	**Southern pea**, see Cowpea (succulent seeds), VP 2846

VP 0541	**Soya bean** (succulent seeds)
	Glycine max (L.) Merr.;
-	**Soybean**, see Soya bean (succulent seeds), VP 0541
VP 2851	**Stink bean** (succulent seeds)
	Parkia speciosa Hassk.
VP 2852	**Velvet bean**
	Mucuna pruriens (L.) DC.
Subgroup 14D	***Succulent peas without pods***
Code No.	**Commodity**
VP 2063	**Succulent peas without pods**
	(includes all commodities in this subgroup)
VP 0064	**Peas without pods** (succulent seeds of *Pisum* spp.)
	Pisum spp.
-	**Angola pea** (succulent seeds), see Pigeon pea (succulent seeds), VP 2865
-	**Cajan pea** (succulent seeds), see Pigeon pea (succulent g seeds), VP 2865
VP 2862	**Chick-pea** (succulent seeds)
	Cicer arietinum L.
-	**Garbanzos**, see Chick-pea (succulent seeds), VP2862
VP 2863	**Garden pea**, (succulent seeds)
	Pisum sativum L. var. *sativum*
-	**Green pea**, see Garden pea (succulent seeds), VP 2863
VP 2864	**Lentil** (succulent seeds)
	Lens culinaris Medik subsp. *culinaris*
	syn: *Lens esculenta* Moench.; *Ervum lens* L.
VP 2865	**Pigeon pea** (succulent seeds)
	Cajanus cajan (L.) Millsp.; syn: *C. indicus* Spreng.
-	**Red gram** (succulent seeds), see Pigeon pea (succulent seeds), VP 2865
-	**Wrinkled pea**, see Garden pea (succulent seeds), VP 2863
	Pisum sativum L., convar. *medullare*
Subgroup 14E	***Underground beans and peas***
Code No.	**Commodity**
VP 2064	**Underground beans and peas**
	(includes all commodities in this subgroup)
VP 0520	**Bambara groundnut** (immature seeds)
	Vigna subterranea (L.) Verdc.
VP 0697	**Peanut** (immature seeds)
	Arachis hypogaea L.

APPENDIX IX

PROPOSED DRAFT REVISION OF THE CLASSIFICATION OF FOOD AND FEED AT STEP 4: SELECTED VEGETABLE COMMODITY GROUPS (GROUP 011 - FRUITING VEGETABLES, CUCURBITS)

(At Step 4)

FRUITING VEGETABLES, CUCURBITS

Class A

Type 2 Vegetables Group 011 Group Letter Code VC

Group 011 Fruiting vegetables, Cucurbits are derived from the immature or mature fruits of various plants, belonging to the botanical family Cucurbitaceae: usually these are annual vines or bushes.

The vegetables are fully exposed to pesticides during the period of fruit development. The edible portion of those fruits of which the inedible peel is discarded before consumption is protected from most pesticides, by the skin or peel, except from pesticides with a systemic action.

The entire fruiting vegetable or the edible portion after discarding the inedible peel may be consumed in the fresh form or after processing. The entire immature fruit of some of the fruiting vegetables species may be consumed, whereas only the edible portion of the mature fruit of the same species, after discarding the then inedible peel, is consumed. A number of varieties of winter squashes are eaten with peels, which needs to be considered in exposure assessment of these commodities to avoid underestimating the dietary intake of pesticide residues.

The group Fruiting vegetables, Cucurbits is divided in 2 subgroups:

11A Fruiting vegetables, Cucurbits – Cucumbers and Summer squashes

11B Fruiting vegetables, Cucurbits – Melons, Pumpkins and Winter squashes

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

Group 011 Fruiting vegetables, Cucurbits

Code No.	**Commodity**
VC 0045	**Fruiting vegetables, Cucurbits**

Subgroup 011A Fruiting vegetables, Cucurbits – Cucumbers and Summer squashes

Code No.	**Commodity**
VC 2039	**Fruiting vegetables, Cucurbits - Cucumbers and Summer squashes** (includes all commodities in this subgroup)
-	**Alcayota**, see Gourd Malabar, VC 2658
VC 0420	**Balsam apple** *Momordica balsamina* L.
VC 0421	**Bitter melon** *Momordica charantia* L.
-	**Bitter cucumber**, see Bitter melon, VC 0421
-	**Bitter gourd**, see Bitter melon, VC 0421
-	**Balsam pear**, see Bitter melon, VC 0421
VC 0422	**Bottle gourd** *Lagenaria siceraria* (Molina) Standl.; syn: *L. vulgaris* Ser.; *L. leucantha* (Duch.) Rusby
VC 0423	**Chayote** *Sechium edule* (Jacq.) Schwartz; syn: *Chayota edulis* Jacq.
VC 2650	**Chieh qua** (young Chinese waxgourd, immature fruit) *Benincasa hispida* (Thunb.) Cogn. var. *chieh-qua* How

VC 2651	**Chinese cucumber**
	Trichosanthes kirilowii Maxim.
-	**Christophine**, see Chayote, VC 0423
-	**Courgette**, see Squash, Summer, VC 0431
VC 0424	**Cucumber**
	Cucumis sativus L.; English and forcing cucumber cultivars
-	**Cucumber, brown-netted**, see Cucumber, VC 0424
	Cucumis sativus L. var. sikkimensis
VC 2652	**Cucumber, exploding**
	Cyclanthera brachystachya (Ser.) Cogn.
VC 2653	**Cucumber, stuffing**
	Cyclanthera pedata (L.) Schrad.
-	**Cucuzzi**, see Bottle gourd, VC 0422
VC 2654	**Gac**
	Momordica cochinchinensis (Lour.) Spreng.
VC 0425	**Gherkin**
	Cucumis sativus L.; pickling cucumber cultivars
VC 0426	**Gherkin, West Indian**
	Cucumis anguria L.
VC 2655	**Gourd, bitter snake**
	Trichosanthes tricuspidata Lour.
VC 2656	**Gourd, buffalo**
	Cucurbita foetidissima Kunth
-	**Gourd, club**, see Snake gourd, VC 0430
VC 2657	**Gourd, fluted**
	Telfairia occidentalis Hook. f.
VC 2658	**Gourd, Malabar**
	Cucurbita ficifolia Bouché
VC 2659	**Gourds, other**, including
	Trichosanthes edulis Rugayah
	Trichosanthes laeoica C. Y. Cheng & Lu Q. Huang
VC 2660	**Gourd, pointed**
	Trichosanthes dioica Roxb.
VC 2661	**Gourd, round**
	Benincasa fistulosa (Stocks) H. schaef. & S.S. Renner
-	**Gourd, Xishuangbanna**, see Cucumber, VC 0424
	Cucumis sativus L. var. xishuangbannansis ined.
	Indian curry cucumber, see Cucumber, VC 0424
-	**Indian round gourd**, see Gourd, round, VC 2661
	Praecitrullus fistulosus (Stocks) Pangalo
VC 2662	**Indian spine gourd**
	Momordica dioica Roxb. Ex Willd.
VC 2663	**Ivy gourd**
	Coccinia grandis (L.) Voigt

VC 2664	**Japanese snake gourd**
	Trichosanthes pilosa Lour.
VC 0427	**Loofah, Angled**
	Luffa acutangula (L.) Roxb.
VC 0428	**Loofah, Smooth**
	Luffa aegyptiaca Mill.
	syn: *Luffa cylindrica* (L.) M. J. Roem;
-	**Marrow** (immature fruit), see Squash, Summer, VC 0431
	Cucurbita pepo L., several cultivars
-	**Patisson,** see Squash, Summer, VC 0431
-	**Sinkwa or Sinkwa towel gourd**, see Loofah, Angled, VC 0427
VC 0430	**Snake gourd**
	Trichosanthes cucumerina L.;
	syn: *T. anguina* L.
-	**Spiny bitter gourd**, see Gac, VR 2654
-	**Sponge gourd**, see Loofah, Smooth, VC 0428
VC 0431	**Squash, Summer**
	Cucurbita pepo L.; *Cucurbita pepo* L. subsp. *pepo; Cucurbita pepo* L. subsp. *Ovifera* (L.) Harz*;* several cultivars, immature
-	**Squash, White Bush**, see Squash, Summer, VC 0431
-	**Sweet gourd**, see Gac, VR 2654
VC 2665	**Tacaco**
	Sechium tacaco (Pittier) C. Jeffrey
-	**Vegetable sponge**, see Loofah, Smooth, VC 0428
-	**Wax gourd** (immature fruit), see Chieh qua, VC 2650
-	**West Indian gherkin**, see Gherkin, West Indian, VC 0426
-	**Zapallito italiano (zucchini)**, see Squash, Summer, VC 0431
-	**Zucchetti**, see Squash, Summer, VC 0431
-	**Zucchini**, see Squash, Summer, VC 0431

Subgroup 011B ***Fruiting vegetables, Cucurbits – Melons, Pumpkins and Winter Squashes***

Code No.	**Commodity**
VC 2040	**Fruiting vegetables, Cucurbits** – Melons, Pumpkins and Winter Squashes
	(includes all commodities in this subgroup)
-	**Acorn squash**, see Winter squash, VC 0433
	Cucurbita pepo var*. ovifera* (L.) Harz
VC 2680	**African horned melon**
	Cucumis metuliferus E. Meyer ex Naudin
-	**Butternut squash**, see Winter squash, VC 0433 or Pumpkins, VC 0429
	Cucurbita moschata Duchesne
-	**Calabaza**, see Winter squash, VC 0433 or Pumpkins, VC 0429
	Cucurbita pepo L.
-	**Cantaloupe**, see Melons, except Watermelon, VC 0046
	Cucumis melo L., subsp. *melo* var. *cantaloupo* Ser.

VC 2681	**Casabanana**
	Sicana odorifera (Vell.) Naudin
-	**Casaba or Casaba melon**, see Melons, except Watermelon, VC 0046
-	**Cheese pumpkin**, see Winter squash, VC 0433 or Pumpkins, VC 0429
	Cucurbita moschata Duchesne
-	**Chinese wax gourd** (mature fruit), see Wax gourd (mature fruit), VC 2684
-	**Citron melon**, see Watermelon, VC 0432
	Citrullus lanatus (Thunb.) Mansf., var. *edulis*;
	syn: *Citrullus edulis* Pang.
-	**Cucumber, Armenian**, see Melon, Serpent
-	**Cushaws**, see Pumpkins, VC 0429
	Mature cultivars of *Cucurbita argyrosperma* C. Huber
-	**Giant pumpkin**, see Winter squash, VC 0433 or Pumpkins, VC 0429
	Cucurbita moschata Duchesne
-	**Hubbard squash**, see Winter squash, VC 0433
-	**Kiwano**, see African horned melon, VC 2680
-	**Korean Melon,** see Melons, except Watermelon, VC 0046
	Hybrid cultivars of *Cucumis melo* L. subsp. *agrestis* (Naudin) Pangalo
-	**Marrow** (late variety), see Pumpkins, VC 0429
VC 0046	**Melons, except Watermelon**
	Several var. and cultivars of *Cucumis melo* L.
-	**Melon, Crenshaw**, see Melons, except Watermelon, VC 0046
	Cultivar of *Cucumis melo* L. subsp. *melo* var. *inodorus* H. Jacq.
-	**Melon, Dudaim**, see Melons, except Watermelon, VC 0046
	Cucumis melo L., var. *dudaim* (L.) Naudin.
-	**Melon, Garden**, see Melons, except watermelons VC 0046
-	**Melon, Honey Ball**, see Melons, except Watermelon, VC 0046
	Cultivar of *Cucumis melo* L., subsp. *melo* var. *cantaloupo* Ser.
-	**Melon, Honeydew**, see Melons, except Watermelon, VC 0046
	Cultivar of *Cucumis melo* L., var. *inodorus* Naud.
-	**Melon, Mango**, see Vine peach
VC 2683	**Melon, nara**
	Acanthosicyos horridus Welw. ex Benth. & Hook. f.
-	**Melon, Oriental Pickling**, see Melons, except Watermelon, VC 0046
	Cucumis melo L. subsp. *agrestis* (Naudin) Pangalo var. *conomon* (Thunb.) Makino
-	**Melon, Persian**, see Melons, except Watermelon, VC 0046
	Cultivar of *Cucumis melo* L., subsp. *melo* var. *cantaloupo* Ser.
-	**Melon, Pomegranate**, see Melons, except watermelons VC 0046
-	**Melon, Serpent**, see Melons, except Watermelon, VC 0046
	Cucumis melo L., var. *flexuosus* (L.) Naudin.
-	**Melon, Snake**, see Melons, except Watermelon, VC 0046
	synonym of Melon, Serpent
-	**Melon, Snap**, see Melons, except Watermelon, VC 0046
	Acanthosicyos horridus Welw. Ex Benth. & Hook. f.

- **Melon, White-skinned**, see Melons, except Watermelon, VC 0046

  Cultivars of *Cucumis melo* L. subsp. *melo* var. *inodorus* H. Jacq.

- **Melon, Winter**, see Melons, except Watermelon, VC 0046

  synonym of Melons, White-skinned, see there

- **Muskmelon**, see Melons, except Watermelon, VC 0046

  Cultivar of *Cucumis melo* L.; *C. melo* L. var. *melo*

- **Oriental melon**, see Melons, except Watermelon, VC 0046

- **Pumpkin**, see Pumpkins, VC 0429 or Winter squash, VC 0433

  Cucurbita pepo L.; *C. pepo* L. subsp. *pepo*

VC 0429 **Pumpkins**

Mature cultivars of *Cucurbita maxima* Duchesne; *Cucurbita argyrosperma* C. Huber; *C. moschata* Duchesne; *C. pepo* L. subsp. *pepo* and *C. pepo* L., several cultivars

- **Silver Seed gourd**, see Pumpkins, VC 0429

  Cucurbita argyrosperma C. Huber

- **Spaghetti squash**, see Winter squash, VC 0433 or Pumpkins, VC 0429

  Cucurbita pepo subsp*. pepo*

- **Vine peach**, see Melons, except Watermelon, VC 0046

  Cucumis melo L. subsp. *agrestis* (Naudin) Pangalo var. *chito* (C. Morren) Naudin

VC 0432 **Watermelon**

Citrullus lanatus (Thunb.) Matsum. & Nakai var. *lanatus*

syn: *C. vulgaris* Schrad.; *Colocynthis citrullus* (L.) O. Ktze.

VC 2684 **Wax gourd (mature fruit)**

Benincasa hispida (Thunb.) Cogn.;

syn: *B. cerifera* Savi

VC 0433 **Winter squash**

Mature cultivars of *Cucurbita maxima* Duchesne; *C. maxima* subsp. *maxima*; *C. moschata* Duchesne;. *C. pepo* (L.); *Cucurbita pepo* subsp*. pepo* and *Cucurbita pepo* var*. ovifera* (L.) Harz

APPENDIX X

PROPOSED DRAFT REVISION OF THE CLASSIFICATION OF FOOD AND FEED: SELECTED COMMODITY GROUPS (GROUP 020 – GRASSES OF CEREAL GRAINS)

(At Step 5)

TYPE 3 GRASSES

Grasses are herbaceous annual and perennial monocotyledonous plants of different kinds, cultivated extensively for their ears (heads) of starchy seeds used directly for the production of food. Grasses used for animal feed are classified under Class C: Primary Animal feed commodities, Group 051.

The plants are fully exposed to pesticides applied during the growing season.

Cereal grains

Class A

Type 3 Grasses Group 020 Group Letter Code GC

Group 020. Cereal grains are derived from the ears (heads) of starchy seeds produced by a variety of plants, primarily of the grass family (Gramineae).

Pseudo-cereals or pseudo-grains, are not grasses, but have similar uses and are generally considered with cereal grains. Pseudo-cereals, produce dry fruit referred to as seed, nutlets, grains or achenes and are found in families such as Amaranthacee (amaranths), Chenopodiaceae (Canihua) and Polygoniaceae (buckwheat).This group also includes the small seeded crop chia (Lamiaceae).

The edible seeds are protected to varying degrees from pesticides applied during the growing season by husks. Husks are removed before processing and/or consumption.

Cereal grains are often exposed to post-harvest treatment with pesticides.

Portion of the commodity to which the MRL applies (and which is analysed):"Whole commodity **in trade. Wheat, rye, triticale, maize, sorghum, pearl millet and other similar cereals with husks readily separable from kernels during threshing: kernels. Barley, oats, rice and other similar cereals with husks that remain attached to kernels even after threshing: kernels with husks (Note: For rice, only about 10% of traded grains is with husk).** Fresh corn and sweet corn: kernels plus cob without husk. **[Note that there are also hullless varieties of barley]**

Group 020 Cereal grains

Code No.	**Commodity**
GC 0080	**Cereal grains** Seeds of *gramineous* plants and of dicotyledonous plants with similarities in size and type of the seed, residue pattern and the use of the commodity
GC 0081	**Cereal grains**, cereal grains except pseudo-cereals
GC 0082	**Pseudo-cereals,** or pseudo-grains, produce dry fruit referred to as seed, nutlets, grains or achenes and are found in families such as Amaranthacee (amaranths), Chenopodiaceae (Canihua) and Polygoniaceae (buckwheat). This group also includes the small seeded crop chia (Lamiaceae).

Subgroup 020A Wheat, similar grains, and pseudo-cereals without husks

Code No.	**Commodity**
GC 2086	**Wheat, similar grains, and pseudo-cereals without husks** (includes all commodities in subgroup 020A)
GC 3080	**Amaranth, grain** *Amaranthus* spp.
-	**Amaranth, purple,** see Amaranth grain, GC 3080 *Amaranthus cruentus* L.
GC 0642	**Cañihua** *Chenopodium pallidicaule* Aellen

GC 3081	**Chia**
	Salvia hispanica L.
GC 3082	**Cram-cram**
	Cenchrus biflorus Roxb.
-	**Durum wheat**, see Wheat, GC 0654
	ssp. *Triticum durum* Desf.
-	**Emmer**, see Wheat, GC 0654
	ssp. *Triticum dicoccum* Schubl.
GC 3083	**Huauzontle**
	Chenopodium berlandieri Moq. subsp. *nuttalliae* (Saff.) H. D. Wilson & Heiser
-	**Inca wheat,** see Amaranth grain, GC 3080
	Amaranthus caudatus L.
-	**Princess–feather,** see Amaranth grain, GC 3080
	Amaranthus hypochondriacus L.
GC 3084	**Psyllium sp.**
	Plantagospp
-	**Psyllium**, see Psyllium sp.GC 3084
	Plantago arenaria Waldst. & Kit.
-	**Psyllium, blond,** see *Psyllium* sp. GC 3084
	Plantago ovata Forssk.
GC 0648	**Quinoa**
	Chenopodium quinoa Willd.
GC 0650	**Rye**
	Secale cereale L.
-	**Spelt**, see Wheat, GC 0654
	Triticum spelta L.
GC 0653	**Triticale**
	Hybrid of Wheat and Rye
GC 0654	**Wheat**
	Cultivars of *Triticuma estivum* L.;
	syn: *T. sativum* Lam.; *T. vulgare* Vill.; *Triticum* spp., as listed

Subgroup 020B	***Barley, similar grains, and pseudo-cereals with husks***
Code No.	**Commodity**
GC 2087	**Barley, similar grains, and pseudo-cereals with husks**
	(includes all commodities in subgroup 020B)
GC 0640	**Barley**
	Hordeum vulgare L.;
	syn: *H. sativum* Pers.
GC 0641	**Buckwheat**
	Fagopyrum esculentum Moench;
	syn: *F. sagittatum*Gilib.

GC 3085	**Buckwheat, tartary**
	Fagopyrum tataricum (L.) Gaertn.
GC 0647	**Oats**
	Avena sativa L.; *A. abyssinica* Hochst.
-	**Oat, Red**, see Oats, GC 0647
	Avena byzantina Koch

Subgroup 020C ***Rice Cereals***

Code No.	**Commodity**
GC 2088	Rice cereals
	(includes all commodities in subgroup 020C)
GC 0649	**Rice**
	Oryza sativa L.; several ssp. and cultivars
GC 3086	**Rice, African**
	Oryza glaberrima Steud.
GC 0655	**Wild rice**
	Zizania palustris L.
-	**Wild Rice, Eastern,** see wild rice GC 0655
	Zizaniaaquatica L.

Subgroup 020D ***Maize, Grain Sorghum and Millet***

Code No.	**Commodity**
GC 2089	**Maize, Grain Sorghum and Millet**
	(includes all commodities in subgroup 020D)
-	**Acha**, see Hungry Rice, GC 0643
-	**Adlay**, see Job's Tears, GC 0644
-	**African millet**, see Millet, GC 0646
-	**Brown-corn millet**, see Millet, GC 0646
-	**Bulrush millet**, see Millet, Bulrush
GC 3087	**Canarygrass, annual**
	Phalaris canariensis L.
-	**Cat-tail millet**, see Millet, Bulrush
-	**Chicken corn**, see Sorghum, GC 0651
	Sorghum drummondii (Steud.) Millsp. & Chase
-	**Corn**, see Maize, GC 0645
-	**Dari seed**, see Sorghum, GC 0651
-	**Durra**, see Sorghum, GC 0651
	ssp. *Sorghum durra* (Forsk.) Stapf.
-	**Feterita**, see Sorghum, GC 0651
	ssp. *Sorghum caudatum* Stapf.
-	**Finger millet**, see Millet, GC 0646
-	**Fonio**, see Hungry Rice, GC 0643
-	**Fonio, black,** see Hungry Rice, GC 0643
	Digitaria iburua Stapf
-	**Foxtail millet**, see Millet, GC 0646

- **Fundi**, see Hungry Rice, GC 0643
- **Guinea corn**, see Sorghum, GC 0651

  spp. *Sorghum guineense* Stapf.
- **Hog millet**, see Millet, GC 0646

GC 0643 **Hungry rice**

Digitaria exilis Stapf.; *D. iburua* Stapf.

GC 0644 **Job's tears**

Coixlacryma-jobi L.

- **Kaffir corn**, see Sorghum, GC 0651

  ssp. *Sorghum caffrorum* Beauv.
- **Kaoliang**, see Sorghum, GC 0651

  ssp. *Sorghum nervosum* Bess. Ex Schult.

GC 0645 **Maize**

Zea mays L., several cultivars, not including Sweet corn

GC 0646 **Millet**

Including Barnyard Millet, Bulrush Millet, Common Millet, Finger Millet, Foxtail Millet, Little Millet; (see for scientific names, specific commodities listed as Millet, followed by a specific denomination)

- **Millet, Barnyard**, see Millet, GC 0646

  Echinochloa crus-galli (L.) Beauv.;

  syn: *Panicum crus-galli* L.;

  E. frumentacea (Roxb.) Link;

  syn: *Panicumfrumentaceum*Roxb.
- **Millet, Bulrush**, see Millet, GC 0646

  Pennisetumglaucum (L.) R. Br.

  syn:*P. typhoides* (Burm. f.) Stapf. & Hubbard; *P. americanum* (L.) K. Schum.; *P. spicatum* (L.) Koern.
- **Millet, Common**, see Millet, GC 0646

  Panicum miliaceum L.
- **Millet, Finger**, see Millet, GC 0646

  Eleusine coracana (L.) Gaertn.
- **Millet, Foxtail**, see Millet, GC 0646

  Setaria italica (L.) Beauv.;

  Syn: *Panicum italicum* L.; *Chaetochloa italica* (L.) Scribn.
- **Millet, Kodo**, see Millet, GC 0646

  Paspalum scrobiculatum L.
- **Millet, Little**, see Millet, GC 0646

  Panicum sumatrense Roth
- **Millet, Pearl**, see Millet,, GC 0646
- **Milo**, see Sorghum, GC 0651

  ssp. *Sorghum subglabrescens* Schweinf. & Aschers
- **Pearl millet**, see Millet, GC 0646

GC 0656	**Popcorn**
	Zea mays L., var. *everta* Sturt.;
	syn: Zea mays L., var. *praecox*
-	**Proso millet**, see Millet, GC 0646
-	**Russian millet**, see Millet, GC 0646
-	**Shallu**, see Sorghum, GC 0651
	ssp. *Sorghum roxburghii* Stapf.
-	**Sorgo**, see Sorghum, GC 0651
GC 0651	**Sorghum**
	Sorghum bicolor (L.) Moench; several *Sorghum* ssp. and cultivars
-	**Spiked millet**, see Millet, GC 0646
GC 0652	**Teff or Tef**
	Eragrostistef (Zucc.) Trotter;
	syn: *E. abyssinica* (Jacq.) Link
GC 0657	**Teosinte**
	Zea mays ssp. *mexicana* (Schrader) Iltis;
	syn: *Zea mexicana* (Schrader) Kunze; *Euchlaena mexicana* Schrader.

Subgroup 020E	***Sweet Corn Cereals***
Code No.	**Commodity**
GC 2090	**Sweet Corn Cereals**
	(includes all commodities in subgroup 020E)
-	**Baby corn,** (immature corn) see Sweet corn GC 0447
	Zea mays L., several cultivars
-	**Corn-on-the-cob,** see Sweet corn GC 0447
	Zea mays L., several cultivars, not including popcorn
-	**Corn, whole kernel,** see Sweet corn GC 0447
	Zea mays L., several cultivars, not including popcorn
GC 0447	**Sweet corn**
	Zea mays L., several cultivars, not including popcorn

APPENDIX XI

PROPOSED DRAFT GUIDELINES ON PERFORMANCE CRITERIA FOR METHODS OF ANALYSIS FOR THE DETERMINATION OF PESTICIDE RESIDUES IN FOOD

(At Step 5)

TABLE OF CONTENTS

OBJECTIVE

1. The purpose of this guidance document is to define and describe the performance criteria, which should be met by methods to analyse pesticide residues in foods. It addresses the characteristics/parameters to provide scientifically acceptable confidence in the analytical method that is fit for the intended use and may be used to reliably evaluate pesticide residues for either domestic monitoring and/or international trade.

2. This document is applicable to both single residue methods and multi-residue methods (MRMs) that analyse target compounds in all food commodities, including parent pesticide residues and/or their metabolites and degradants in food commodities per the residue definition.

3. This guidance covers qualitative and quantitative analyses, each having their own method performance requirements. Performance acceptability criteria of methods for analyte identification and confirmation are also addressed.

PRINCIPLES FOR THE SELECTION AND VALIDATION OF METHODS

A. Defining the Purpose of the Method and Scope

4. The intended purpose of the method is usually described in a statement of scope, which defines the analytes (residues), the matrices, and the concentration ranges. It also states whether the method is intended for screening, quantification, identification, and/or confirmation of results.

5. In regulatory applications, the maximum residue limit (MRL) is expressed in terms of the “residue definition,” which may include the parent compound, a major metabolite, a sum of parent and/or metabolites, or a reaction product formed from the residues during analysis. Residue analytical methods should be able to measure all components of the residue definition.

6. *Fitness-for-purpose* is the extent to which the performance of a method meets the end-user's needs, and matches the criteria (data quality objectives) agreed between the laboratory and the end-user (or client) of the data, within technical and resource constraints. *Fitness-for-purpose* criteria could be based on some of the characteristics described in this document, but ultimately will be expressed in terms of acceptable combined uncertainty[1].

7. Selection of methods is based on analytes and the intended purpose of the analyses[2].

B. Supplementing other Codex Alimentarius Commission Guidelines

8. The Codex Alimentarius Commission (CAC) has issued a guideline[3] for laboratories involved in the testing of foods for import/export which recommends that such laboratories should:

a. use internal quality control procedures, such as those described in the "Harmonized Guidelines for Internal Quality Control in Analytical Chemistry Laboratories;"

b. participate in appropriate proficiency testing schemes for food analysis which conform to the requirement laid out in "The International Harmonized Protocol for Proficiency Testing of (Chemical) Analytical Laboratories;" and

c. whenever available, use methods which have been validated according to principles provided by the CAC.

9. The analytical methods should be used within the internationally accepted, approved, and recognized laboratory Quality Management System[4] to be consistent with the principles in the document for quality assurance (QA) and quality control (QC) referenced above. The on-going performance is monitored through the Quality Management System in place in the laboratory.

C. Method Validation

10. The process of method validation is intended to demonstrate that a method is *fit-for-purpose*. This means that when a test is performed by a properly trained analyst using the specified equipment and materials and exactly following the method protocol, accurate and consistent results can be obtained within specified statistical limits for sample analysis. The validation should demonstrate the identity and concentration of the analyte, taking into account for matrix effects, provide a statistical characterization of recovery results, and indicate if the rates of false positives and negatives are acceptable. When the method is followed using suitable analytical standards, results within the established performance limits should be obtained on the same or equivalent sample material by a trained analyst in any experienced residue testing laboratory. To ensure that validation of the method remains appropriate over time, the method should be continuously assessed using on-going proficiency testing and appropriate quality control samples (e.g. including recovery spikes).

PERFORMANCE PARAMETERS FOR ANALYTICAL METHODS

11. The general requirements for the individual performance characteristics of a method are summarized below[1,5]

A. Applicability

12. After validation, the method documentation should provide, in addition to performance specifications (data quality objectives), the following information:

a. identity of the analytes, including isomers, metabolites and other components where appropriate (e.g. endosulfan I&II, spinosyn A&D);

b. concentration range covered by the validation (e.g. "0.01-10 mg/kg");

c. range of sample matrices covered by the validation (e.g. "cucurbits, root vegetables, citrus");

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1 IUPAC Harmonized Guidelines For Single-Laboratory Validation of Methods of Analysis, Pure & Appl. Chem., 74(5), 2002; 835 – 855

2 OECD Guidance Document on Pesticide Residue Analytical Methods, ENV/JM/MONO (2007)17

3 Guidelines for the Assessment of the Competence of Testing Laboratories Involved in the Import and Export Control of Food, CAC/GL 27-1997

4 General requirements for the competence of testing and calibration laboratories, ISO/IEC 17025

5 OECD Guidance Document for Single Laboratory Validation of Quantitative Analytical Method-Guidance used in support of pre-and post-registration data requirements for plant protection and biocidal products ENV/JM/MONO(2014)20

d. protocol describing the equipment, reagents, detailed step-by-step procedure including permissible variations (e.g. “heat at 100 ± 5 °C for 30 ± 5 min”), calibration and quality procedures, special safety precautions required, and intended application and critical uncertainty requirements;

e. if required, a quantitative result should be reported together with the expanded measurement uncertainty (MU).

B. Selectivity

13. Ideally, selectivity should be evaluated to demonstrate that no interferences occur which detrimentally affect the analysis. It is impractical to test the method against every potential interferant, but it is recommended that common interferences are checked by analysing a blank for every batch of samples and reagents. Background levels of plasticizers, septa bleed, cleaning agents, reagent impurities, laboratory contamination, carry-over, etc. tend to show up in reagent blanks and must be recognized by the analyst when they occur. Also, analyte-to-analyte interferences must be known by checking individual analytes in mixed standard solutions. Matrix interferences are evaluated by analyses of samples known to be free of the analytes.

14. As a general principle, selectivity should be such that interferences are inconsequential. The ultimate test of selectivity involves the rates of false positives and negatives in the analyses. To minimally estimate rates of false positives and negatives during method validation, an adequate number (suggested >5 each) of diverse matrix blanks (not from the same source) should be analysed along with spiked matrices at the analyte reporting level. Validations of screening methods (presence/absence analyses) are discussed in paragraphs 32-34.

C. Calibration

15. With the exception of gross (also known as “spurious”) errors in preparation of calibration materials, calibration errors are usually (but not always) a minor component of the total uncertainty, and can be safely assigned into other categories. For example, random errors resulting from calibration are part of the uncertainty, while systematic errors cause analytical bias, both of which are assessed as a whole during validation and on-going quality control. Nevertheless, there are some characteristics of calibration that are useful to know at the outset of method validation because they affect optimization of the final protocol. For example, it must be known in advance whether the calibration is linear or quadratic, passes through the origin, and is affected by the sample matrix or not. The described guidelines in this document relate more to validation, which may be more detailed than the calibration undertaken during routine analysis.

16. Replicate measurements are needed to provide an empirical estimate of uncertainty. The following calibration procedures are recommended for the initial method validation:

a. determinations at five or more concentrations should be performed;

b. the calibration standards should be evenly spaced over the concentration range of interest and the calibration range should encompass the entire concentration range likely to be encountered;

c. the calibration standards should be dispersed over the whole sequence, or encompass the beginning and end of the run to demonstrate that calibration integrity is maintained over the entire sequence; and the fit of the calibration function must be plotted and inspected visually and/or by calculation of the residuals (differences between the actual and calculated concentrations of the standards), avoiding over-reliance on correlation coefficients. If individual residuals deviate by more than ±20%, statistical consideration of outliers should be made, possibly leading to re-analysis of the sequence if quality control criteria are not met.

D. Linearity and Intercept

17. Linearity can be tested by examination of a plot of residuals produced by linear regression of the responses on the concentrations in an appropriate calibration set. Any curved pattern suggests a *lack of fit* due to a nonlinear calibration function. If this is the case, another function such as quadratic should be tested and applied, using at least five concentration levels. Despite its current widespread use as an indication of quality of fit, the coefficient of determination (R^2) may be misleading because it places greater significance on standards with higher concentrations. In this case, an appropriate weighting factor such as $1/x$ or $1/x^2$ should be considered.

18. In general, the use of weighted-linear regression or weighted-quadratic function is recommended rather than linear regression for low part per billion (µg/kg) concentration determinations. The value of the intercept should be close to zero (e.g. <20% of the lowest calibration standard) to reduce errors in calculating residue concentrations at low levels.

E. Matrix Effects

19. Matrix-matched calibration is commonly used to compensate for matrix effects. Extracts of blank matrix, preferably of the same type as the sample, should be used for calibration. An alternative practical approach to compensate for matrix effects in gas chromatographic (GC) analyses is the use of chemical components (analyte protectants) that are added to both the sample extracts and the calibration solutions in order to (ideally) maximize equally the response of pesticides in calibrants in solvent and sample extracts. Alternative ways to compensate for matrix effects involve the use of standard addition, isotopically labeled internal standards (IS), or chemical analogues. However, these approaches are often difficult in MRMs because there are too many residues in different matrices at different levels to devise routine procedures, and the lack of isotopically-labelled standards for so many analytes. If solvent-only calibration is used, a measurement of matrix effects should be made to demonstrate equivalence of results by comparing responses of matrix-matched with solvent-only standards.

F. Trueness and Recovery

20. Trueness is the closeness of agreement between a test result and the accepted reference value of the property being measured. Trueness is stated quantitatively in terms of “bias,” with smaller bias indicating greater trueness. Bias is typically determined by comparing the response of the method to a certified (if available) reference material with a known value assigned to the material. Multi-laboratory testing is recommended ideally. Where the uncertainty in the reference value is not negligible, evaluation of the results should consider the reference material uncertainty as well as the statistical variability from analysing the reference material. In the absence of certified reference materials[1,5] guidelines recommend use of an available reference material that is well characterized for the purpose of the validation study.

21. Recovery refers to the proportion of analyte determined in the final result compared with the amount added (usually to a blank) sample prior to extraction, generally expressed as a percentage. Errors in measurement will lead to biased recovery figures that will deviate from the actual recovery in the final extract. Routine recovery refers to the determination(s) performed in quality control spikes in the analysis of each batch of samples.

G. Precision

22. Precision is the closeness of agreement between independent (replicate) test results obtained under stipulated conditions. It is usually specified in terms of standard deviation (SD) or relative standard deviation (RSD), also known as coefficient of variation (CV). The distinction between precision and bias depends on the level at which the analytical system is viewed. Thus, from the viewpoint of a single determination, any deviation affecting the calibration used in the analysis would be seen as a bias. From the point of view of the analyst reviewing a year’s work, the analytical bias will be different every day and should act like a random variable with an associated precision, incorporating any stipulated conditions for the estimation of this precision.

23. For single-laboratory validation, two types of precision sets of conditions are relevant: (a) repeatability, the variability of measurements within the same analytical sequence, and (b) within-laboratory reproducibility, the variability of results among multiple sets of the same sample. It is important that the precision values are representative of likely test conditions. First of all, the variation in conditions among the runs should represent what would normally happen in the laboratory during routine use of the method. This can be done by on-going method performance validation/verification. For instance, variations in reagent batches, analysts, and instruments should be measured in ongoing quality control. Secondly, the test material used should be typical, in terms of matrix and (ideally) the state of comminution, of the materials likely to be encountered in real applications.

24. In single-laboratory validations, precision often varies with analyte concentration. Typical assumptions are that: (a) there is no change in precision with analyte level, or (b) that the standard deviation is proportional to, or linearly dependent on, analyte level. In both cases, the assumption needs to be checked if the analyte level is expected to vary substantially.

25. Precision data may be obtained for a wide variety of different sets of conditions in addition to the minimum of repeatability and between-run conditions indicated here, and it may be appropriate to acquire additional information. For example, it may be useful to the assessment of results, or for improving the measurement, to have an indication of separate operator and run effects between- or within- day, or to have an indication of the precision attainable using one or several instruments. A range of different designs and statistical analysis techniques is available, and careful experimental design is strongly recommended in all such studies. The initial validation should be conducted at the targeted limit of quantification (LOQ) or reporting limit of the method, and at least one other higher level, for example, 2-10x the targeted LOQ or the MRL.

H. Limit of Quantification (LOQ)

26. By long-standing definition among analytical chemists, the LOQ is the concentration at which the average signal/noise ratio (S/N) equals 10 in the analysis. The LOQ in practice can only be estimated because precise determination of the actual LOQ requires many analyses of spiked samples and matrix blanks but the LOQ can change day-to-day due to the performance state of the instrument, among many other factors. Some validation guidelines require that the LOQ be verified to meet method performance criteria via spiking experiments at the LOQ, however day-to-day variations in LOQ tend to force the analyst to greatly over-estimate the actual method LOQ, which can be difficult to implement the strict definition of the LOQ (S/N = 10). Thus spiking at the Lowest Validated Level (LVL) is the more descriptive and proper approach. Furthermore, quantification of analytes should not be made below the lowest calibrated level (LCL) in the same analytical sequence. The S/N at the LCL must be ≥10 (conc. ≥ LOQ), which can be set as a system suitability check required for each analytical sequence. A quality control matrix spike can also be included in each sequence to verify that the reporting limit is achieved in the analysis (an action level that is typically greater than the LCL). In essence, the point of the validation is not to determine the LOQ, but to demonstrate that the lowest reported concentration is meeting the need for the analysis.

I. Analytical Range

27. The validated range is the interval of analyte concentration within which the method can be regarded as validated. The LVL is the lowest concentration assessed during validation that meets method performance criteria. It is important to realize that the validated range is not necessarily identical to the useful range of the calibration. While the calibration may cover a wide concentration range, the validated range (which is usually more important in terms of uncertainty) will typically cover a more restricted range. In practice, most methods will be validated for at least two levels of concentration. The validated range may be taken as a reasonable extrapolation between these points of concentration, but many laboratories choose to validate at a third level to demonstrate linearity. For monitoring residue concentrations with respect to Codex standards, the analytical method must be sensitive enough so that the LVL for each analyte is at or below the current Codex maximum residue limit (CXL). The validation range should cover the existing CXL. When a CXL does not exist, the lowest level may be MRLs established by a national regulatory authority. If no CXL or MRL exists for a given analyte/matrix pair, then 0.01 mg/kg generally serves as the desirable LVL. In MRMs, the typical analytical goal is to set the LVL (and reporting level) at 0.01 mg/kg in diverse, yet representative commodities.

J. Ruggedness

28. The ruggedness (often synonymous with robustness) of an analytical method is the resistance to change in the results produced by the analytical method when deviations are made from the experimental conditions described in the procedure. The limits for experimental parameters should be prescribed in the method protocol (although this has not always been done in the past), and such permissible deviations, separately or in any combination, should produce no meaningful change in the results produced. A “meaningful change” here would imply that the method would not meet the data quality objectives defined by the *fitness for purpose*. The aspects of the method that are likely to affect results should be identified, and their influence on method performance evaluated by using ruggedness tests.

29. Examples of the factors that a ruggedness test could address are: changes in the instrument, operator, or brand/lot of reagent; concentration of a reagent; pH of a solution; temperature of a reaction; time allowed for completion of a process, and/or other pertinent factors.

K. Measurement Uncertainty (MU)

30. The formal approach to measurement uncertainty estimation is a calculated estimate from an equation or mathematical model, around which the true value can be expected to lie within a defined level of probability. The procedures described in method validation are designed to ensure that the equation used to *estimate the resul*t, with due allowance for random errors of all kinds, is a valid expression embodying all recognized and significant effects upon the result. Further considerations and description of the measurement uncertainty are provided in “Guidelines on Estimation of Uncertainty of Results”[6].

31. It is preferable to express the uncertainty of measurement as a function of concentration and compare that function with a criterion of *fitness for purpose* agreed between the laboratory and the client or end-user of the data. One possibility is to calculate MU from proficiency test data[6].

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[6] Estimation of Uncertainty of Results, CAC/GL 59-2006

PERFORMANCE ACCEPTABILITY CRITERIA OF SCREENING METHODS

32. Screening methods are usually either qualitative or semi-quantitative in nature, with the objective being to discriminate samples which contain no residues above a threshold value ("negatives") from those which may contain residues above that value ("indicated positives"). The validation strategy therefore focuses on establishing a threshold concentration above which results are "potentially positive," determining a statistically based rate for both "false positive" and "false negative" results, testing for interferences and establishing appropriate conditions of use. The screening concept offers laboratories an effective means to extend their analytical scope to analytes, which potentially have a low probability of being present in the samples. Analytes that occur more frequently should continue to be monitored using validated quantitative MRMs. As in quantitative methods, screening methods should also be checked in terms of selectivity and sensitivity. In some applications, commercial test kits may be useful, but current techniques have rarely met multi-residue screening needs economically in practice. Selectivity and analytical scope are often improved when chromatography or other form of separation is used prior to detection. Another approach is to use screening methods that involve mass spectrometry (MS)-based detection, which is able to distinguish particular chemicals from each other.

33. The selectivity of screening methods should be adequate and must be able to distinguish the presence of the target compound, or group of compounds, from other substances that may be present in the sample material. Selectivity of screening methods is normally not as great as that of a quantitative method. Screening methods often take advantage of a structural feature common to a group or class of compounds and may be based on immunoassays or spectrophotometric responses which may not unambiguously identify a compound.

34. The validation of a screening method based on a screening detection limit (SDL) can be focused on detectability. For each representative type of matrix, a minimal validation should involve analysis of at least 5 samples spiked at the estimated SDL. The samples and at least 5 matrix blanks from different sources (more replicates of greater diversity provides better validation) with a minimum of two different samples for each type of matrix should be suitable for the intended scope of the laboratory. Additional validation data can be collected from on-going QC-data and method performance verification during routine analysis. The SDL of the qualitative screening method is the lowest level at which an analyte has been detected (not necessarily meeting the MS-identification criteria) in at least 95% of the samples (e.g. an acceptable false-negative rate of 5%).

PERFORMANCE ACCEPTABILITY CRITERIA OF QUANTITATIVE METHODS

35. Selectivity is of particular importance in defining the performance characteristics of quantitative methods used in regulatory control programs for pesticide residues in foods. Ideally, the method needs to provide a signal response that is free from interferences from other analytes and matrix compounds that may be present in a sample or sample extract. Chromatographic analyses based on peaks, which are not fully resolved, provide less reliable quantitative results. Use of element-specific detectors or different detection wavelengths or MS-based detectors which are better able to distinguish a particular compound or structure, combined with chromatographic separation, improves the selectivity of quantitative methods.

36. The requirement to recover a range of different pesticide residues in one extraction increases the potential for compromised selectivity in MRMs compared to single residue methods. Using less selective extraction and clean-up procedures is likely to result in greater co-extracted matrix material in the final extract. The nature and quantities of such co-extracted material can vary markedly based on the matrix method analytes of interest. Care is therefore required when setting criteria for the precision and trueness of MRMs to ensure that quantification will not be affected by chemical interferences.

37. In addition to the selectivity of a method, the ability of the method to provide a reliable quantitative result must be demonstrated (i.e. trueness - see section F and precision – see section G). Ideally, the relative standard deviation between the original sample and replicates will be less than 30 percent.

38. Acceptability criteria for a quantitative analytical method should be demonstrated at both initial and on-going validation stages, as being capable of providing acceptable mean recovery values at each spiking level. For validation, a minimum of 5 replicates is required (to check the recovery and precision) at the targeted LVL, LOQ, or reporting limit of the method, and at least one additional higher level, for example, 2-10x the LVL or the MRL. If a method is being used for compliance testing (i.e. if a commodity is complaint with an established MRL) the MRL (or CXL) must be one of the spiking levels. When the residue definition includes two or more analytes, the method should be validated for all analytes.

39. The trueness of a method may be determined by analysis of a certified reference material, by comparison of results with those obtained using another method for which the performance parameters have previously been rigorously established (typically a collaboratively studied method), or by determination of the recovery of analyte fortified into known blank sample material. Acceptable mean recoveries for enforcement purposes should range from 70-120% with a RSD ≤20%. In certain cases (typically with MRMs), recoveries outside this range may be acceptable, such as when recovery is lower but consistent (e.g. demonstrating good precision). This is more justifiable if the reason for the systematic low bias is well established by chemistry (e.g. known analyte distribution between phases in a partitioning step). However, a more accurate method should be used, if practicable. Recoveries >120% are likely to be attributable to a positive interference or bias that should be investigated.

40. Analysis of incurred matrix to support method validation is encouraged. For interpreting recoveries, it is necessary to recognize that analyte spiked into a test sample may not behave in the same manner as the biologically incurred analyte (pesticide residue). In many situations, the amount of an extracted incurred residue is less than the total incurred residues actually present. This may be due to losses during extraction, intra-cellular binding of residues, the presence of conjugates, or other factors that are not fully represented by recovery experiments using analyte-fortified blank matrices.

41. At relatively high concentrations, analytical recoveries are expected to approach one hundred percent. At lower concentrations, particularly with methods involving extensive extraction, isolation, and concentration steps, recoveries may be lower than at higher concentrations. Regardless of what average recoveries are observed, recovery with low variability is desirable so that a reliable correction for recovery can be made to the final result, when required.

42. In general, residues data do not have to be adjusted for recovery when the mean recovery is within the range of 70-120%. Recovery corrections should be made consistent with the guidance provided by the CAC/GL 37-2001[7]. It is of over-riding importance that all data, when reported, should (a) be clearly identified as to whether or not a recovery correction has been applied and (b) include the amount of the correction and the method by which it was derived, if a recovery correction has been applied. This will promote direct comparability of data sets. Correction functions should be established on the basis of appropriate statistical considerations, and documented, archived and made available to the client.

43. In accordance with ISO IEC17025[4], participation in a proficiency testing program should be done. Many proficiency testing schemes are available and affordable for laboratories worldwide that conduct pesticide residue monitoring. Inter-laboratory testing may also be performed.

PERFORMANCE ACCEPTABILITY CRITERIA OF METHODS FOR ANALYTE IDENTIFICATION AND CONFIRMATION

44. By far, gross errors (spurious mistakes made during sample preparation) are the greatest source of misidentifications in MS-based methods. For this reason, all regulatory enforcement actions (above an MRL or for those with no MRL on that commodity) require confirmation of the result via re-extraction of a replicate test portion of the original sample and re-analysis, ideally using different chemistries of sample preparation and/or analysis.

45. Selectivity is the primary consideration for methods of identification. The method should be sufficiently selective to provide unambiguous identification. MS coupled to a chromatographic separation method is a very powerful combination for identification of an analyte in the sample extract. This method provides information about the structure of the analyte that is not obtainable with chromatography alone. GC-MS and LC-MS tools (full-scan, selected ion mode, high-resolution, tandem MS/MS, hybrid systems, among other advanced techniques) provide many measurable parameters, such as retention times, chromatographic peak shapes, ion intensities and relative abundances/ratios, mass accuracies, and other useful aspects to help make analyte identifications.

[7] Harmonized IUPAC Guidelines for the use of Recovery Information in Analytical Measurement. Pure & Appl. Chem., 71,1999; 337 – 348. CAC/GL 37-2001

A. MS-Based Identification

46. There are no universally accepted criteria for identification. Table 1 gives examples of criteria.

47. Current practices in qualitative (and quantitative) analysis of pesticide residues commonly involve chromatography + selected ion monitoring (SIM) or MS/MS techniques. Full-spectral (full-scan or time-of-flight) MS is also an acceptable tool that uses spectral library matching factors and/or relative abundances of major ions within the full spectra. The latter case can be treated as ion ratios in the criteria given below using at least 3 ions. In the former case, matching factors should be ≥900 (≥90% match) for regulatory identification purposes, and the library reference spectra should be obtained from background-subtracted high purity standards on the same instrument using the same conditions as in the sample analysis. The following identification criteria should be met:

a. Analyte retention time reference values must be determined from contemporaneously analysed (within the same batch) high concentration calibration standards in solvent-based solutions (matrix-matched calibration standards may be used if it is known that no interferences are present).

b. Ion ratio reference values are to be set in the same way as in paragraph 47 a. The different ions used for identification must co-elute and have similar peak shapes. The ion from the calibration standard with the higher average intensity is to be used as the denominator in the ion ratio, expressed in percentage (due to signal fluctuations, matrix effects, etc.… deviations of ion ratios up to 30% are acceptable).

c. The signal to noise ratios for measured peaks must be greater than 3 and/or the signal must exceed the threshold intensity level as compared to the signal of a suitable calibration standard or control encompassing the level of interest.

d. The ion transitions chosen for identification purposes should make chemical/structural sense (be sure that the ions chosen do not originate from a degradant, impurity, or confusion with a different chemical than the analyte).

e. All measured reagent and matrix blank samples should be shown to be free of carry-over, contamination, and/or interferences above 20% of the LOQ.

48. The minimum acceptable retention time for the analyte(s) should be at least twice the retention time corresponding to the void volume of the column. The retention time of the analyte in the extract should correspond to that of the reference value (47a) within ±0.2 min or 0.2% relative retention time, for both gas chromatography and liquid chromatography.

49. Methods based on high-resolution mass spectrometry are considered to provide improved reliability through accurate measurement of the mass/charge of the ion than cannot otherwise be obtained using unit-resolution mass spectrometry techniques. Different types and models of mass spectrometric detectors provide different degrees of selectivity, which relates to the confidence in identification. The example criteria for identification provided in Table 1.should only be regarded as guidance criteria for identification, not as absolute criteria to prove presence or absence of a compound.

B. Confirmation

50. If the initial analysis does not provide unambiguous identification or does not meet the requirements for quantitative analysis, a confirmatory analysis is required. This may involve re-analysis of the extract or the sample. In cases where a CXL/MRL is exceeded, a confirmatory analysis of another test portion is always required. For unusual pesticide/matrix combinations, a confirmatory analysis is also recommended.

51. If the initial confirmatory method is not based on an MS technique, the confirmatory methods should involve MS-based analyte identification. Moreover, the confirmatory methods should use an independent approaches based on different chemical mechanisms (such as LC and GC separations). In some situations, confirmation by independent laboratories may be appropriate. Examples of analytical techniques that may be suitable to meet criteria for confirmatory analytical methods are summarized in Table 2.

Table 1. Identification criteria for different MS techniques

MS detector / characteristics	Typical systems (examples)	Acquisition	Requirements for identification	
			minimum number of ions	other
Unit mass resolution	quadrupole, ion trap, TOF	full scan, limited m/z range, SIM	3 ions	S/N ≥ 3[e)] Analyte peaks in the extracted ion chromatograms must fully overlap. Ion ratio within **±30% (relative)** of average of calibration standards from same sequence[f]
MS/MS	triple quadrupole, ion trap, Q-trap, Q-TOF, Q-Orbitrap	selected or multiple reaction monitoring, mass resolution for precursor-ion isolation equal to or better than unit mass resolution	2 product ions	
Accurate mass measurement	High resolution MS: TOF or Q-TOF Orbitrap or Q-Orbitrap FT-ICR-MS sector MS	full scan, limited m/z range, SIM, fragmentation with or without precursor-ion selection, or combinations thereof	2 ions with mass accuracy ≤ 5 ppm[a,b, c)]	
		combined single stage MS and MS/MS with mass resolution for precursor-ion isolation equal to or better than unit mass resolution	2 ions: 1 molecular ion, (de)protonated molecule or adduct ion with mass acc. ≤ 5 ppm[a,c] *plus* 1 MS/MS product ion[d)]	

[a)] preferably including the molecular ion, (de)protonated molecule or adduct ion

[b)] including at least one fragment ion

[c)] < 1 mDa for m/z < 200

[d)] ≤10 ppm

[e)] in case noise is absent, a signal should be present in at least 5 subsequent scans

[f)] if the precursor mass accuracy is less than 5 ppm and the product ion mass accuracy is less than 10 ppm, ion ratio tolerances is optional

Table 2. Examples of detection methods suitable for the confirmatory analysis of substances

Detection method	Criterion
LC or GC and MS	If sufficient number of fragment ions are monitored
LC-DAD	If the UV spectrum is characteristic
LC – fluorescence	In combination with other techniques
2-D TLC – (spectrophotometry)	In combination with other techniques
GC-ECD, NPD, FPD	Only if combined with two or more separation techniques
Derivatization	If it was not the first choice method
LC-immunogram	In combination with other techniques
LC-UV/VIS (single wavelength)	In combination with other techniques

ANNEX

DEFINITIONS

Analyte: The chemical substance sought or determined in a sample (CAC/GL 72-2009).

Analyte protectant: Compounds that strongly interacts to fill active sites in the gas chromatographic system, thereby reducing the analyte interactions with those active sites and yielding less peak tailing or losses, thus a higher analyte response.

Analytical quality controls: Calibration standards, blanks, spikes, reference sample, systems suitability sample, or similarly laboratory-generated analytical test designed to verify if the batch (sequence) of samples being analysed meet the specified performance characteristics (data quality objectives).

Applicability: The analytes, matrixes, and concentrations for which an analytical method can be used satisfactorily (CAC/GL 72-2009).

Coefficient of Variation (CV): Often referred to as the Relative Standard Deviation (RSD). This is a measure of precision in quantitative studies comparing the variability of sets with different means.

Confirmation: The combination of two or more analyses that are in agreement with each other, at least one of which meets identification criteria.

Confirmatory method: A method that is capable of providing complementary information in agreement with a previous result. Ideally, a different subsample is analysed with a method involving a different chemical mechanism than in the first analysis, and one of the methods meets analyte identification criteria with an acceptable degree of certainty at the level of interest.

False positive: A result wrongly indicating that the analyte is present or exceeds a specified concentration (e.g. CXL/MRL or reporting level).

False negative: A result wrongly indicating that the analyte is not present or does not exceed a specified concentration (e.g. CXL/MRL or reporting level).

Fortification: Addition of analytes for the purposes of determining the recovery (also known as spiking).

Identification: Process of unambiguously determining the chemical identity of an analyte or its metabolite(s) in an analysis.

Incurred residue: Residue occurring in a commodity resulting from specific use of a pesticide or from consumption by an animal or environmental contamination in the field, as opposed to residues present due to laboratory fortification of samples.

Interference: Intrinsic or extrinsic response unrelated to an analyte (e.g. noise) due to electronic, chemical, or other factors related to the instrumentation, environment, method, or sample.

Interferent: A chemical or other factor causing an interference

Internal standard (IS): A chemical added at a known amount to samples and/or standards in a chemical analysis, including the blank and calibration standards. This substance can then be used for calibration by plotting the ratio of the analyte signal to the internal standard signal as a function of the concentrations. This ratio for the samples is then used to obtain the analyte concentrations. The internal standard used needs to provide a signal that is similar to the analyte signal in most ways but sufficiently different so that the two signals are readily distinguishable from each other.

Limit of quantification (LOQ): The lowest concentration or mass of the analyte that has been validated with acceptable accuracy by applying the complete analytical method. In practice, this is typically the analyte concentration at which the average signal/noise is 10. [See also paragraph 26].

Linearity: The ability of a method of analysis, within a certain range, to provide an instrumental response or results, proportional to the quantity of analyte to be determined in the laboratory sample (CAC/GL 72-2009).

Lowest Calibrated Level (LCL): The lowest concentration (or mass), which the determination system is successfully calibrated, through the analysis batch.

Lowest Validated Level (LVL): The lowest validated spiking level meeting the method performance acceptability criteria.

Matrix: The material or component sampled for pesticide residue studies.

Matrix blank: Sample material or sample portion containing no detectable concentration of the analytes of interest.

Matrix effect: An influence of the one or more undetected components from the sample on the measurement of the analyte concentration or mass.

Matrix-matched standards: Standard solutions prepared in final extracts of matrix blanks similar to that of the sample to be analysed which is intended to compensate for matrix effects and possible interferences during analysis.

Maximum residue level/limit (MRL/CXL): Maximum concentration of a residue that is legally permitted or recognized as acceptable in, or on, food commodities as set by Codex (CXL) or a national regulatory authority (MRL). The term “tolerance” used in some countries is, in most instances, synonymous with MRL (normally expressed as mg/kg product weight).

Measurement uncertainty: Parameter associated with the results of a measurement, characteristic of the dispersion of the values that could be reasonably attributed to what is measured.

Multi-class method: Method which allows simultaneous measurement of 2 or more residue groups (or families).

Multiresidue method (MRM): A method which can determine a large number of compounds typically from different chemical classes

Precision: Degree of variability of a measurement around a mean.

Quantitative method: A method capable of producing analyte concentration (determinative) results with trueness and precision that comply with established criteria.

Recovery: Amount measured as a percentage of the amount of analyte(s) (active substance and relevant metabolites) originally added to a sample of the appropriate matrix, which contains either no detectable level of the analyte or a known detectable level. Recovery experiments provide information on both precision and trueness and thereby the accuracy of the method.

Relative Standard Deviation (RSD): The standard deviation, divided by the absolute value of the arithmetic mean, expressed in percentage. It refers to the precision of the method (also known as coefficient of variation-CV).

Repeatability: Precision usually expressed as RSD, obtained from the same measurement procedure or test procedure; the same operator; the same measuring or test equipment used under the same conditions; the same location and repetition over a short period of time (CAC/GL 72-2009).

Reproducibility: Precision (typically expressed as RSD) from observation conditions where independent test/measurements results are obtained with the same method on identical test/measurement items in different test or measurement facilities with different operators using different equipment (CAC/GL 72-2009).

Ruggedness: A measure of the capacity of an analytical procedure to remain unaffected by small but deliberate various in method parameters and provides an indication of its reliability during normal usage (CAC/GL 72-2009).

Sample preparation: Involves the extraction of a test portion of the sample, its clean-up and other steps in the method that leads to a final extract for analysis.

Sample processing: Procedure to yield a test portion for analysis that is representative of the collected sample and maintains the integrity of the analytes. This involves cutting, homogenization, comminution, blending, or other means using appropriate techniques and equipment depending on the sample type and sizes of the collected sample and test portions.

Screening Detection Limit (SDL): Lowest level of fortification that has been shown to have certainty at a 95% confidence level.

Screening Method: A method that meets predetermined criteria to detect the presence, or absence, of an analyte or class of analytes, at or above the minimum concentration of interest.

Selectivity: The extent to which a method can determine particular analyte(s) in a mixture(s) or matrices(s) without interferences from other components of similar behaviour (CAC/GL 72-2009).

Sensitivity: Quotient of the change in the indication of a measuring system and the corresponding change in the value of the quantity being measured (CAC/GL 72-2009).

Single Residue Method: A method which determines a single analyte or a small group of analytes with similar physico-chemical properties.

Standard addition: The method of standard addition is a type of quantitative analysis approach sometimes used in analytical chemistry whereby a known quantity of analyte is added directly to the aliquots of final extracts.

Trueness: The closeness of agreement between the average of an infinite number of replicate measured quantity value and a reference quantity value (CAC/GL 72-2009).

Uncertainty: A parameter associated with the result of a measurement that characterizes the dispersion of values that could reasonably be attributed to the measurement.

APPENDIX XII
(PART 1)

TABLE 1: CCPR SCHEDULE AND PRIORITY LISTS OF PESTICIDES (NEW COMPOUNDS, NEW USES AND OTHER EVALUATIONS)

2017 CCPR SCHEDULE OF JMPR EVALUATIONS (PROPOSED) - NEW COMPOUND EVALUATIONS

TOXICOLOGY	RESIDUE	Prioritisation criteria	Commodities	Residue trials provided
Bicyclopyrone(999); USA (herbicide); [Syngenta]	Bicyclopyrone (999)	Registered; MRLs > LOQ? Y	Corn; Barley; Wheat; Sugarcane; Soybean	Corn (29); Barley (12); Wheat (20); Sugarcane (11); Soybean (20)
Cyclaniliprole [Ishihara Sangyo Kaisha] USA (999) (insecticide) Moved from 2016	Cyclaniliprole	Not Registered until March 2016 MRLs > LOQ	Potato; broccoli; cabbage; mustard green; brussels sprout; kale; cauliflower; soybean, dried; soybean, immature (with pods); tomato; pepper; apple; pear; cherry; peach; plum; apricot; plum; nectarine; almond hulls; almond; pecan; lettuce, head; lettuce, leaf; spinach; grape; cucumber; muskmelon; summer squash; tea - India	Potato (8); broccoli (21); cabbage (34); mustard green (5); brussels sprout (6); kale (4); cauliflower (8); soybean, dried (6); soybean, immature (with pods) (3); tomato (53); pepper (36); apple (46); pear (16); cherry (17); peach (24); plum (26); apricot (6); plum (26); nectarine (2); almond hulls (5); almond (5); pecan (5); lettuce, head (9); lettuce, leaf (11); spinach (9); grape (43); cucumber (9); muskmelon (10); summer squash (9); tea (6)
Fenazaquin (999) (insecticide) [Gowan] USA Moved from 2015 following discussion	Fenazaquin (999)	Registered MRLs > LOQ	Alfalfa; apples; apricots; berries; citrus; cotton; cucurbits (cucumbers, melons, zucchini, squash, pumpkin); eggplant; grapes; hops; nectarines; peaches; pears; peppers; pineapples; plums; prunes; strawberries; tea; tomatoes; tree nuts; zucchini India - Tea	Cucurbits (cucumbers – 6; cantaloupe – 6; zucchini squash – 5); stone fruit (sweet cherries – 3; sour cherries – 3; peach – 9; plum – 6); fruiting vegetable (tomato – 12; bell peppers – 6; chili peppers – 3); strawberries – 8; tree nuts (pecan – 5; almond – 5); berries (blueberry – 6; raspberry – 5); Hops – 3; mint (spearmint – 1; peppermint – 4); alfalfa – 4; corn (field, sweet) – 24; cotton – 12; bean (edible podded legumes – 9; succulent shelled pea & bean – 11; dried shelled pea & bean – 14); grape – 12; avocado – 5; citrus (orange – 12; lemon – 5; grapefruit – 6)
Fenpyrazamine (fungicide) Japan [Sumitomo Chemical] (999)	Fenpyrazamine	Registered USA, EU, Japan	[Sumitomo] Almond; apricot; bushberry subgroup; caneberry subgroup; cherry; cucumber; eggplant; ginseng; grape (table, wine and juice); lettuce (head and leaf); peach; pepper; pistachio; plum; strawberry; tomato	[Sumitomo] Almond (nutmeats - 7, hulls - 7); apricot (8); bushberry subgroup (blueberry - 8); caneberry subgroup (caneberry - 5); cherry (12); cucumber (protected - 8); ginseng (3); grape (table, wine and juice) (US - 19), (EU - 16); lettuce (head and leaf) (head w/wo wrapper leaves - 10+10, leaf - 10); peach (12); pepper (protected - 8); plum (12); strawberry (24); tomato (protected - 8)
Isoprothiolane (999) Japan, India fungicide	Isoprothiolane (999) Japan, India	Registered Japan	Rice Nihon Nohyaku	Rice 6

TOXICOLOGY	RESIDUE	Prioritisation criteria	Commodities	Residue trials provided
Nihon Nohyaku				
Natamycin(999); (Fungistat); [DSM Food Specialties]; USA	Natamycin(999)	Registered; MRLs> LOQ?**Y**	Mushroom; Pineapple, citrus, stone fruit, pome fruit, avocado, kiwi fruit, mango, pomegranate	Mushroom (2); Pineapple (2), orange (3), lemon (3), grapefruit (3)
Phosphorous acid (999)[Nufarm] Australia; Fosetyl-aluminium [Bayer CropScience] Germany (fungicide)	Phosphorous acid (999) fosetyl-aluminium	Registered; MRLs >LOQ	BCS: Table and wine grapes; Pome fruit; Citrus fruit; Berries and other small fruit; Avocado; Pineapple; Tomato; Peppers, sweet; Peppers, chili; Cucumber; Gherkin; Melon; Watermelon; Lettuce, head; Lettuce, leaf; Spinach; Cabbage, head; Cauliflower; Hops; Coffee; US add on: Citrus Post harvest, tree nuts, grapes	USA: navel orange (5); mandarin orange (5), lemon (5), grapefruit (5); Valencia (5); almond (5); walnut (5); pistachio (5); avocado (5) Bayer - fosetyl: Table and wine grapes (39), Pome fruit (42), Citrus fruit (46), Berries and other small fruits (54), Avocado (10), Pineapple (23), Tomato (43), Sweet pepper, chili (23), Cucumber + gherkin (44), Spinach (15), Melon + watermelon (35), Head + leafy lettuce (40), Cabbage, head (28), Cauliflower (15), Hops (14), Coffee (5)
Triflumezopyrim (999); Insecticide; DuPont – USA **RESERVE 1**	Triflumezopyrim (999)	Registered No expected Oct 2016; MRLs > LOQ (not yet known)	Rice	Rice (30 trials from various countries))

NEW USES AND OTHER EVALUATIONS

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
	2,4-D (020) [Dow AgroSciences]	India Tea USA- Cotton	Tea; Cotton (22 total; 18 USA, 4 Brazil)
	Acephate (95) India	fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum,rice and grapes)	Await field trial information

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
Review of new tox. Data See comment	Acetamiprid (246) [Nippon Soda]	Iran – pistachios Mustard green (IR4)	Await field trial information COMMENT: Although acetamiprid was quite recently reviewed by JMPR (2011), there are new toxicological data on development neurotoxicity which may lead to a lowering of the current ARfD (0.1 mg/kg bw). EFSA, in its reasoned opinion on developmental neurotoxicity of acetamiprid and imidacloprid (December 2013) recommends a lower ARfD of 0.025 mg/kg bw. With such a lowered ARfD, the CXLs for apple, chard and citrus fruit may be of concern. Iran – pistachios (4)
	Azoxystrobin (229) [Syngenta]	Indonesia and Vietnam: dragon fruit; Egypt: guava; Canola, sugarcane	Dragon Fruit (7); Guava (6); Canola (21), sugarcane (16)
	Bifenthrin (178) India [FMC]	India - strawberry, mango Lettuce head, celery (alternative GAP)	Await field trial information
	Captan (7) (fungicide) [Arysta USA]	Ginseng	Ginseng (3)
	Chlorpyrifos (017) India	fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum, rice and grapes),	Await field trial information
	Cyprodinil (207) [Syngenta] France	carrots; beans, except broad bean and soya bean (green pods and immature seeds), celery, cucumber, globe artichoke, guava, pomegranate, potato, almond. Pecan	Carrot (8), beans with pods (9), celery (8), cucumber (5), globe artichoke (4), guava (5), pomegranate (4), potato (16), almond (4). Pecan (5)
	Difenoconazole (224) [Syngenta	Indonesia and Vietnam: dragon fruit; Egypt: guava; Republic of Korea: paprika; chili pepper USA: almonds, pulses, blueberries, ginseng, globe artichoke, apple, pear, sweet corn, watermelon, coffee, strawberry, rice, Guatemala: snap beans and snow peas (edible, podded)	Dragon Fruit (7); Guava (6), Paprika (6); chili pepper (6), Almond (5), lentils (3), blueberries (11), ginseng (4), globe artichoke (4), apple (5), pear (4), sweet corn (9), watermelon (4), coffee (4), strawberry (9), rice (10)rice (10) snap beans (6), snow peas (6

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
	Flonicamid (999) Insecticide [Ishihara Sangyo Kaisha] USA	Pulses (VD 0070) and Legume Vegetables (VD 0060) USA- Citrus fruits	Dry Bean (12); Dry Pea (5); Succulent Bean (13); Succulent Pea (13), Orange (12); Grapefruit (6); Lemon (5)
Moved from 2016 on request	Fenamidone (264) [Bayer CropSciences]	Mustard green, spinach – alternative GAP	
	Fluxapyroxad (256) [BASF]	Citrus	Citrus (13)
	Fluensulfone (265) [Adama]	coffee, citrus, sugarcane, soybean, black pepper	coffee (4), citrus 27, sugarcane (4), soybean (4), black pepper (4)
	Fluopyram (243) [Bayer CropScience]	Artichoke, Barley, Chicory, Citrus, Cotton, Herbs (dry), Hops, Maize, Mango, Peanut, Rape seed, Rice, Soya bean, Spices, Sunflower seed, Wheat Peppers	Artichoke (4), Chicory (8), Citrus (48), Cotton (11), Herbs (dry) (9), Hops (13), Maize (16), Mango (8), Peanut (12), Rape seed (24), Rice (8), Soya bean (21), Spices (4), Sunflower seed (24), Wheat and Barley (44)
	Flupyradifurone (999) [Bayer CropScience]	Stone fruit	Stone fruit (40)
	Imidacloprid (206)	Pistachio (Iran),	Pistachios (4)
	Imazamox (276), imazapyr (267) [BASF] Australia	Barley	Barley (12)
	Isopyrazam (249) [Syngenta]	tomato, melon, pepper, cucumber, cereals, oil seeds, peanuts, peach, apricot, pome fruit, carrots,	Wheat (16), barley (16), oil seed rape (16), peanuts (4), peach (4), apricot (4), apples (16) carrot (16), tomato (16), peppers (14), cucumbers (24), melons (24)
	Isoxaflutole [Bayer CropScience] (268)	Soya bean (label review)	
EU (tox)	Lambda-cyhalothrin (146)	Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes,Tea - India, coffee	Await field trial information Coffee (4)
	Penthiopyrad (253)	Maize fodder, Mustard greens (alternative GAP)	

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
Moved at request of USA and DuPont	Picoxystrobin– [Dupont] – USA (258)	Fruiting vegetables, cucurbits; stone fruit; pome fruit; grapes; legume vegetables; bulb vegetables; strawberry; brassica vegetables; leafy vegetables; root and tuber vegetables; sunflower; tree nut; peanut; rice; cotton and tomato	Brassica (broccoli, cauliflower, cabbage, mustard greens), 30; bulb vegetables (green onion, dry bulb onion), 15; coffee, 4; cotton, 13; cucurbits, 30 (cucumbers, 12); muskmelons, 9; summer squash, 9; fruiting vegetables, 44 (tomatoes, 24); bell peppers, 13; (7 non-bell peppers); grape, 13; leafy vegetables, 44 trials (leaf lettuce 10); head lettuce, 11; celery, 10; spinach, 9; peanut, 13; pome (apple, pear), 26 (apple 17, pear 9); rice, 11; root and tuber vegetables, 56 trials (potatoes, 21; sugarbeets, 13; radishes, 6; carrots, 10; turnips, 6); stone fruit (cherries; peaches, plums), 30; strawberry, 9; succulent/edible podded legumes, 40 (8 edible podded bean, 4 edible podded pea, 17 succulent bean, and 11 succulent pea); sugarcane, 4; sunflower, 9; tree nuts, 12 (6 almond, 6 pecan)
	Profenofos (171) India	fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum),Tea, coffee	Await field trial information Coffee (7)
	Propiconazole (160)	India Tea Citrus, stone fruit, pineapple	Tea Citrus – orange, mandarin, lemon, grapefruit (16), Stone fruit – cherry, peach, nectarine and plum (28), Pineapple (4)
Propylene oxide [Balchem] (250) – USA - JMPR 2013	Propylene oxide [Balchem] (250)	Tree nuts	Moved at the request of manufacturer
	Prothioconazole (232) [Bayer CropScience]	Cotton	Cotton (16)
Pyraclostrobin (210) [BASF] Partly applicable: Evaluation of metabolite data being relevant for new uses	Pyraclostrobin (210) Registered? Yes MRLs > LOQ? Yes - all commodities listed for evaluation:	Pome fruits, olives, persimmon, tropical fruits (mango, papaya, passion fruit, pine apple), leek, brassica vegetables, fruiting vegetables, corn salad (lamb's lettuce), spinach, legume vegetables (beans and peas), root and tuber vegetables, stem vegetables, rice, sugar cane, peanuts, cacao, coffee, tea	Pome fruits (8), olives (12), persimmon (3), tropical fruits (mango (8), papaya (4), passion fruit (8), pine apple (8)), leek (8), brassica vegetables (20), fruiting vegetables (15), corn salad (lamb's lettuce) (4), spinach (extrapolation from lettuce, head (29)), legume vegetables (beans and peas) (43), root and tuber vegetables (46), stem vegetables (33), rice (about 20), sugar cane (48), peanuts (31), cacao (4), coffee (7), tea (8 - 10)
	Quinclorac [BASF] (287)	Canola, rice	Canola (8), rice (8)

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
	Spinetoram (233) – [Dow AgroSciences] Thailand; Columbia; New Zealand; USA	USA: cucurbits; pepper; strawberries; plum; cherry; apricot; potato; soybean; corn; tangerine; sweetcorn; kiwi; passion fruit NZ: feijoa, passionfruit, tamarillo Thailand: mango, lichi Colombia: avocado	US: cucurbits (8); pepper (8); strawberries (8); plum (8); cherry (8); apricot (4); potato (4); soybean (4); corn (4); tangerine (8); sweetcorn (4); kiwi (3); passion fruit (4) NZ: feijoa (4); passionfruit (4); avocado (4); tamarillo (4). Thailand: mango (6); litchi (6) Colombia: avocado (6)
	Spiroteramat (234) Bayer	Iran - pistachios	
	Tebuconazole (189) [Bayer CropScience] USA	Kenya (common beans) India Tea	Green bean (8)
	Trifloxystrobin (213) [Bayer CropScience]	Cotton; Ginseng (Korea) head cabbage, Cauliflower + broccoli, Spinach,	Cotton (12) Ginseng (6), head cabbage (6), Cauliflower + broccoli (6), Spinach (6),

PERIODIC REVIEW

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Chlormequat (15) [BASF] **Moved from 2016**	Chlormequat (15) Plant growth regulator	Cereals; cottonseed; maize; rapeseed; maize fodder; cereals fodder/straw; meat; milk; eggs All CXLs supported	Cereals - 64 trials (16 trials each for wheat, barley; oats and rye); grapes - 8 trials; soybean - 8 trials; cottonseed - 4 trials; potato - 4 trials; onion - 4 trials; meat/milk/eggs	1994	0.05 1997	0.05 1999
Clethodim (187) USA Arysta LifeScience **RESERVE 3**	Clethodim (187)	Bean; broccoli; cabbage; carrot; cranberry; cucurbits; hops; lettuce; pea; strawberry; blueberry USA – Artichoke; Caneberry; Safflower, Apple, Pear, Cherry, Peach, Plum	Blueberry (9) – Awaiting further advice Artichoke (3); Caneberry (6); Safflower (4); Apple (14), Pear (6), Cherry (15), Peach (9), Plum (6)	1994	0.01 1994	NR 2004
Fenpropimorph (188) [BASF] **Tox in 2016**	Fenpropimorph (188) [BASF] fungicide	Banana; cereals; sugar beet; cereals fodder/straw; meat; milk; eggs All CXLs supported	Cereals (56 trials); banana (23); sugar beet (8)	1993	0.03 2006	N/A

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Fenpyroximate (193) [Nihon Nohyaku]	Fenpyroximate (193) [Nihon Nohyaku]	US Add-ons: potato; bean (snap); melons; cucumber; stone fruit; avocado; mint, Banana; Caneberry; Celery; Pepper; tomato; Summer squash; watermelon Brazil – coffee, papaya	US Data: potato (16); bean (snap) (8); melons (8); cucumber (9); cherry (8); peach (10); plum (6); avocado (5); mint (6) Banana(5); Caneberry (7); Celery (8); Pepper(16); tomato(19); Summer squash(5); watermelon (4), Brazil - coffee (8), papaya(3)	1995	0.01 1995	0.02 2007
Carbendazim [Nippon Soda Co] (72) Supported Scheduling subject to availability of full data package	Carbendazim	Mandarins(8), Orange (8), Hazelnut(4), Almond(5), Pecan(9), Pistachio(3), Apple(11), Pear(10), Apricot(13), Peach(9), Nectarine(2), Plum(17), Cherry(8), Strawberry(10), Grape(16), Banana(4), Potato(3), Green Onion(3), Tomato(8), Squash, summer(10), Cucumber(11), Melon(16), Watermelon(9), Brussels sprouts(4), Bean, snap(11), Bean dry(10), Soya beans(23), Canola seed(7), Barley(11), Oats(8), Wheat(11), Peanut(18) India Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), Tea - Await field trial data Thailand (mango)	Manufacturer of thiophanate-methyl will support Codex MRLs for carbendazim (72) which covers thiophanate-methyl (77). all the relevant studies required to maintain the Codex MRLs for thiophanate-methyl (expressed as carbendazim) will be submitted Public health concerns were lodged by the EU – see next table The last periodic re-evaluation of carbendazim was in 1998. Active substances benomyl and thiophanate-methyl are no longer supported by the sponsor but the CXLs for carbendazim still cover uses of these two active substances meaning that a couple of CXLs are obsolete. Moreover, the EU has a lower ARfD. Acute health risks were identified for several commodities in the 2006 CCPR. In addition, the EU received an import tolerance application for the use of carbendazim in rice and it turned out that the existing CXL for rice is based likely on an obsolete US GAP on benomyl. In this case as well an acute risk could not be excluded			
Kresoxim-methyl (199) Periodic evaluation (BASF) **RESERVE 2**	Kresoxim-methyl (199) Registered? Yes MRLs > LOQ? fungicide	Citrus, pome fruits, stone fruits, strawberry, small berries, sunflower, grapes, grape leaves, dried grapes, bulb vegetables, leek, cucurbits - inedible peel, cucurbits - edible peel, wheat, barley, straw and fodder of cereals, olives, mango, pecans, beetroots, bell peppers, tomato, egg plants, animal	Citrus (19), pome fruits (37), stone fruits (10), strawberry (24), small berries (6), sunflower (10), grapes (12), grape leaves (16), bulb vegetables (16), leek (16), cucurbits - inedible peel (14), cucurbits - edible peel (8), wheat (20), barley (14), straw and fodder of cereals (34), olives (8), mango (4), pecans (6), beetroots (10), bell peppers (10), tomato (12)	1998	0.4 (1998)	NR (1998)

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
		products				
Methidathion (51) **If no support for existing CXLs, then revocation of CXLs at CCPR49.** **Manufacturer support from Zen Noh Chem for mango and peach scheduled for 2020**	Methidathion (51) insecticide	The active substance has been re-evaluated for residues (after its first inclusion in 1972) in 1992. An ARfD was derived in the toxicological re-evaluation in 1997. As a consequence of this ARfD a couple of MRLs are not safe for consumers. Due to the fact that no periodic re-evaluation of residues took place in 42 years it is proposed to carry out a new evaluation.	The JMPR has established an ADI of 0.001 mg/kg bw/d and an ARfD of 0.01 mg/kg bw/d in 1997. A risk assessment was performed using the EFSA PRIMo including all MRLs that were considered relevant for international trade. The ADI was exceeded for 25 European diets with the highest exposure representing 2392% of the ADI. Citrus fruits, olives for oil production and milk were shown to be the main contributors. Citrus fruits also exceeded the ARfD (up to 6631%). A second exposure calculation delete the existing MRLs for citrus fruits, pome fruits and sunflower seeds still showed an that the ADI for 5 European diets was exceeded (up to 301%). For further details see EFSA evaluation on the internet at http://www.efsa.europa.eu/en/efsajournal/doc/1639.pdf.	1992	0.001 - 1997	0.01 - 1997
Oxamyl (126) [Dupont]	**Oxamyl (126)**	Potato, Root and tuber vegetables, including Carrot, Parsnips, Sugar beet, Brussels sprouts -, Citrus (mandarin) (orange), Banana, Tomato, Pepper, Aubergine, Edible-peel cucurbit (cucumbers – gherkins – courgettes, Inedible-peel cucurbit	Potato (16), Root and tuber vegetables, including Carrot, Parsnips (9), Sugar beet (19), Brussels sprouts (3 - minor crop, <LOQ residues, Citrus (8 mandarin) (8 orange), Banana (4 <LOQ residues), Tomato (22 protected), Pepper (10 protected), Aubergine (8 protected), Edible-peel cucurbit (11 cucumbers protected – gherkins – 11 courgettes protected), Inedible-peel cucurbit (8 protected)	**1986R** **2002T**	**0.009** **2002**	**0.009** **2002**

APPENDIX XII
(PART 2)

TABLE 1: CCPR PRIORITY LISTS OF PESTICIDES (NEW COMPOUNDS, NEW USES AND OTHER EVALUATIONS)

2018 NEW COMPOUND EVALUATIONS

TOXICOLOGY	RESIDUE	Prioritisation criteria	Commodities	Residue trials provided
Chlorfenapyr Tox 2012	Chlorfenapyr [BASF] (254)	Registered	Bell peppers, eggplant,, soybean, soybean processed, tea, tomato, tomato processed	Bell peppers (8), eggplant (5),, soybean (10), soybean processed (3), tea (6), tomato (8), tomato processed (3),
Ethiprole (999) (insecticide) [Bayer CropScience] – Germany	Ethiprole (999)	Registered MRLs > LOQ	Coffee; corn/maize; rice; soybean and food of animal origin	Coffee (15); corn/maize (10); rice (12); soybean (10)
Mandestrobin (999) (fungicide) [Sumitomo Chemical]	Mandestrobin	Registered, MRLs>LOQ	Canola, Grape, Strawberry	Canola (23); Grape (16); Strawberry (10)
Norflurazon USA (herbicide) (999) [TessenderloKerley Inc.]	Norflurazon (Moved from 2016 at request of nominator)	Registered MRLs > LOQ	Almond; apple; apricot; asparagus; avocado; blackberry; blueberry; cranberry; cherry (sweet /tart); citrus fruits group; cottonseed; grape; hazelnut; hops; nectarine; peach; peanut; pear; pecan; plums and prunes; raspberry; soybean; walnut	Almond: 7; apple: 8; apricot: 2; asparagus: 6; avocado: 3; blackberry: 1; blueberry: 6; cranberry: 5; cherry: 3; citrus fruits: 8; cottonseed: 10; filberts: 3; grapes: 14; nectarine: 2; peach: 4; peanut: 10; pear: 4; pecans: 4; plums: 6; raspberry: 6; soybeans: 22; walnuts: 2
Pyrifluquinazon (999) (insecticide) [Nihon Nohyaku] Japan	Pyrifluquinazon **[moved from 2015 at the request of manufacturer]**	Registered Japan; KOREA	Citrus; pome fruits; potatoes; stone fruits; grapes; tree nuts; melons; tea; grapes (table grapes, raisins, wine); fruiting vegetables, cucurbits; cotton; leafy vegetables; brassica leafy and head/stem vegetables	Almonds (10); pecans (10); grape (table) (24); raisin, juice (if MRL not included under table grape); plum (18); peach (24); cherry (16); apple (24); pear (12); lemon (10); grapefruits (12); oranges (24); cantaloupe (12); cucumbers (14); summer squash (10); peppers (24); tomatoes (28); cauliflower/broccoli (12); cabbage (16); potatoes (33); cotton seed (24); tea (6) and corresponding animal commodity MRLs
PydiflumetofenSYN 545794 (999) (fungicide) Canada [Syngenta]	Pydiflumetofen SYN545794 (999) **[Moved from 2017 on request]**	Registered – No (2014 status) MRL>LOQ	Soybean seed; Pulses (dry beans, dry peas, lentils, chickpeas), grapes; fruiting vegetables; cucurbits; leafy vegetables; potato; corn; wheat; barley; oats, peanuts, apples, canola	Wheat (33 trials), barley (21 trials), oats (22 trials), canola (21 trials), grapes (12 trials), apples (8 trials),dry beans (11 trials), dry peas (10 trials), fruiting vegetables (tomato (12 trials), bell and non-bell peppers (9 trials)), leafy vegetables (head and leaf lettuce (16 trials), spinach (8 trials), celery (8 trials)), cucurbits (cucumber (7 field and 3 protected), squash (6 trials), cantaloupe (6 trials)), corn (field and popcorn (23 trials), peanuts (12 trials), soybeans (21 trials), potatoes (26 trials)

TOXICOLOGY	RESIDUE	Prioritisation criteria	Commodities	Residue trials provided
XDE-777 (999) Dow AgroSciences United Kingdom fungicide	XDE-777 (999) Dow AgroSciences; France	Registered - Soon MesoAndean countries (2015-6); UK (2018) MRLs > LOQ – Y	Bananas, Wheat, triticale, rye and durum	Banana – 8 trials, Cereals (Wheat 8 trials)
Metconazole (999) [Valent USA Corporation, on behalf of Kureha Corporation Japan] (fungicide)	Metaconazole [Valent USA Corporation] (999)	Registered US MRLs > LOQ	USA- Stone fruit group; Blueberry; Banana; Garlic; Onion, Bulb; Legume vegetables; Pulses; Soya bean; Root and tuber vegetables1(except Sugar beet (root)); Sugar beet (roots); Barley; Maize; Oats; Rye; Triticale; Wheat; Sugar cane; Tree nuts; Oilseed (except Cotton seed, Peanuts, Soya bean and Sunflower)**; Cotton seed; Peanuts; Sunflower seed; Meat (from mammals other than marine mammals); Mammalian fats (except milk fats); Edible offal (Mammalian); Milks; Poultry meat; Poultry fats; Poultry, Edible offal; Egg; Peanut oil, crude	USA- Banana (12), barley grain (28), blueberry (11), cotton seed (12), corn/maize (20), sweet corn (12), tree nuts (10), peanuts (14), soya bean (30), stone fruits (22), sugar beet roots (12), sugarcane cane (8), sunflower (12), oats (12), rape oilseed (16), dried shelled peas pulses (15), dry beans (19), triticale wheat (31), potato (32), fresh legumes, peas without pod (13), onion (4), garlic (3)
Fluazinam (999) [ISK Biosciences; Ishihara Sangyo Kaisha] USA (fungicide)	Fluazinam (999)	Registered MRLs > LOQ	USA- Apples; Mayhaw; Brassica (Cole) Leafy Vegetables plus Turnip greens; Bushberry; Carrot; Ginseng; Lettuce, Head and Leaf; Edible-podded Legume Vegetables, Except Peas; Succulent Bean, includes Lima Bean, Except Peas; Dry Beans, Except Peas and Soybeans; Onions, Bulb; Melons; Squashes/ Cucumbers; Peppers/ Eggplants; Peanuts; Tuberous and Corm vegetables; Soybean; Wine grape; Tea	USA&CAN: Apple (20); Broccoli (13); Cabbage (20); Mustard greens (11); Blueberry (13); Carrot (13); Ginseng (5); Head lettuce (7); Leaf lettuce (7); Succulent beans (11);Lima beans (7); Dried beans (18); Onion (9); Cantaloupe (11); Cucumber (6); Summer squash (6); Bell pepper (9); Non-bell pepper (4); Peanut (10); Potato (12); Soybean (16); USA, CAN, GRC, FRA, ITA, DEU, ESP, CHL: Grape (23) JPN: Tea (5)
Pyriofenone (999) [IshiharaSangyoKaisha/ISK Biosciences] USA	Pyriofenone (999)	Registered in EU and Japan MRLs > LOQ	USA- Berries and other small fruits; Fruiting vegetables; Mango	USA&CAN: Grape (12); Strawberry (9); Blueberry (10); Blackberry (6); Kiwi (3); Cucumbers (9); Summer Squash (9); Cantaloupe (5); BRA: Mango (4); EU: Table and Wine Grapes (20)

TOXICOLOGY	RESIDUE	Prioritisation criteria	Commodities	Residue trials provided
Quinalphos (999) India insecticide Moved on request	Quinalphos (999) India		Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grape, spices India - Tea	
Tricyclazole (999) India fungicide Moved on request	Tricyclazole (999) India		Rice	
Tioxazafen(999) [Monsanto]- USA (nematicide)	Tioxazafen and its metabolite benzamidine (999)	Registered? no MRLs > LOQ?Corn and cotton seed no, soybean seed yes	USA- Corn, cotton, soybean	Corn (22), Cotton (13), Soybean (22)
Ethion (34) India	Ethion (34) India	Registered Y MRLs > LOQ	Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes, tea	Await field trial information **COMMENT: This compound was removed from the Pesticide List (36-85) and all CXLs revoked.** **A full toxicological package will be required.** **One existing spice CXL**
Spiromesifen (999) India	Spiromesifen (999) India		Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes, tea	Await field trial information
Hexaconazole (170)	Hexaconazole (170)	Registered Y MRLs > LOQ	India Tea	Tea **COMMENT: This compound was removed from the Pesticide List in 1978 and all CXLs revoked. A full toxicological package will be required.**

2018 NEW USES AND OTHER EVALUATIONS

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
	Abamectin [Syngenta] (177)	Caneberry, Sweetcorn, Green Onion, Beans - shelled, Soybean, Pineapple Grape, mandarin (Thailand) Spinach (alternative GAP)	Caneberry (7), sweetcorn (12), green onions (5), lima bean (7), soybean (20), pineapple (8)
	Acephate (95) India	Rice, grapes	Await field trial information
	Acetamiprid (246) [Nippon Soda]	India - Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes, tea	Await field trial information
	Bentazone [BASF] (172)	Field pea (USA) - 4 year rule granted in 2014 Possible move to periodic review	
	Benzovindiflupyr (261) [Syngenta]	Coffee	
	Bifenthrin [FMC] (178)	Barley; barley (straw fodder); - 4 year rule granted in 2014 Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes,	
	Chlorpyrifos (017) India	Rice, grapes	Await field trial information
	Chlorothalonil (81); (fungicide) [Syngenta]	Orange; Lemon; Grapefruit; Lettuce; Strawberry; Almond; Radish (root veg); mustard greens; guava; lychee, USA- Cranberry (under the 4 year rule).	Orange (12), Lemon (5), Grapefruit (6), Lettuce (13), Strawberry (8), Almond (5) radish (7); mustard greens (9); guava (5); lychee (4)
	Cyantraniliprole [DuPont] USA	USA- fruiting vegetables, other than cucurbits (except sweetcorn); grapes; strawberries; cucurbit vegetables (greenhouse); olives; artichoke, Globe; mangos; cranberries; rice	[fruiting vegetables - tomatoes (19), peppers (24)]; grapes (18); strawberries (29); [cucurbit vegetables (greenhouse cucumbers) (5)]; olives (9); artichokes, Globe (5); mangos (8); cranberries (6); rice (6)
	Cyazofamid [ISK Biosciences] USA	USA- Herbs, bulb vegetables	USA- Chive (9); Green Onions (5); Dry Bulb Onions (10)
	Diquat [Syngenta] (031)	Cereals–wheat, barley, oat (Australia); Pulse (Canada)–4 year rule (2014)	

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
Moved on request	Diazinon (22) India	Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes	Await field trial information
	Fluazifop-p-butyl (999) (herbicide) [Syngenta] USA	Blueberry; Caneberry; Lettuce; Strawberry; Onion; Mustard Greens; papaya	Blueberry (9); Caneberry (6); Lettuce (26); Strawberry (6); Onion, green (4); Mustard Greens (12); papaya (8)
	Fludioxonil [Syngenta]	Carrots, Celery, Guava, Pineapple, Kale, Pomegranate	Carrots (4), celery (8), guava (5), pineapple (4), mustard green (7), cabbage (6), brocolli (6), pomegranate (4)
	Fluensulfone (265) [Adama]	cereal, tree nut, stone fruit, pome fruit, corn, guava, cotton	Cereal (56), tree nut (10), stone fruit (21), pome fruit (26), corn (21), guava (4), cotton (4)
	Imidacloprid (206) India	Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes,	Await field trial information
	Isofetamid [IshiharaSangyoKaisha] USA	USA- Pome fruits; Stone fruits; Berries and other small fruits; Legume vegetables; Pulses; Almond; Soybean	USA&CAN: Apple (20); Pear (10); Peach (13); Plum (9); Cherry (15); Blueberry (10); Raspberry (5); Kiwi (3); Snap bean (8); Dry bean (15); Almond (5); BRA: Soybean (4)
Isoprothiolane (999) LATAM fungicide Nihon Nohyaku	Isoprothiolane (999) LATAM	Nihon Nohyaku– banana	Banana (16)
	Lufenuron [Syngenta]	citrus, coffee	citrus (12), coffee (5)
	Mesotrione [Syngenta]	Citrus, Pome Fruit, Stone Fruit, Tree Nuts	Citrus – orange, grapefruit, lemon (23), Pome fruit – apple, pear (18), Stone fruit – cherry, peach, plum (21), Tree nuts – almond, pecan (10)
	Metalaxyl-M [Syngenta] (212)	Cocoa beans (4 year rule granted in 2014), Republic of Korea (ginseng)	Ginseng (4) Comment from Manufacturer- Consider aligning with Metalaxyl review, if needed to avoid MRL gaps. There are CXLs formetalaxyl-M pending at Step 5/8, which could replace any metalaxyl CXLs that might be withdrawn during review. In addition for cocoa, the MRL at Step 5/8 is not aligned with today's practice (no OECD MRL calculator used, Syngenta consider the MRL at Step 5/8 too low). Syngenta is also generating new trials on cocoa.

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
	Methomyl (94) India	Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes	Await field trial information
Moved from 2017	Penthiopyrad (253) USA	USA – Blueberry; Caneberry	Blueberry (9) and Cranberry (7)
	Pyriproxyfen (200) - Costa Rica (from 2016 as requested) [Valent USA Corporation; subsidiary of Sumitomo Chemical Co., Ltd.]- USA	Costa Rica: banana; Philippines: papaya; Malaysia/Singapore: mango; Panama: pineapple USA- Cucurbit vegetables Canada - Greenhouse tomatoes, and greenhouse bell peppers	Summer Squash (6), Cucumber (6), Cantaloupe (7) Greenhouse tomatoes (11), greenhouse bell peppers (8) Banana (12), papaya (6), mango (6), pineapple (6)
	Profenofos (171) India	Rice, grapes	Await field trial information
	Propamocarb (148) [Bayer CropSciences]	Feeding studies	
Sulfoxaflor (252) [Dow AgroSciences] USA - Re-evaluation of developmental tox, based upon new data	Sulfoxaflor [Dow AgroSciences] USA Requestfor new MRLs, basedupon new residue data	Kenya, Tanzania, Uganda: passion fruit; Ghana and Senegal: mango	Passion fruit (6); mango (6
	Thiabendazole [Syngenta]	Legumes and Pulses	Legumes and pulses (48)
	Triazophos (143) India	Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes	Await field trial information
	Trinexapac [Syngenta]	Rice, Rye	Rice (16)

Herbs, spices etc - India	**Compounds**
Curry leaves (GAP or monitoring data)	Profenofos (171), chhlorpyrifos (17), cypermethrin (118), methyl parathion (59), triazophos (143), ethion (34), bifenthrin (178)
Dry chilli, chilli powder (monitoring data)	Ethion (34), triazophos (143), acephate (95), chlorfenapyr (254), chlorpyrifos (17), deltamethrin (35), carbendazim (72), cypermethrin (118), profenofos (171), phosalone (60), fenpropathrin (185)
Cummin (monitoring data)	Acetamiprid (246), carbendazim (72), clothianidin (238), fenpropathrin (185), hexaconazole (17), lambda-cyhalothrin (146), profenofos (171), thiamethoxam (245), tricyclazole (999), phorate (112)
Cardamom (monitoring data)	Phosalone (60)
Fennel and fenugreek (monitoring data)	Chlorpyrifos (17), dicofol (26), hexaconazole (170), propiconazole (160)
Black pepper (monitoring data)	Dicofol (26)
Dry ginger powder (monitoring data)	Carbendazim (72), chlorpyrifos (17), iprobenfos (999), metalaxyl (138), phorate (112), quinalphos (999)

2019 NEW COMPOUND EVALUATIONS

TOXICOLOGY	RESIDUE	Prioritisation criteria	Commodities	Residue trials provided
Broflanilide(999) (insecticide) [Landis International on behalf of Mitsui Chemicals] [USA]	Broflanilide (999)	Registered? No (first registration expected in 2019) MRLs > LOQ?Yes, for majority of crops and food of animal origin	USA- Brassica vegetables; Fruiting vegetables; Leafy vegetables; Legume vegetables; Pulses; Root vegetables	Brassica vegetables (35 + 16 trials), Fruiting vegetables(35 trials), Leafy vegetables (35 + 10 trials), Soybean with pod (3 trials), Pulses: Soybeans (31trials), dry beans (7 trials), Root vegetables: Potatoes (25 trials), radishes (6 trials), sweet potato(6 trials),turnip(3 trials), Stalk / stem vegetables: Leek (3 trials), green onion (3 trials), Cereals: Grain/Hay/Straw/Fodder (50 trials); Sugarcane (6 trials); Coffee (9 trials), Tea (6 trials), Feeding studies in cow and hen
BAS 750 F (fungicide) (999) [USA]	BAS 750 F [BASF] (999)	Registered? NO MRLs > LOQ? YES	USA- wheat, field corn, rice, sorghum, barley, sweet corn, dried beans, succulent beans, dried peas, succulent peas, lentils, soybean, sugar beet, peanut, canola, apple, pear, almond, pecan, pistachio, cherry, peach, plum, grape	US- Wheat, 25 (US/CA), 16 (EU); Field corn, 16; Rice, 12; Sorghum, 9; Barley, 16 (US/CA), 16 (EU); Sweet corn, 12; dried bean, 10; dry pea, 9; succulent pea, 9; lentil, 8; soybean, 20; sugar beet, 15; peanut, 12; canola, 13; apple, 15; pear, 10; almond, 5; pecan, 5; pistachio, 3; cherry, 8; peach, 12; plum, 8; grape, 13
Afidopyropen (999) [Meiji SeikaPharma/ BASF] [USA] (insecticide)	Afidopyropen [BASF] (999)	Registered? n MRLs>LOQ? y	USA- Citrus fruits, Pome fruits, Stone fruits, Brassica (Head, flowering), Fruiting vegetables (tomatoes, peppers), Fruiting vegetables (Cucurbits), Leafy (head, leafy lettuce, spinach), Brassica, leafy (Mustard greens), Soybeans, Potatoes, Celery, Tree nuts, Cotton	Citrus (lemon, 8; oranges, 12; grapfruit, 6); pome fruit (apple, 15; pear, 9); stone fruit (peaches, 13; plum, 10; cherry, 8); Brassica (head cabbage, 10; broccoli, 10); cucurbits (cucumber, 9; cantaloupe, 8, squash, 10); fruiting vegetables (tomatoes, 20; sweet bell peppers, 7; nonbell peppers, 3); leafy lettuce (8); head lettuce (9); spinach (9); mustard greens (8); soybean (20); potato (20); celery (10); tree nuts (almonds, 5; pecans, 5; pistachios, 3); cotton
SYN546330 [Syngenta] (insecticide)	SYN546330	Registered? No MRLs > LOQ? Yes	Soybean dry, Pome fruit, Citrus, Cotton, Fruiting vegetables, Cucurbits, Okra	Soybean dry (8), Pome fruit (8), Citrus (16), Cotton (4), Fruiting vegetables (Tomato 13, Pepper 13), Cucurbits (Cucumber 8, Melon 8), Okra (8)
Triflumuron [Bayer]	Triflumuron [Bayer]	Registered Y	Soybean	

2019 NEW USES AND OTHER EVALUATIONS

TOXICOLOGY	RESIDUE	Commodities	Residue trials provided
	Chlorpyrifos-methyl (90) [Dow AgroSciences] Australia	Wheat, barley, sorghum **4 YEAR RULE from 2015**	
	Cypermethrins (118) [BASF], [FMC]	Public health concerns - acute dietary risk– Netherlands – check uses for peach based on existing residue data and labels; Republic of Korea (ginseng)	Ginseng (4)
	Spirotetramat (234) [Bayer]	Strawberry; carrot; sugarbeet	Strawberry (10); carrot (24); sugarbeet (19)
	Thiamethoxam(245) [Syngenta]	Persimmon (Korea); Rice [Syngenta]	Persimmon (6); Rice (8)
	Clofentezine (156) [ADAMA]	Hops (IR4)	Hops (5)
	Fluensulfone (265) [ADAMA]	Grapes, peanuts	Grapes (12), peanuts (12)

TABLE 2A: PRIORITY LISTS OF PERIODIC REVIEWS – 2018-2021

Note 1: NR denotes "following evaluation, JMPR has deemed the establishment of an ARfD unnecessary"

Note 2: N/A denotes "not assessed – JMPR has not had the opportunity to consider, or determine the need for, an ARfD"

2018 PERIODIC REVIEW

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Iprodione (111) Moved at the request of manufacturer – await EU and US reviews	Iprodione (111)	Tree nuts; cereals; beans, (dried); blackberry; broccoli; carrots; cheery; cucumber; grapes; kiwi; lettuce (head and leafy); onion; stone fruit; pome fruit; rapeseed; raspberry; sugar beet; sunflower; tomato; witloof (All CXLs appear to be supported)	FMC Trials: Almonds (4); barley (13); blackberries (8); broccoli (4); carrot (12); cherry (5); lettuce, leaf (12); peach (9); raspberries, red/black (8); rice, husked (18); Spices, seeds (4); spices, roots & rhizomes (4); apricots (8); artichoke (4); banana (8); bean, succulent - lima and snap (12); Brassica, head and stem vegetables (12); coffee (6); eggplant (8); mandarins (8); mango (4); melon (12); pea (12); peanut (12); plum (12); potato (16); soybean (12); wheat (16)	1994	0.06 1995	N/A
Flumethrin (195) [Bayer CropScience]	Flumethrin (195)	Cattle milk; cattle meat		1996	0.004, 1996	N/A
Metalaxyl (138) Quimicas del Vallés - SCC GmbH	Metalaxyl (138)	Review in 2004 for residues was for evaluation of metalaxyl-M; support from Quimicas del Vallés - SCC GmbH; USA – Grapes; tomatoes; potatos; lettuce; oranges; strawberries; broccoli; cauliflower; head cabbage; onion Supervised trials by Thailand – pineapples	Grapes (21); tomatoes (20); potatos (16); lettuce (10); oranges (4); strawberries (8); broccoli (8); cauliflower (4); head cabbage (4); onion (8) Thailand has agreed to provide field trials – pineapples Comment: Manufacturer requests consideration to align with Metalaxyl-M review, if needed to avoid MRL-gaps. There are CXLs for metalaxyl-M pending at Step 5/8, which could replace any metalaxyl CXLs that might be withdrawn during review. In addition for cocoa, the MRL at Step 5/8 is not aligned with today's practice (no OECD MRL calculator used, Syngenta consider the MRL at Step 5/8 too low). Syngenta is also generating new trials on cocoa, which we propose to review.	2004	0.08 2004	NR 2004
Dithiocarbamates (105) [Taminco]	Dithiocarbamates (105)	**Await advice** **Longan (Thailand – mancozeb)**	Residue definition applies to all DTC – propineb; mancozeb; ferbam; ziram; thiram; maneb; metiram; zineb	1996T, 1993R, (2004 propineb)	Range of group ADIs	Interim ARfD propineb 0.1 mg/kg

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
(ferbam, maneb / mancozeb, propineb, thiram, ziram)			**Netherlands - public health concerns** Several (serious) public health risks have been identified for several dithiocarbamates (Maneb/mancozeb, propineb, thiram, ziram) using EU data (ARfD and MRLs with conversion factor corrections). JMPR has not derived ARfDs for these substances (except an interim ARfD of 0.1 mg/kg bw for propineb) nor performed acute dietary risk assessment as it was not yet done at that time (before 2000). Various group ADI's for several dithiocarbamates (e.g. 0.03 mg/kg for maneb, mancozeb, metiram and zineb, 0.007 mg/kg for propineb, 0.003 mg/kg for ziram and ferbam, and 0.01 mg/kg for thiram). We acknowledge that a periodic review of propineb has been performed in 2004. Still a risk has been identified for peppers and (dried) tomatoes using the HR for peppers of 13 mg/kg and the HR for tomatoes of 2.9 mg/kg for propineb and the interim ARfD of 0.1 mg/kg bw. Processing data have not been included in this calculation. For thiramrisks have been identified for e.g. use on apples and pears (recommended MRL of 5 mg/kg listed under ziram, no STMR or HR listed, Annex I, JMPR report 2004 from http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/JMPR/Reports_1991-2006/report2004jmpr.pdf) falling back on the use of the ADI of 0.01 mg/kg bw/day (no ARfD exists). Using the EU ARfD of 0.6 mg/kg bw no risks are identified any more. For ziramrisk are identified e.g. use pome fruit, even if making use of the EU ARfD (0.08 mg/kg bw) instead of falling back on the ADI of 0.003 mg/kg bw/d in the absence of an JMPR ARfD. Due to time constraints, we have not yet further explored the risks identified for maneb/mancozeb. The majority of the dithiocarbamates have been evaluated prior to the date that acute dietary risk assessment became part of the JMPR evaluations. We propose therefore to update the evaluations with regard to the acute dietary risk assessment of all the dithiocarbamates in one overall assessment. This would enable identification of all the possible risks, establish whether re-evaluation of the existing data for specific uses is appropriate, whether an ARfD should be derived, and to determine whether they should subsequently be placed on the priority lists. Conversion factors (from CS_2 to active substance) are not listed in the Annex: Mancozeb: 1.783, Maneb: 1.743, Propineb: 1.904, Thiram: 1.580, Ziram: 2.009			1995

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Permethrin (120) **Not supported**	Permethrin (120)		Not supported by manufacturer Last reviewed over 25 years ago	1987	0.05 - 1999	NR - 1999
Tolclofos-methyl (191) [Sumitomo Chemical]	Tolclofos-methyl (191)	Lettuce head; lettuce leaf; potato; radish	Await advice – moved from 2017 on request	1994	0.07 1994	N/A
Imazalil (110) [Janssen] First reserve for 2017	Imazalil (110)	Support / Retain: Banana, Citrus fruits (Grapefruit, oranges, lemons, limes mandarins), Cucumber, Melons, except watermelons, Pome fruits (Apples, pear), Potato, Wheat, Wheat straw & fodder, dry Add Gerkin, Courgette (zucchini), Barley, Maize, Millet, Oats, Rye, Sorghum, Barley straw fodder dry, tomato Not supported Persimmon, Raspberry, Strawberry	Pome fruit: 39, Banana: 8, Cereal (seed treatment): 8, Citrus: 36, Cucurbits (edible peel plus melon): 17, Potatoes: 24, Tomatoes: 10 EU – public health concerns *The active substance has not been re-evaluated for residues since it was included the first time in 1977. Toxicological re-evaluation was done in 2000 and an ARfD was derived in 2005. (seeCX/PR 12/44/14-Add.1 March 2012)* *As a consequence of this ARfD a couple of MRLs are not safe for consumers. Due to the fact that no periodic re-evaluation of residue took place since 35 years all MRLs should be reviewed.* From EFSA evaluation an ADI of 0,025 mg/kg bw and an ARfD of 0.05 mg/kg bw was derived in 2010. This is in line with the current JMPR values of 0.03 mg/kg bw (ADI, 2001) and 0.05 mg/kg bw (ARfD, 2005). A risk assessment was performed using the EFSA PRIMo including the current CXLs for banana, citrus fruit, cucumber, gherkins, melons exc. watermelons, Japanese persimmons, pome fruit, potato, raspberries, strawberries and wheat. Due to the rather old residue evaluation a refinement using HR and STMR values was impossible. Distribution between pulp and peel was not taken into account. As can be seen from this rather rough estimation ADI is exceed for a couple of WHO clusters, i. e. cluster B, E, F, D, with residues in potatoes account for a major part of the residues. It can also be stated that for European consumers children are most likely at risk. For European consumers the ARfD is exceeded for potatoes, pome fruit, Japanese persimmon as well as for citrus fruit, banana and melons, not taking into account distribution between peel and pulp. Changing the variability factor to 3 as used by JMPR will change the outcome of the assessment dramatically. Potatoes, pome fruits as well as citrus fruit, bananas and melons, not taking into account distribution between peel and pulp are still exceeding the ARfD. **Await advice from JMPR on public health concerns**	1994R, 2005T	0.03 2001	0.05 2005

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Bromopropylate (70) **Not supported by the manufacturer** Concern Form lodged	Bromo propylate (70)	The active substance was first included in 1973 and re-evaluated in 1993, but not since. In the evaluation of 1993 an ADI was set at 0.03 mg/kg bw/d but no ARfD. Since no ARfD was ever set and data for evaluation are missing (supervised field trials, processing studies), the MRLs should be re-evaluated after 41 years	Since in 1993 it was not yet common practice to set an ARfD, EFSA used the ADI to assess the acute effects in the short term intake. A risk assessment was performed using the EFSA PRIMo including the existing CXLs for citrus fruits, pome fruits and grapes. The highest chronic exposure was calculated for the German child, representing 124% of the ADI. Since there were no supervised field trials complying with the critical GAP or reliable processing studies, the intake could not be further refined. The acute intake assessment (using the ADI-value) shows exceedance of the toxicological reference value for citrus fruits (884% for oranges, 594% for grapefruit, 371% for mandarins, 230% for lemons, and 134% for limes), pome fruits (653% for apples, 607% for pears), table grapes (437%) and wine grapes (158%). For further details see EFSA evaluation on the internet at http://www.efsa.europa.eu/en/efsajournal/doc/1640.pdf.	1993	0.03 - 1993	N/A

2019 PERIODIC REVIEW

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Aldicarb (117) [AgLogic Chemical LLC] Tox conducted in 1997	Aldicarb	Awaiting advice on commodities to be supported	Yes	1995	0.003 - 1992	0.003 - 1995
Bromide ion (47) (Methyl bromide) **No Croplife manufacturer responsible**	Bromide ion (47)		Last reviewed over 25 years ago Bromide ion from all sources but not including covalently bound bromine Methyl bromide (52) – guideline CXLs Not cleared toxicologically by JMPR	1988	1.0 - 1988	N/A
Fenbutatin oxide (109)	**Fenbutatin oxide**		**National registrations - Y** **No supporting member country** **No longer supported by manufacturer**	**1992**	**0.03 - 1992**	**N/A**
Carbosulfan (145) Carbofuran (96) [FMC Corporation]	Carbosulfan Carbofuran	Awaiting advice on supported commodities Asparagus; egg plant, mango (Thailand)	Netherlands – public health concerns Carbosulfan: Not approved (September 2007, RMS BE) - Information insufficient with regard to consumer exposure Concerns identified with regard to toxicity of the substance and presence of unknown levels of caricnogenic imuprities which may increase during storage, Consumers exposure inconclusive due to uncertainties regarding the effects of certain metabolites, some of which could be genotoxic Carbofuran: Not approved (September 2007, RMS BE) - Information insufficient with regard to consumer exposure. Concerns identified - High toxicity of the substance and some of its metabolites, Consumer exposure inconclusive	1997 1997	0.01 (1986) 0.001 (1996)	0.02 (2003) 0.001 (2009)

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Fenarimol (192) [Gowan] **Not supported by the manufacturer** Concern form lodged	Fenarimol	Fenarimol was first included as active substance in 1995. The ADI was set at 0.01 mg/kg bw/d. The COM set an ADI of 0.01 mg/kg bw/d in 2007 as well as an ARfD of 0.02 mg/kg bw/d. Since the JMPR hasn't evaluated the active substance in 19 years whereas now an ARfD-value is available it is proposed to re-evaluate all MRLs.	An ADI- and ARfD-value were derived in a peer-review under 91/414/EEC. EFSA identified in the acute risk assessment for children a possible risk for peppers (157.4%), peaches (148.3%), apples (146.9%), tomatoes (145.4%), pears (136.6%) and bananas (125.4%). A refined calculation was carried out using the HR. For further details see EFSA evaluation on the internet at http://www.efsa.europa.eu/en/efsajournal/doc/161r.pdf.	1995	0.01 - 1995	N/A
Dimethoate [Cheminova] (027)	Dimethoate		EU concerns ARfD JMPR 2003 Acute risk for citrus and cherries Sum of dimethoate and omethoate expressed as dimethoateIn the 2003 evaluation by JMPR an ARfD was established. However, in the exposure assessment for the acute risk the highest residue was not used in the case of citrus. Using the HR would lead to an exceedance of the ARfD of 230%. Furthermore, the CXL of 2 mg/kg for cherries leads to an unacceptable acute risk for children and should be revised. Rice, fresh vegetables (cabbage, cauliflower, okra, green chilli, grean pea, bitter gourd, cucumber, brinjal and capsicum), grapes, Tea **Await advice from JMPR on public health concerns**		0.002, 1996	0.02, 2003

2020 PERIODIC REVIEW

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Methidathion (51) **Manufacturer support from Zenno Chem for mango and peach scheduled for 2020** **If no support for existing CXLs, then revocation of CXLs at CCPR49.**	Methidathion (51) insecticide	Peach, mango	The active substance has been re-evaluated for residues (after its first inclusion in 1972) in 1992. An ARfD was derived in the toxicological re-evaluation in 1997. As a consequence of this ARfD a couple of MRLs are not safe for consumers. Due to the fact that no periodic re-evaluation of residues took place in 42 years it is proposed to carry out a new evaluation.The JMPR has established an ADI of 0.001 mg/kg bw/d and an ARfD of 0.01 mg/kg bw/d in 1997. A risk assessment was performed using the EFSA PRIMo including all MRLs that were considered relevant for international trade. The ADI was exceeded for 25 European diets with the highest exposure representing 2392% of the ADI. Citrus fruits, olives for oil production and milk were shown to be the main contributors. Citrus fruits also exceeded the ARfD (up to 6631%). A second exposure calculation delete the existing MRLs for citrus fruits, pome fruits and sunflower seeds still showed an that the ADI for 5 European diets was exceeded (up to 301%). For further details see EFSA evaluation on the internet at http://www.efsa.europa.eu/en/efsajournal/doc/1639.pdf.	1992	0.001 - 1997	0.01 - 1997
Hydrogen phosphide, (zinc and aluminium salts) (46) **No Croplife manufacturer responsible – request for additional preparation time**	Hydrogen phosphide (46)	Cereal grains, citrus, almonds		1971	NR	N/A
Prochloraz (142) [Bayer CropScience]			Last reviewed by JMPR in 2001. In 2011, Prochloraz was re-evaluated in the EU and a lower acute toxicological endpoint of 0.025 mg/kg/bw/d was established compared to a value of 0.1 set by JMPR in 2001. From the JMPR report (2004) the IESTI was calculated to be greater than 25% of the ARfD at 0.1 for several commodities. With a lowering of the ARfD by a factor of 4, the CXLs for banana, edible offal (mammalian), grapefruit, mandarin, orange, papaya, pineapple, shaddocks/pomelos are expected to be of concern. The EU values were derived from 2 studies that do not appear to have featured in the JMPR evaluation. The multi-generation rat study “Reader 1993” submitted as part of a dossier by a notifier and a 90 day dog study “ Lancaster 1979” submitted by another notifier. In addition a change in the interpretation the significance of extended gestation in both the “Cozen 1980 study” and the “Reader 1993” study also impacted. It should also be noted the many papers reviewed as part of the literature search around prochloraz were also considered when the list of endpoints and critical values were set.		0.01, 1983 confirmed 2001	0.1, 2009

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Pirimicarb (101) Syngenta	Pirimicarb (101)		Public health concerns - acute dietary risk– Netherlands – check uses for peach and lettuce based on existing residue data and labels Moved from 2017 New use and other evaluations	2004		
Ethoxyquin (35) One CXL - pear	Ethoxyquin (35)		The substance is not authorised in the EU and no import tolerances exist. EFSA concluded that the metabolism data used by JMPR for establishing the residue definition for enforcement and risk assessment could not be confirmed as the metabolism data showed deficiencies using the JMPR residue definition. EFSA concluded that the CXL for pears exceeded the ARfD (109%) and proposed to lower the EU MRL to the LOD. The last periodic review of residues was performed by JMPR in 1999 and of toxicology in 1998. This is approximately 15 years ago. It seems that Japan has recently performed a toxicological evaluation of the substance. COMMENT: a toxicological review occurred in 2005 – reviewed ADI and set ARfD		0.005, 2005	0.5, 2005
Guazatine (114)	Guazatine (114)		Guazatine was first discarded as not having an ADI/ARfD at all. However, this appears to be a special case. In 1978 an ADI was derived, which was withdrawn in 1997 since “The Meeting concluded that it could not establish an ADI for guazatine owing to the inadequate information on its composition and concerns about the production of rare malignant tumours in mice”. “The Meeting estimated the maximum residue level shown in Annex I.As the Meeting withdrew the ADI for guazatine this is recorded only as a Guideline Level”. As such no CXLs are supposed to be available. However, a CXL for cereal grains (0.05* mg/kg G = guideline value) and citrus fruit (5 mg/kg Po = post harvest use) can still be found in the Codex alimentarius. Annex 1 and Annex 2 of the JMPR 1997 evaluation, show that the CXL for Citrus fruits of 5 mg/kg Po is withdrawn, but that for cereals a maximum residue level of0.05* mg/kg is proposed. The CXL of 5 mg/kg has been adopted by the CCPR in 1999. It is unclear which discussion is behind this. The problem is that this specific MRL-crop combination gives rise to a human health risk. Only “guideline levels” (5 mg/kg) for citrus exist since the ADI was withdrawn in 1997. It was recommended that these guideline levels would remain until a new ADI is recommended. It is proposed either to delete the guideline level or request sponsors to support a re-evaluation of guazatine. **There are no CXLs in place in CX/PR 14/46/5 – instead guideline levels are set – clarification from Codex Secretariat is sought**		With drawn 1997	N/A

TOXICOLOGY	RESIDUE	Commodities	Comments	Previous evaluation	ADI	ARfD
Dicloran (83)	Dicloran (83)		Not approved (April 2008 and May 2011, RMS ES) - Concerns identified with regard to the the toxicological relevance of several impurities in the technical material (relevent for residues in food?) and with regard to consumer risk assessment in following crops.	1998	0.01 (1998)	NR (2003)

2021 PERIODIC REVIEW

Substance	Rationale
Azinphos-methyl (2) Not supported JMPR 2007 ADI0.03 JMPR 2007 ARfD0.1	The EU submitted a concern form in October 2015. Azinphos-methyl was re-evaluated concerning toxicology in 2007 with concerns mentioned by EU in CCPR 2008 due to the use of human data. The re-evaluation for residue behaviour was announced for 2010 but then did not take place as the substance was no longer supported. The substance is not authorised in the EU. It is of public health concern as the ARfD established by JMPR is exceeded for several commodities when using EU consumption data: 185% of ARfD for pears; 135% oranges which might be of no concern taking into account distribution between peel and pulp; Peaches (120%); Pine apples (105%). As the substance is falling under the 15 year rule and it has been confirmed at several meetings of the CCPR that it is no longer supported worldwide, the existing CXLs should urgently been withdrawn (2010 CCPR, para 178; 2011 CCPR, Appendix X; 2012 CCPR, para 166; 2014 CCPR, Appendix XV; 2015 CCPR, Appendix XV).
Diazinon (22) [Makhteshim–Agan] Note: Diazinon is already scheduled for toxicological and residue assessment by an interim JMPR to be held in Spring 2016, based on concerns raised by IARC on the possible carcinogenic properties of the substance (see Summary Report JMPR2015). ADI 0.005 – 2006 JMPR ARfD0.03 – 2006 JMPR	Falls under the 15-year rule (listed in Table 2B), last evaluation in 1996. EU Concerns are as follows: The substance is not authorised in the EU. The EU-ADI of 0.0002 mg/kg bw/day) is much lower than the JMPR ADI (0.005 mg/kg bw/day). Using the existing CXLs and the EU ARfD/ADI in the EFSA PRIMo model, serious public health concerns are identified after long-term dietary exposure of diazinon. An acute dietary risk assessment was performed using CXLs. When using the JMPR IESTI model, the JMPR-ARfD is not exceeded. By using the EFSA PRIMo model and the CXLs, the EU-ARfD is exceeded (IESTI 1) in case of scarole (175%), plums (132%), carrots (127%), melons (121%), apples (118%), broccoli (117%), tomatoes (116%), pears (105%), head cabbage (105%), bovine meat (102%). Refinement (IESTI 2) of the variability factors would still lead to exceedances of the ARfD for scarole, melons, plums and bovine meat (102-175%). Use of the HR would lower the short term exposure by a factor of 2 which would not result in an exceedance of ARfD. Even without including the LOQs for the crops without MRLs, the highest calculated TMDI values in % (EU) ADI are 376-4990% in various populations (child, toddlers, general public) and countries, with meats, pome fruit, carrots and sugar beets contributing the most (all >>100 % of the ADI). It is acknowledged that the use of the STMRs would lower the long-term dietary exposure by approximately a factor of 4-5, but this would still lead to an exceedance of the ADI.
Phosalon (60) [Cheminova] ADI 0.02 – 1997 JMPR ARfD 0.3 – 2001 JMPR	Falls under the 15-year rule (listed in Table 2B), last evaluation in 1997. The EU proposes submit a concern form on the basis of public health concerns. The substance is not authorised in the EU. EU has established a lower ADI and ARfD than JMPR. Using the EU ARfD and ADI of 0.01 mg/kg, the EU MRLs and the Codex MRL for apple and pome fruit for phosalone leads to exceedance of ADI, with apple contributing most (114-639 %) in various populations. In the short-term dietary risk assessment these MRLs lead to exceedances of the EU ARfD not only in apples (490%), but also in pears (180%) and peaches (120%). The impact of the metabolite oxaphosalone has not been taken into account, but will only add to the dietary exposure. With the ARfD of the JMPR at 0.3 mg/kg bw and the ADI at 0.02 mg/kg bw/day, there are no exposure concerns. Awaiting advice on supported commodities Durian (Thailand)

Substance	Rationale
Quintozene (64) [Crompton–AMVAC] ADI 0.01 – 1995 JMPR ARfD N/A	Falls under the 15-year rule (listed in Table 2B), last evaluation in 1995. The EU proposes submit a concern form on the basis of public health concerns. Quintozene containing more than 0.1% hexachlorobenzene is banned in the EU. For quintozene (containing less than 0.1% hexachlorobenzene), the necessity for deriving an ARfD has not been assessed (EU or JMPR). Using the CXLs, the JMPR IESTI model and the ADI as surrogate ARfD, an exceedance of the ARfD is found for ginger root (240%); no exceedance is found for the EFSA PRIMo model. Using the (temporary) ADI of 0.01 mg/kg bw/day, the TMDI in the long-term dietary risk assessment does not exceed the ADI using the Codex MRLs and the EFSA PRIMo model. However, there are many uncertainties regarding the metabolites that can be formed, depending on application of the active substance at growth stage and on type of plant. There is a lack of sufficient data to exclude consumer risks.
Amitraz (122) [Arysta Lifesciences] ADI 0.01 – 1998 JMPR ARfD 0.01 – 1998 JMPR	Falls under the 15-year rule (listed in Table 2B), last evaluation in 1998. The EU proposes to submit a concern form on the basis of public health concerns. The EU and JMPR ARfD and ADI for amitraz are equal. All EU MRLs are set at LOQ.No EU evaluation of residue trials is available. Therefore the acute risk assessment was performed with the existing CXLs.However, when applied in the EFSA PRIMo model exceedances are observed for oranges (663%), apples (490%), pear (455%), peaches (297%), cucumber (292%), tomatoes (291%) for children. Refinement (IESTI 2) of the variability factors would still lead to exceedances of the ARfD for the same crops (211-480%). In addition, even without including the LOQs for the crops without MRLs, the highest calculated TMDI values in % ADI are 254 and 146 in DE and NL child, with pome fruit attributing the most (>100 % of the ADI). It is acknowledged that the use of the STMRs would lower the long-term dietary exposure by approximately a factor of 4-5, whereby exceedance of the ADI is no longer envisaged. Using the FAO IESTI spreadsheets and JMPR ARfD, the ARfD is exceeded in case of oranges (150-290%), apple (280-360%), pear (280-290%), peaches (150-260%), cucumber (130-200%), tomatoes (110-320%). It is acknowledged that the use of HRs would lower the dietary exposure by approximately a factor of 2, but this would still result in exceedances of the ARfD.

TABLE 2B: PERIODIC REVIEW LIST (COMPOUNDS LISTED UNDER 15 YEAR RULE BUT NOT YET SCHEDULED OR LISTED)

Compounds listed in this table have not been evaluated for at least 15 years.Decisions on the prioritization of these compounds should be based onthe relevant criteria specified in pp159-161 of the *Codex Procedural Manual*. Compounds are listed in Table 2b awaiting advice on supporting data packages and/or an indication of manufacturer/member country support.

TOXICOLOGY	RESIDUE	Issue – Commodities supported	Current national registrations	Previous evaluation	ADI	ARfD
Fenthion (39)	fenthion	No longer supported by the manufacturer	yes	1995	0.007 - 1995	0.01 - 1997
Disulfoton (74)	disulfoton	No longer supported by the manufacturer	yes	1996	0.0003 - 2006	0.003 - 2006
Fenbuconazole (197) [Dow AgroSciences]	fenbuconazole	Awaiting advice on supported commodities	yes	1997	0.03 (1997)	0.2 (2012)
Dinocap (87)	dinocap	No longer supported by the manufacturer	yes	1998	0.008 - 1998	0.008 WCBA 0.03 general
Maleic hydrazide (102) [Chemtura]	maleic hydrazide	Awaiting advice on supported commodities	yes	1998	0.3 (1996)	N/A
Amitrole (79) [Nufarm]	amitrole	Awaiting advice on supported commodities	yes	1998	0.002 (1997)	N/A
Pyriproxyfen [Sumitomo] (200)	pyriproxyfen	Awaiting advice on supported commodities	yes	1999	0.1 (1999)	NR (1999)
Malathion [Cheminova] (049)	malathion	Awaiting advice on supported commodities	yes	1999	0.3 (1997	2.0 (2003)
2-phenylphenol (056) [???]	2-phenylphenol	manufacturer unkown	yes	1999	0.4, 1999	NR 1999
Parathion-methyl (059) [Cheminova]	Parathion-methyl	Awaiting advice on supported commodities	yes	1994R, 1995T	0.003, 1995	0.03, 1995
Bitertanol (144) [Bayer CropScience]	Bitertanol	Awaiting advice on supported commodities	Yes	1998T, 1999R	0.01, 1998	NR 1998
2,4-D [Dow AgroSciences] (020)	2,4-D	Awaiting advice on supported commodities	yes	1996T, 1998R, 2001T(ARfD),	0.01, 1996	NR
Diphenylamine [Cerex Agri] (030)	Diphenylamine	Awaiting advice on supported commodities	yes	1998T, 2001R	0.08, 1998	NR
Piperonyl butoxide [Endura] (062)	Piperonyl butoxide	Awaiting advice on supported commodities	yes	1995T, 2001T(ARfD), 2001R	0.2, 1995	NR
Methomyl [DuPont] (094)	Methomy	Awaiting advice on supported commodities	yes	2001	0.02, 2001	0.02, 2001
Fipronil [BASF] (202)	Fipronil	Awaiting advice on supported commodities	yes	2000/2001	0.0002, 2000	0.003, 2000
Spinosad [Dow AgroSciences] (203)	Spinosad	Awaiting advice on supported commodities	yes	2001	0.02, 2011	NR
Imidacloprid [Bayer CropScience] (206)	Imidacloprid	Awaiting advice on supported commodities	yes	2001	0.06, 2002	0.4, 2002

CURRENT NATIONAL REGISTRATIONS FOR COMPOUNDS LISTED IN TABLES 2A AND B

COMPOUND	Pest No.	EU	Aust	Canada	USA	Japan	Phil	Moro	Korea	Chile	NZ	Brazil	Russia	Uruguay	Overall
azinphos-methyl	002	N	Y	N		N	N	N	N	Y	Y	N	N	Y	
2,4-D	020	Y	Y			Y	Y		Y	Y	Y		Y	Y	
diazinon	022	N	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	
dimethoate	027	Y	Y			Y	Y	Y	Y	Y	Y	Y	Y	Y	
diphenylamine	030	N	Y			N	N		N	Y	N		N	Y	
fenthion	039	N	N	N		Y	Y	Y	Y	N	N	N	N	Y	
hydrogen phosphide	046	Y	Y		Y	N	Y	N	Y	Y	N	Y	N	Y	
bromide ion	047		N			Y	Y	N	Y	Y	Y	N	Y	-	
malathion	049	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	
methidathion	051	N	Y			Y	N	N	N	Y	Y	Y	N	Y	
2-phenylphenol	056	Y	Y			N	N		N	N	N		N	Y	
parathion-methyl	059	N	Y			N	N		N	N	N		N	Y	
phosalone	060	N	N	N		Y	N	N	N	N	N	N	Y	N	
piperonyl butoxide	062	Y	Y			N	Y		N	N	Y		N	N	
quintozene	064	N	Y			N	N	N	N	N	N	Y	N	N	
bromopropylate	070	N	N			N	N	N	N	N	Y	Y	N	N	
disulfoton	074	N	N	N		Y	N	N	N	N	N	Y	N	N	
amitrole	079	Y	Y	Y		N	N	Y	N	Y	Y	N	N	N	
dicloran	083	N	N	N		N	N	N	N	Y	Y	Y	N	N	
dinocap	087	N	Y	Y		N	N	N	N	N	N	Y	N	N	
methomyl	094	Y	Y			Y	Y		N	Y	Y		Y	Y	
carbofuran	096	N	Y	N		N	Y	Y	Y	Y	N	Y	Y	Y	
maleic hydrazide	102	Y	Y	Y		Y	N	Y	N	N	Y	Y	Y	Y	
fenbutatin oxide	109	N	Y	Y		Y	N	N	Y	N	N	N	N	N	
aldicarb	117	N	N	N	Y	N	N	N	N	N	N	N	N	N	
permethrin	120	N	Y			Y	Y	N	N	Y	Y	Y	N	N	
amitraz	122	N	Y	Y		Y	N	N	Y	N	Y	Y	N	N	
bitertanol	144	N	Y			Y	Y		Y	N	N		N	N	
carbosulfan	145	N	Y	N		Y	Y	N	Y	N	N	Y	N	Y	
fenarimol	192	N	Y			Y	N	N	Y	Y	N	N	Y	N	
fenbuconazole	197	Y	Y	Y		Y	N	N	Y	Y	N	N	N	N	
pyriproxyfen	200	Y	Y	Y		Y	N	N	Y	Y	Y	Y	Y	Y	
fipronil	202	Y	Y			Y	Y		Y	Y	Y		Y	Y	
spinosad	203	Y	Y			Y	Y		Y	Y	Y		Y	Y	
imidacloprid	206	Y	Y			Y	Y		Y	Y	Y		Y	Y	

TABLE 3: RECORD OF PERIODIC REVIEWS

Code	Chemical	Initial JMPR evaluation	Periodic reviews	Scheduled (Tox)	Scheduled (Residues)	Notes
177	Abamectin	1992	1997T, 2015			Syngenta
095	Acephate	1976	2005T, 2003R			Arysta Life Science
129	Azocyclotin	1979	2005T, 2005R			Cerex Agri
155	Benalaxyl	1986	2005T, 2009R			FMC
172	Bentazone	1991	2012T, 2004T(ARfD), 2013			BASF
178	Bifenthrin	1992	2009T, 2010R			FMC
173	Buprofezin	1991	2008			Nihon Nohyaku
174	Cadusafos	1991	2009T, 2010R			FMC
007	Captan	1963	1995T, 2004T(ARfD), 2000R			Arysta Life Science
008	Carbaryl	1965	2001T(ADI, ARfD), 2002R			Bayer CropScience
081	Chlorothalonil	1974	2009T, 2010R			Syngenta
201	Chlorpropham	2000	2005T(ADI, *ARfD)*			Cerex Agri
017	Chlorpyrifos	1972	1999T, 2000R, 2006 (ARfD)			Dow AgroSciences
090	Chlorpyrifos-methyl	1975	2009			Dow AgroSciences
156	Clofentezine	1986	2005T, 2007R			Makhteshim Agan
179	Cycloxydim	1992	2009T, 2012R			BASF
157	Cyfluthrin	1986	2006T, 2007R			Makhteshim Agan / Bayer
067	Cyhexatin	1970	2005T, 2005R			Cerex Agri
118	Cypermethrin	1979	2006T, 2008R			FMC / AgriPhar
169	Cyromazine	1990	2006T, 2007R			Syngenta
135	Deltamethrin	1980	2000T, 2002R			Bayer CropScience
025	Dichlorvos	1965	2011T, 2012R			AMVAC
026	Dicofol	1968	1992, 2011T			Not supported by manufacturer
151	Dimethipin	1985	1999T, 2004T(*ARfD)*, 2001R			Chemtura
031	Diquat	1970	1993T, 1994R, 2013			Syngenta
180	Dithianon	1992	2010T, 2013R			BASF
084	Dodine	1974	2000T, 2003R			AgriPhar SA
032	Endosulfan	1965	1998T, 2006R			Makhteshim Agan
106	Ethephon	1977	2002T(ARfD), 2015			Bayer CropScience
149	Ethoprophos	1983	1999T, 2004R			Bayer CropScience
184	Etofenprox	1993	2011T,R			Mitsui Chemical Inc
085	Fenamiphos	1974	1997T, 1999R, 2006T(*ARfD)*			Makhteshim Agan
037	Fenitrothion	1969	2007T(ADI, ARfD), 2003R			Sumitomo
185	Fenpropathrin	1993	2012T, 2014			Sumitomo Chemical

Code	Chemical	Initial JMPR evaluation	Periodic reviews	Scheduled (Tox)	Scheduled (Residues)	Notes
119	Fenvalerate	1979	2012			Sumitomo Chemical
165	Flusilazole	1989	2007			DuPont
041	Folpet	1969	1995T, 2007T(ARfD), 1998R			Makhteshim Agan
175	Glufosinate-ammonium	1991	2012			Bayer CropScience
158	Glyphosate	1986	2004			Monsanto
194	Haloxyfop	1995	2006T, 2009R			Dow AgroSciences
176	Hexythiazox	1991	2008T, 2009R			Nippon Soda
146	Lambda-cyhalothrin	1984	2007T, 2008R			Syngenta
048	Lindane	1965	2002T, 2003R, 2015			EMRLs proposed
100	Methamidophos	1976	2002T, 2003R			Bayer CropScience
132	Methiocarb	1981	1998T, 1999R, 2005R (ARfD)			Bayer CropScience
147	Methoprene	1984	2001T, 2005R			Dow AgroSciences
181	Myclobutanil	1992	2014			Support from Dow AgroSciences
166	Oxydemeton-methyl	1989	2002T, 1998R			United Phosphorous
057	Paraquat	1970	2003T, 2004R			Syngenta
182	Penconazole	1992	2016			Syngenta
112	Phorate	1977	2004T, 2005R			BASF / AMVAC
103	Phosmet	1976	1994T, 2003T, 1997R 2002R			Gowan
101	Pirimicarb	1976	2004			Syngenta
086	Pirimiphos-methyl	1974	1992T, 2006T(*ARfD)*, 2003R			Syngenta
171	Profenofos	1990	2007T, 2008R			Syngenta
148	Propamocarb	1984	2005T, 2006R			Bayer CropScience
113	Propargite	1977	1999T, 2002R			Chemtura
160	Propiconazole	1987	2004T, 2007R			Syngenta
063	Pyrethrins	1965	2003T, 2000R			No manufacturer
189	Tebuconazole	1994	2010T, 2011R			Bayer CropScience
196	Tebufenozide	1996	2003T(*ARfD)*			Dow AgroSciences
190	Teflubenzuron	1994	2016			Support unknown
167	Terbufos	1989	2003T			AMVAC
065	Thiabendazole	1970	1997T, 1997R, 2006T(ARfD)			Syngenta
133	Triadimefon/triadimenol	1979	2004T, 2007R			133 /168 - Bayer CropScience
143	Triazophos	1982	2002T, 2007R			Bayer CropScience
116	Triforine	1977	1997T, 2014			Support from Sumitomo Co.
072	Carbendazim	1973	1995T, 2005T(*ARfD)*, 1998R	2017	2017	Nippon Soda
015	Chlormequat	1970	1997T, 1999T(ARfD) 1994	2017	2017	Support from BASF

Code	Chemical	Initial JMPR evaluation	Periodic reviews	Scheduled (Tox)	Scheduled (Residues)	Notes
187	Clethodim	1994	1999T(ARfD)	2017	2017	Support from USA
188	Fenpropimorph	1994	2004T(ARfD)	2017	2017	Support from BASF
193	Fenpyroximate	1995	2007T(ARfD)	2017	2017	Nihon Nohyaku
199	Kresoxim-methyl	1998	None	2017	2017	BASF
126	Oxamyl	1980	2002	2017	2017	Dupont
070	Bromopropylate	1973	1993	2018	2018	not supported
105	Dithiocarbamates - incl propineb, ferbam, ziram	1965	1993R, 1996T ferbam, ziram, 2004 propineb	2018	2018	Individual DTCs are evaluated, propineb 2004, ferbam/ziram 1996
195	Flumethrin	1996	None	2018	2018	Bayer CropScience
110	Imazalil	1977	1977, 2000T, 2005T(*ARfD)*	2018	2018	Janssen
111	Iprodione	1977	1995T, 1994R	2018	2018	Support from BASF
138	Metalaxyl	1982	2002T	2018	2018	Quimicas del Vallés - SCC GmbH
120	Permethrin	1979	1999T	2018	2018	Not supported by manufacturer
191	Tolclofos-methyl	1994	None	2018	2018	Sumitomo Chemical
117	Aldicarb	1979	1992T, 1995T(ARfD), 1994R	2019	2019	AgLogicChemcial LLC
047	Bromide ion	1968	1988T	2019	2019	Support unknown
096	Carbofuran	1976	1996T, 2008T(*ARfD)*, 1997R	2019	2019	FMC
145	Carbosulfan	1984	2003T, 1997R	2019	2019	
027	Dimethoate	1965	1996T, 2003T(ARfD), 1998R	2019	2019	
192	Fenarimol	1995	None	2019	2019	
109	Fenbutatin oxide	1977	1992T, 1993R	2019	2019	Not supported by BASF
082	Dichlofluanid	1969	1983T	2020	2020	Not supported by manufacturer
083	Dicloran	1974	1998	2020	2020	Gowan
035	Ethoxyquin	1969	2005T, 1999R	2020	2020	No manufacturer
114	Guazatine	1977	1997	2020	2020	Guideline limits – citrus, pome fruit
046	Hydrogen phosphide	1965	1966T	2020	2020	Support unknown
051	Methidathion	1972	1997T, 1992	2020	2020	Not supported
142	Prochloraz	1983	2001T, 2004R	2020	2020	Bayer CropScience
162	Tolylfluanid	1988	2002	2020	2020	Bayer CropScience
122	Amitraz	1980	1998T	2021	2021	Arysta Lifesciences
002	Azinphos-methyl	1965	2007T	2021	2021	Makhteshim
022	Diazinon	1965	2006T, 1993	2021	2021	Makhteshim-Agan
060	Phosalone	1972	1997T, 2001T(ARfD), 1994R	2021	2021	Cheminova
064	Quintozene	1969	1995	2021	2021	Chemtura
130	Diflubenzuron	1981	2001T, 2002R	JECFA comments		Chemtura

Code	Chemical	Initial JMPR evaluation	Periodic reviews	Scheduled (Tox)	Scheduled (Residues)	Notes
020	2,4-D	1970	1996T, 1998R, 2001T(ARfD),	Listed-not scheduled	Listed-not scheduled	Dow AgroSciences
056	2-phenylphenol	1969	1999	Listed-not scheduled	Listed-not scheduled	No manufacturer
079	Amitrole	1974	1997T, 1998R	Listed-not scheduled	Listed-not scheduled	Nufarm
093	Bioresmethrin	1975	1991T, none	Listed-not scheduled	Listed-not scheduled	Not supported by manufacturer
144	Bitertanol	1983	1998T, 1999R	Listed-not scheduled	Listed-not scheduled	Bayer CropScience
087	Dinocap	1969	1998T, 2000T(ARfD)	Listed-not scheduled	Listed-not scheduled	Not supported by manufacturer
030	Diphenylamine	1969	1998T, 2001R	Listed-not scheduled	Listed-not scheduled	Cerex Agri
074	Disulfoton	1973	1996T(ARfD)	Listed-not scheduled	Listed-not scheduled	Bayer CropScience
197	Fenbuconazole	1997	None	Listed-not scheduled	Listed-not scheduled	Dow AgroSciences
039	Fenthion	1971	1995, 1997T(ARfD)	Listed-not scheduled	Listed-not scheduled	Not supported by manufacturer
202	Fipronil	2000/2001	None	Listed-not scheduled	Listed-not scheduled	BASF
206	Imidacloprid	2001	None	Listed-not scheduled	Listed-not scheduled	Bayer CropScience
049	Malathion	1965	1997T, 2003T(ARfD), 1999R	Listed-not scheduled	Listed-not scheduled	
102	Maleic hydrazide	1976	1996T, 1998R	Listed-not scheduled	Listed-not scheduled	Chemtura
094	Methomyl	1975	2001	Listed-not scheduled	Listed-not scheduled	DuPont
059	Parathion-methyl	1965	1995T, 2000R	Listed-not scheduled	Listed-not scheduled	Cheminova
062	Piperonyl butoxide	1965	1995T, 2001T(ARfD), 2001R	Listed-not scheduled	Listed-not scheduled	Endura
200	Pyriproxyfen	1999	None	Listed-not scheduled	Listed-not scheduled	Sumitomo Chemical / Valent Canada
203	Spinosad	2001	None	Listed-not scheduled	Listed-not scheduled	Dow AgroSciences
115	Tecnazene	1974	1994T	Listed-not scheduled	Listed-not scheduled	Support unknown
246	Acetamiprid	2011	None	Never scheduled	Never scheduled	Nippon Soda
280	Acetochlor	2015	None	Never scheduled	Never scheduled	Monsanto
999	Acibenzolar-S methyl	2016	None	Never scheduled	Never scheduled	Syngenta
999	Afidopyropen	2019	None	Never scheduled	Never scheduled	Meiji SeikaPharma / BASF
253	Ametoctradin	2012	None	Never scheduled	Never scheduled	[BASF] – USA
272	Aminocyclopyrachlor	2014	None	Never scheduled	Never scheduled	DuPont
220	Aminopyralid	2007	None	Never scheduled	Never scheduled	Dow AgroSciences
229	Azoxystrobin	2008	None	Never scheduled	Never scheduled	Syngenta
999	BAS 750F	2019	None	Never scheduled	Never scheduled	BASF
261	Benzovindiflupyr	2013	None	Never scheduled	Never scheduled	Syngenta
999	Bicyclopyrone	2017	none	Never scheduled	Never scheduled	Syngenta
219	Bifenazate	2006	None	Never scheduled	Never scheduled	Chemtura
262	Bixafen	2013	None	Never scheduled	Never scheduled	Bayer CropScience
221	Boscalid	2006	None	Never scheduled	Never scheduled	BASF

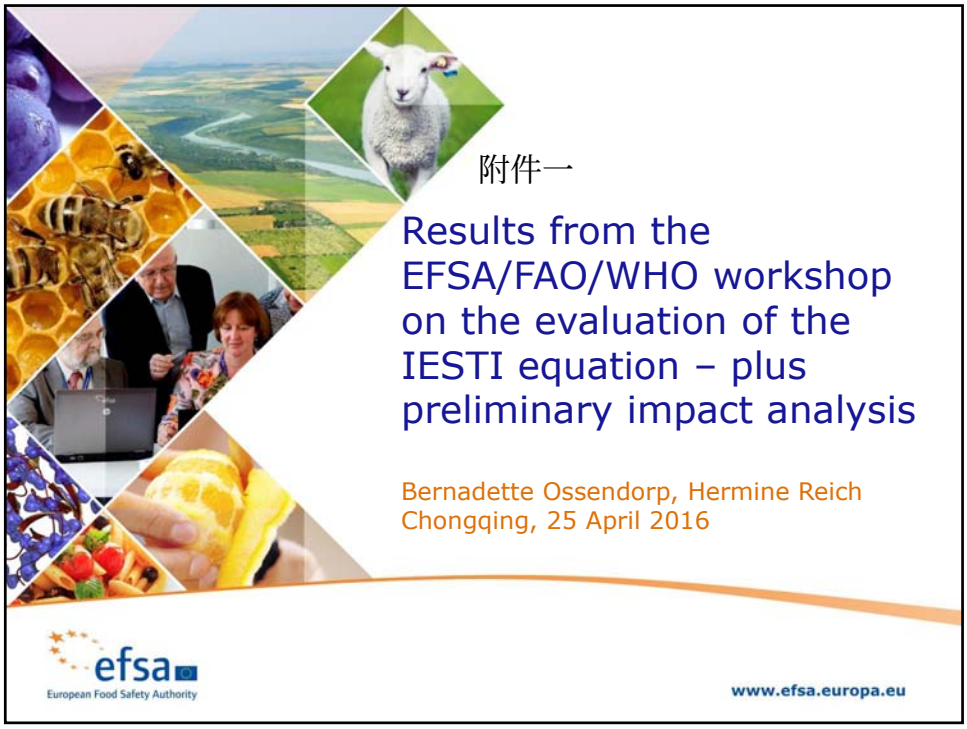
Code	Chemical	Initial JMPR evaluation	Periodic reviews	Scheduled (Tox)	Scheduled (Residues)	Notes
999	Broflalinide	2019	None	Never scheduled	Never scheduled	Landis Internaitonal / Mitsui Chemicals
230	Chlorantraniliprole	2008	None	Never scheduled	Never scheduled	DuPont
254	Chlorfenapyr	2012 T (2018 R)	None	Never scheduled	Never scheduled	[BASF] – Brazil
238	Clothianidin	2010	None	Never scheduled	Never scheduled	Sumitomo Chemical
263	Cyantraniliprole	2013	None	Never scheduled	Never scheduled	DuPont
281	Cyazofamid	2015	None	Never scheduled	Never scheduled	Ishihara Sangyo Kaisha
999	Cyclaniliprole	2016	None	Never scheduled	Never scheduled	Ishihara Sangyo Kaisha
273	Cyflumetofen	2014	None	Never scheduled	Never scheduled	BASF
239	Cyproconazole	2010	None	Never scheduled	Never scheduled	Syngenta
207	Cyprodinil	2003	None	Never scheduled	Never scheduled	Syngenta
240	Dicamba	2010	None	Never scheduled	Never scheduled	BASF
274	Dichlobenil	2014	None	Never scheduled	Never scheduled	Chemtura
224	Difenoconazole	2007	None	Never scheduled	Never scheduled	Syngenta
214	Dimethenamid-P	2005	None	Never scheduled	Never scheduled	BASF
225	Dimethomorph	2007	None	Never scheduled	Never scheduled	BASF
255	Dinotefuran	2012	None	Never scheduled	Never scheduled	[Mitsui Chemicals Agro] – Japan
247	Emamectin-benzoate	2011	None	Never scheduled	Never scheduled	Syngenta
204	Esfenvalerate	2002	None	Never scheduled	Never scheduled	Sumitomo Chemical
999	Ethiprole	2018	None	Never scheduled	Never scheduled	Bayer CropScience
241	Etoxazole	2010	None	Never scheduled	Never scheduled	Sumitomo Chemical
208	Famoxadone	2003	None	Never scheduled	Never scheduled	DuPont
264	Fenamidone	2013/14	None	Never scheduled	Never scheduled	Bayer CropScience
999	Fenazaquin	2017	None	Never scheduled	Never scheduled	Gowan
215	Fenhexamid	2005	None	Never scheduled	Never scheduled	Bayer CropScience
999	Fenpyrazamine	2017	None	Never scheduled	Never scheduled	Sumitomo chemical
282	Flonicamid	2015	None	Never scheduled	Never scheduled	Ishihara Sangyo Kaisha
283	Fluazifop-p-butyl	2015 (not in JMPR report)	None	Never scheduled	Never scheduled	Syngenta
999	Fluazinam	2018	None	Never scheduled	Never scheduled	ISK Biosciences / Isihara Sangyo Kaisha
242	Flubendiamide	2010	None	Never scheduled	Never scheduled	Nihon Nohyaku
211	Fludioxonil	2004	None	Never scheduled	Never scheduled	Syngenta
265	Fluensulfone	2013/14	None	Never scheduled	Never scheduled	Makhteshim
275	Flufenoxuron	2014	None	Never scheduled	Never scheduled	BASF

Code	Chemical	Initial JMPR evaluation	Periodic reviews	Scheduled (Tox)	Scheduled (Residues)	Notes
284	Flumioxazin	2015	None	Never scheduled	Never scheduled	Sumitomo
235	Fluopicolide	2009	None	Never scheduled	Never scheduled	Bayer CropScience
243	Fluopyram	2010	None	Never scheduled	Never scheduled	Bayer CropScience
285	Flupyradifurone	2015	None	Never scheduled	Never scheduled	Bayer CropScience
205	Flutolanil	2002	None	Never scheduled	Never scheduled	NIhon Nohyaku
248	Flutriafol	2011	None	Never scheduled	Never scheduled	Cheminova
256	Fluxapyroxad	2012	None	Never scheduled	Never scheduled	[BASF] – USA
276	Imazamox	2014	None	Never scheduled	Never scheduled	BASF
266	Imazapic	2013	None	Never scheduled	Never scheduled	BASF
267	Imazapyr	2013	None	Never scheduled	Never scheduled	BASF
999	Imazethapyr	2016	None	Never scheduled	Never scheduled	BASF
216	Indoxacarb	2005	None	Never scheduled	Never scheduled	DuPont
999	Isofetamid	2016	None	Never scheduled	Never scheduled	Ishihara Sangyo Kaisha
999	Isoprothiolane	2017	None	Never scheduled	Never scheduled	NIhon Nohyaku
249	Isopyrazam	2011	None	Never scheduled	Never scheduled	Syngenta
268	Isoxaflutole	2013	None	Never scheduled	Never scheduled	Bayer CropScience
286	Lufenuron	2015	None	Never scheduled	Never scheduled	Syngenta
231	Mandipropamid	2008	None	Never scheduled	Never scheduled	Syngenta
999	Mandistrobin	2018	None	Never scheduled	Never scheduled	Sumitomo Chemical
257	MCPA	2012	None	Never scheduled	Never scheduled	[Nufarm] – USA
244	Meptyldinocap	2010	None	Never scheduled	Never scheduled	Dow AgroSciences
277	Mesotrione	2014	None	Never scheduled	Never scheduled	Syngenta
236	Metaflumizone	2009	None	Never scheduled	Never scheduled	BASF
212	Metalaxyl-M	2002	None	Never scheduled	Never scheduled	Syngenta
999	Metconazole	2018	None	Never scheduled	Never scheduled	Valent USA / Kureha
209	Methoxyfenozide	2003	None	Never scheduled	Never scheduled	Dow AgroSciences
278	Metrafenone	2014	None	Never scheduled	Never scheduled	BASF
999	Natamycin	2017	none	Never scheduled	Never scheduled	DSM Food Specialities
999	Norflurazon	2018	None	Never scheduled	Never scheduled	Tessenderlo Kerley Inc.
217	Novaluron	2005	None	Never scheduled	Never scheduled	Makhteshim-Agan
999	Oxathiapiprolin	2016	None	Never scheduled	Never scheduled	DuPont
999	Pendimethalin	2016	None	Never scheduled	Never scheduled	BASF
253	Penthiopyrad	2011	None	Never scheduled	Never scheduled	DuPont
999	Phosphorous acid / fosetyl	2017	None	Never scheduled	Never scheduled	Nufarm / Bayer CropScience
258	Picoxystrobin	2012	None	Never scheduled	Never scheduled	[Dupont] -USA

Code	Chemical	Initial JMPR evaluation	Periodic reviews	Scheduled (Tox)	Scheduled (Residues)	Notes
999	Pinoxaden	2016	None	Never scheduled	Never scheduled	Syngenta
250	Propylene oxide	2011	None	Never scheduled	Never scheduled	Aberco
232	Prothioconazole	2008	None	Never scheduled	Never scheduled	Bayer CropScience
999	Pydiflumetofen SYN545794	2018	None	Never scheduled	Never scheduled	Syngenta
279	Pymetrozine	2014	None	Never scheduled	Never scheduled	Syngenta
210	Pyraclostrobin	2003	None	Never scheduled	Never scheduled	BASF
999	Pyrifluquinazon	2018	None	Never scheduled	Never scheduled	Nihon Nohyaku
226	Pyrimethanil	2007	None	Never scheduled	Never scheduled	Bayer CropScience
999	Pyriofenone	2018	None	Never scheduled	Never scheduled	ISK Biosciences / Isihara Sangyo Kaisha
999	Quinalophos	2017	None	Never scheduled	Never scheduled	na
287	Quinclorac	2015	None	Never scheduled	Never scheduled	BASF
222	Quinoxyfen	2006	None	Never scheduled	Never scheduled	Dow AgroSciences
251	Saflufenacil	2011	None	Never scheduled	Never scheduled	BASF
259	Sedaxane	2012	None	Never scheduled	Never scheduled	[Syngenta] – USA
233	Spinetoram	2008	None	Never scheduled	Never scheduled	Dow AgroSciences
237	Spirodiclofen	2009	None	Never scheduled	Never scheduled	Bayer CropScience
999	Spiromesifen	2016	None	Never scheduled	Never scheduled	Bayer CropScience
234	Spirotetramat	2008	None	Never scheduled	Never scheduled	Bayer CropScience
252	Sulfoxaflor	2011	None	Never scheduled	Never scheduled	Dow AgroSciences
218	Sulfuryl fluoride	2005	None	Never scheduled	Never scheduled	Dow AgroSciences
999	SYN546330	2019	None	Never scheduled	Never scheduled	Syngenta
223	Thiacloprid	2006	None	Never scheduled	Never scheduled	Bayer CropScience
245	Thiamethoxam	2010	None	Never scheduled	Never scheduled	Syngenta
999	Tioxazafen	2018	None	Never scheduled	Never scheduled	Monsanto
269	Tolfenpyrad	2013	None	Never scheduled	Never scheduled	Nihon Nohyaku
999	Trflmuron	2019	None	Never scheduled	Never scheduled	Bayer
999	Tricyclazole	2017	None	Never scheduled	Never scheduled	na
213	Trifloxystrobin	2004	None	Never scheduled	Never scheduled	Bayer CropScience
999	Triflumezopyrim	2017	None	Never scheduled	Never scheduled	DuPont
270	Triflumizole	2013	None	Never scheduled	Never scheduled	Nippon Soda
271	Trinexapac	2013	None	Never scheduled	Never scheduled	Syngenta
999	XDE-777	2018	none	Never scheduled	Never scheduled	Dow AgroSciences
227	Zoxamide	2007	None	Never scheduled	Never scheduled	Gowan

TABLE 4: CHEMICAL-COMMODITY COMBINATIONS FOR WHICH SPECIFIC GAP IS NO LONGER SUPPORTED

Code	Chemical	Comments
49	Malathion	Apple; citrus; grapes (EU GAP no longer supported by EU)
39	Fenthion	Cherry; citrus fruits; olive oil (virgin); olives (EU GAP no longer supported by EU)
162	Tolyfluanid	All commodities (EU GAP no longer supported)



附件一

Results from the EFSA/FAO/WHO workshop on the evaluation of the IESTI equation – plus preliminary impact analysis

Bernadette Ossendorp, Hermine Reich
Chongqing, 25 April 2016

efsa
European Food Safety Authority

www.efsa.europa.eu

efsa
European Food Safety Authority

HISTORY OF IESTI

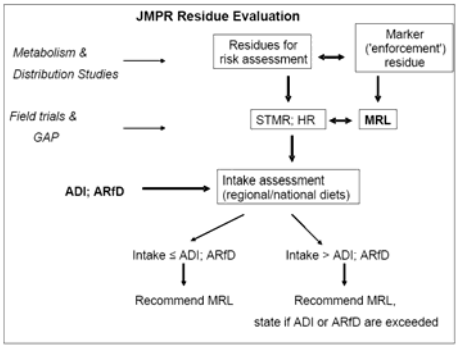
- 1997 FAO/WHO Geneva Consultation
- 1998 York International Conference on Pesticide Residues Variability and Acute Dietary Risk Assessment (PSD, UK)
- *ad hoc* Expert Meeting held before the 1999 CCPR (Annex V in JMPR 1999 report)
- JMPR meetings 1999, 2000, 2002, 2003, 2005, 2006
- changes consolidated at FAO/WHO 'Annapolis' workshop (WHO, 2008 = EHC 240)

2

RH1

HOW IESTI EQUATIONS ARE USED

In the process of MRL setting:



IESTI = **I**nternational **E**stimate of **S**hort-**T**erm dietary **I**ntake

Short-term = 24 hours (for comparison with ARfD)

3

HOW IESTI EQUATIONS ARE USED; EU SPECIFIC

- **In the pre-authorisation risk assessment**
- **In the EU annual reports on the monitoring programme for pesticide residues**
- **In the process of enforcement:**
  - EU Rapid Alert System for Food and Feed (RASFF)
  - PSTI = Predicted short term intake from sampling result
  - Uses 'OR' = observed residue in equation instead of HR, but is essentially identical to IESTI. **OR refers to residue definition for monitoring!**

RASFF
Rapid Alert System for Food and Feed

4

Slide 3

RH1 Please check the condition in the right bottom corner:

Intake > ADI; ARfD

REICH Hermine; 25-2-2016

IESTI EQUATIONS

Select case 1, 2 a, 2b or 3:

- Case 1
  Unit weight (U_{RAC}) < 25 g
  (e.g. green beans)
- Case 2a
  Unit weight (U_{RAC}) >= 25 g
  edible portion (U_e) < large portion
  (e.g. potatoes)
- Case 2b
  Unit weight (U_{RAC}) >= 25 g
  edible portion (U_e) >= large portion
  (e.g. red cabbage)
- Case 3
  bulked/blended commodity
  (e.g. tea)

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CURRENT IESTI EQUATIONS

- Case 1
  Unit weight (U_{RAC}) < 25 g
  (e.g. green beans with pods)

$$IESTI = \frac{LP \times HR}{bw}$$

- Case 2a
  Unit weight (U_{RAC}) ≥ 25 g,
  v=3, 5, 7, 10
  edible portion (U_e) < large portion
  (e.g. potatoes)

$$IESTI = \frac{\{U_e \times HR \times v\} + \{(LP - U_e) \times HR\}}{bw}$$

- Case 2b
  Unit weight (U_{RAC}) ≥ 25 g,
  v=3, 5, 7, 10
  edible portion (U_e) ≥ large portion
  (e.g. red cabbage)

$$IESTI = \frac{LP \times HR \times v}{bw}$$

- Case 3
  bulked/blended commodity
  (e.g. tea, cereals)

$$IESTI = \frac{LP \times STMR}{bw}$$

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CURRENT IESTI EQUATIONS

Effect of the unit weight

Spinach-total LP = 420.3 g/p/d, bw = 14.2 kg, South Africa (ZA) HR = 2.5 mg/kg, ARfD = 0.1 mg/kg		
Bunch of spinach	Spinach plant	Spinach leaf
$U_{RAC}=U_e$ = 300 g, JPN	U_{RAC}=45 g, U_e =33.3 g, AUS	U_{RAC} = U_e = 1.5 g, NLD
Case 2a, v=3	Case 2a, v=3	Case 1, v=1
180% ARfD	90% ARfD	70% ARfD

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HISTORY OF MRL VERSUS HR (WHO/JMPR)

- Initially, MRL instead of HR in IESTI
- In 1999, MRL was replaced by HR, because:

  - the JMPR practice of recommending MRLs within 'MRL classes'. This may lead to the IESTI not being sufficiently discriminatory to be used as a screening technique.

  - wish to consider total toxicologically relevant residue; use of residue definition for risk assessment (HR) instead of residue definition for enforcement/monitoring (MRL)

  - no rounding in the middle of a calculation

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HISTORY OF VARIABILITY FACTOR

- Definition for variability factor (v): 97.5th percentile of the residues present in single crop units divided by the mean residue of the lot
- 2002 JMPR: default factors of 3,5,7,10
  2003 JMPR: default factor 3; 2005 JMPR confirmed this (new data)
- Not accepted in EU; EFSA PPR Panel opinion 2005. Variability factor is itself variable, 3 is the mean of the distribution. How conservative do risk managers want to be?
- 2007 EFSA PPR opinion; influence of changing v on Level of Protection

REASONS TO REVISIT IESTI - 1

- Check against current science and practicalities after 15 years of use
- Communicating that the legal standards (MRLs) are assessed may contribute to building trust among the general audience
- Harmonizing the IESTI methodology will increase the acceptability of Codex MRLs and as such contribute to a level playing field in international trade.

REASONS TO REVISIT IESTI - 2

- Use of OECD MRL calculator and harmonised MRL classes:
  - MRLs are derived in the same way everywhere
  - using the MRL instead of the HR will no longer lead to different conclusions in different countries
- HR is based on a small dataset.
  - In reality, residue levels may vary outside the dataset. The 'OECD – MRL calculation unrounded' is a statistically more reliable estimate of the highest residue. The OECD – MRL calculation in many cases results in a level at approximately 2x the HR

2006/2007 JMPR RECOMMENDATIONS

for issues to address in a global workshop/consultation on IESTI

- Uncertainty and variability of the parameters
- Investigation of the practicalities of using the MRL
- Ways to improve the consumption, unit weight and bodyweight data
- Identification of additional subgroups of the population for which the assessment should be conducted, e.g. toddlers
- The adequacy of the IESTI/NESTI equations when residues from monitoring/enforcement are used
- How to improve the communication between risk assessors and risk managers and the public on the output of the risk assessment

IESTI EVENT GENEVA SEPT 2015

Stakeholder meeting 7 sept

- AIM: to collect views and contributions of stakeholders in order to use this input in the EFSA/FAO/WHO scientific workshop on 8 + 9 sept
- Attended by representatives of risk management bodies, of producing and exporting countries, of NGOs, of Industry
- Expectations of participants for workshop:
  - Global harmonisation of the equations;
  - Development of a roadmap describing the activities needed to reach that goal.

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Revisiting IESTI

IESTI EVENT GENEVA SEPT 2015

Stakeholder meeting 7 sept

Discussion on purpose of IESTI calculations:

1. evaluation of the dietary risk related to a specific use or

2. evaluation of the dietary risk related to a specific MRL

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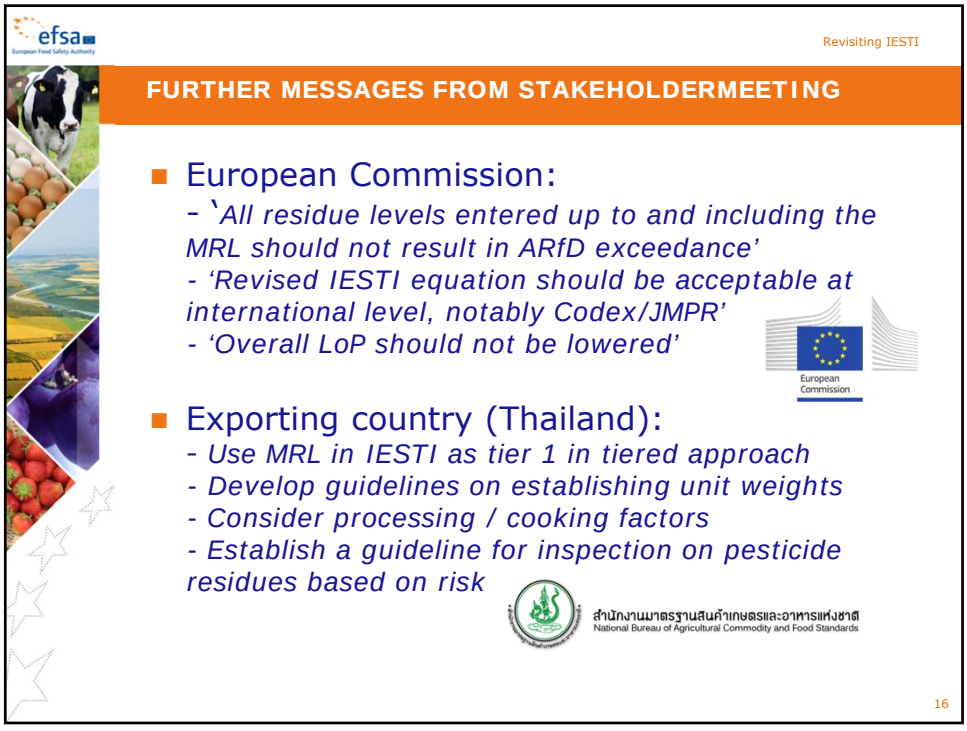
efsa
Revisiting IESTI
FURTHER MESSAGES FROM STAKEHOLDERMEETING
PAN- Europe (NGO):
`Priority in the EU is to protect human and environmental health'
`IESTI being over conservative is a myth'
'IESTI must be modified according to cumulative risk assessment'
Pesticide Action Network Europe
ECPA:
'Keep current IESTI equation (as applied by JMPR) until full impact is known and further work is completed'
'Promote international harmonization between JMPR, Japan, Europe and USA / Canada'
European Crop Protection
15


efsa
Revisiting IESTI
FURTHER MESSAGES FROM STAKEHOLDERMEETING
European Commission:
- `All residue levels entered up to and including the MRL should not result in ARfD exceedance'
- 'Revised IESTI equation should be acceptable at international level, notably Codex/JMPR'
- 'Overall LoP should not be lowered'
European Commission
Exporting country (Thailand):
- Use MRL in IESTI as tier 1 in tiered approach
- Develop guidelines on establishing unit weights
- Consider processing / cooking factors
- Establish a guideline for inspection on pesticide residues based on risk
สำนักงานมาตรฐานสินค้าเกษตรและอาหารแห่งชาติ
National Bureau of Agricultural Commodity and Food Standards
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IESTI EVENT GENEVA SEPT 2015

Conclusions workshop 8 + 9 sept.

IESTI EVENT GENEVA SEPT 2015: WORKSHOP

Proposal for new IESTI equations

- New IESTI equation replacing case 1 and case 3 of the current IESTI equation:

$$IESTI = LP_{bw} \times MRL \times CF \times PF$$

- New IESTI equation replacing case 2a and case 2b of the current IESTI equation:

$$IESTI = LP_{bw} \times MRL \times v \times CF \times PF$$

IESTI EVENT GENEVA SEPT 2015: WORKSHOP

Main recommendations

- Replace the HR and STMR by the MRL in all cases of the IESTI equation
- Use a a default variability factor of 3
- Derive the P97.5 large portion from the distribution of consumption values expressed as g/kg body weight
- Proposal to remove the unit weight from the IESTI equations
- applicable to both MRL setting for individual commodities and enforcement purposes

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IESTI EVENT GENEVA SEPT 2015: WORKSHOP

Future work - 1

- Develop a list of commodities for which the variability factor is not applicable
- Information on bulking and blending practices needs to be gathered.
- Further guidance on the derivation of conversion factors is needed (OECD?)
- Conversion factors and processing factors should be made publicly available by the risk assessors in a database.

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IESTI EVENT GENEVA SEPT 2015: WORKSHOP

Future work - 2

- Develop a harmonized and comprehensive list of commodities and certain pre-defined processed commodities for which large portion data need to be derived
- Develop a harmonized list or database compiling the large portions for the different diets at global level. Data should comply with agreed quality criteria.
- Further guidance on how to derive a large portion is required.

REFERENCES

- Info on Stakeholder meeting + workshop + presentations given:

  http://www.efsa.europa.eu/en/events/event/150907

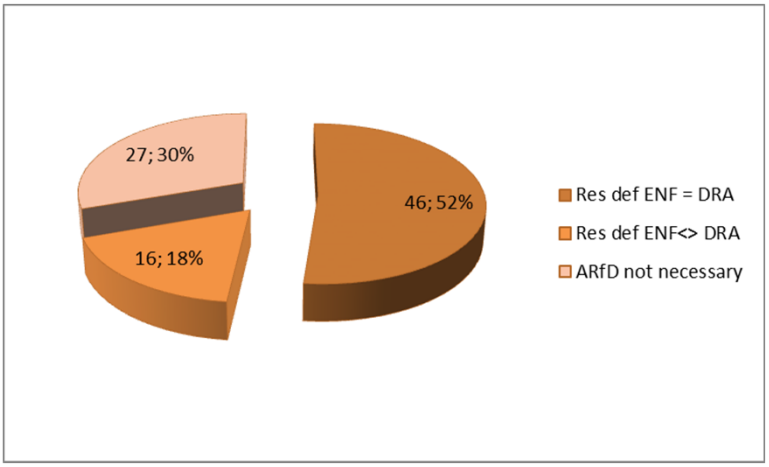
- Event Report:

  http://www.efsa.europa.eu/en/supporting/pub/907e

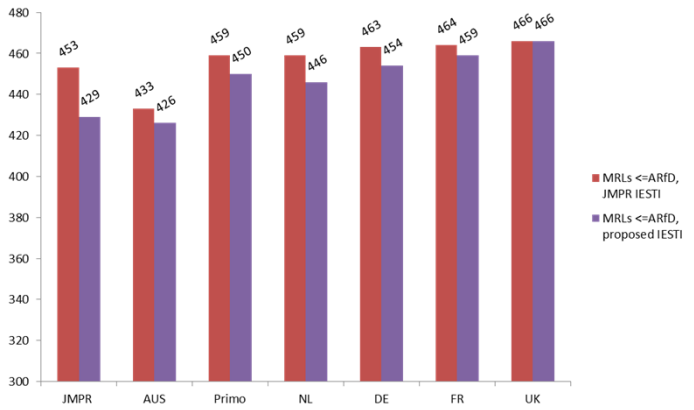
PRELIMINARY IMPACT ANALYSES

- An *ad hoc* working group with members from
  ANSES (FR), APVMA (AUS), BfR (DE), CRD (UK), EFSA, RIVM (NL) has prepared a preliminary impact assessment on the proposed changes. The assessment includes:
  - impact on number of MRLs
  - ratio of current versus proposed exposure estimates (case 1, 2a, 2b, 3)
  - commodities affected
  - influence of the number of trials in the derivation of the MRL

IESTI impact assessment; JMPR vs proposed



JMPR method versus proposed, MRLs=466 (total)



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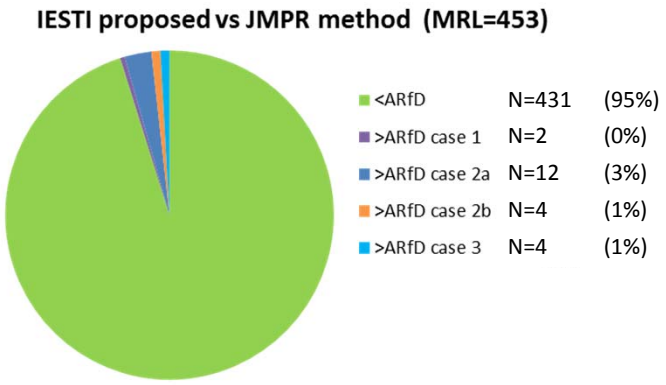
Number of MRLs affected in the proposed method



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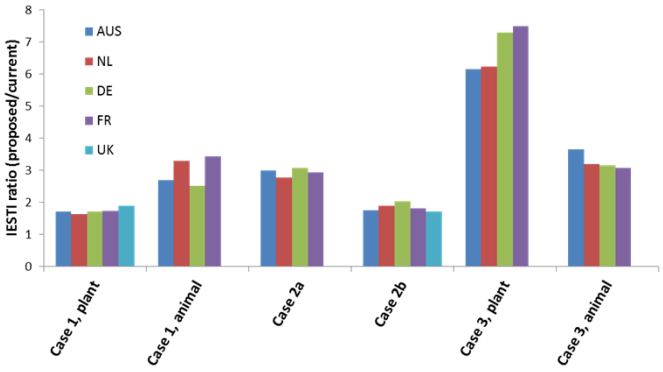
IESTI ratio proposed over current per case



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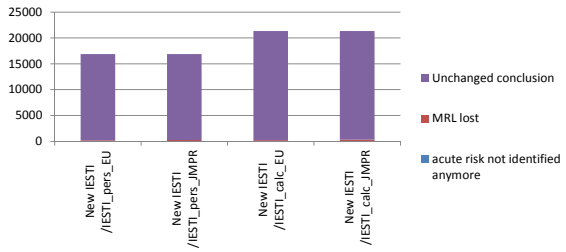
anses
alimentation, environnement, travail

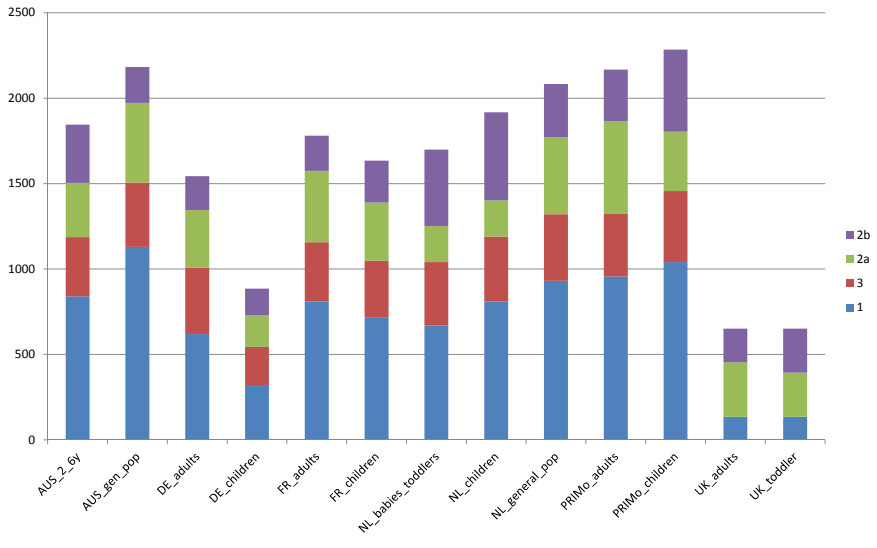
Impact of changes in IESTI calculations : use of the residue data from EU Art 12 review

Conclusion for all diets (cumulated)

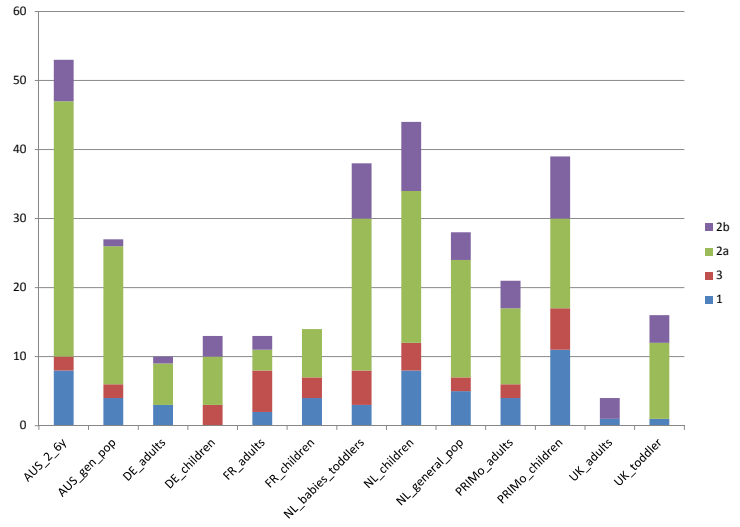
	Acute risk not identified anymore	MRL lost	Unchanged conclusion	No comparison possible	TOTAL
New IESTI /IESTI_pers_EU	29	178	16664	23559	40430
New IESTI /IESTI_pers_JMPR	1	268	16602	23559	40430
New IESTI /IESTI_calc_EU	47	203	21072	19108	40430
New IESTI /IESTI_calc_JMPR	0	320	21002	19108	40430



MRL by case for each diet

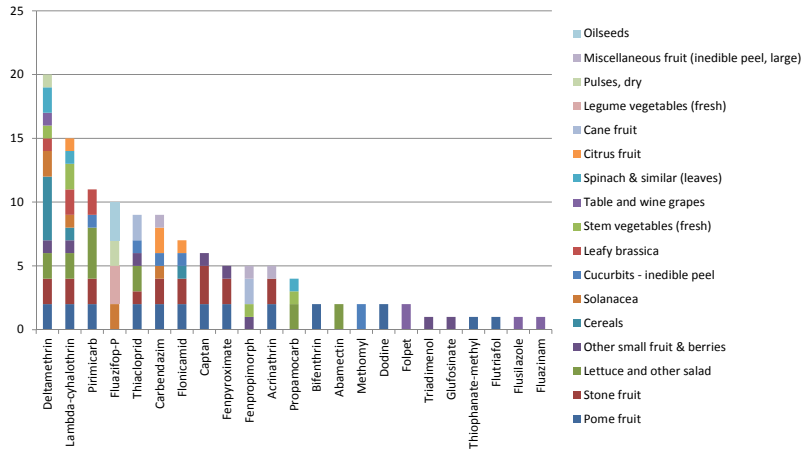


MRL lost by diet and by case



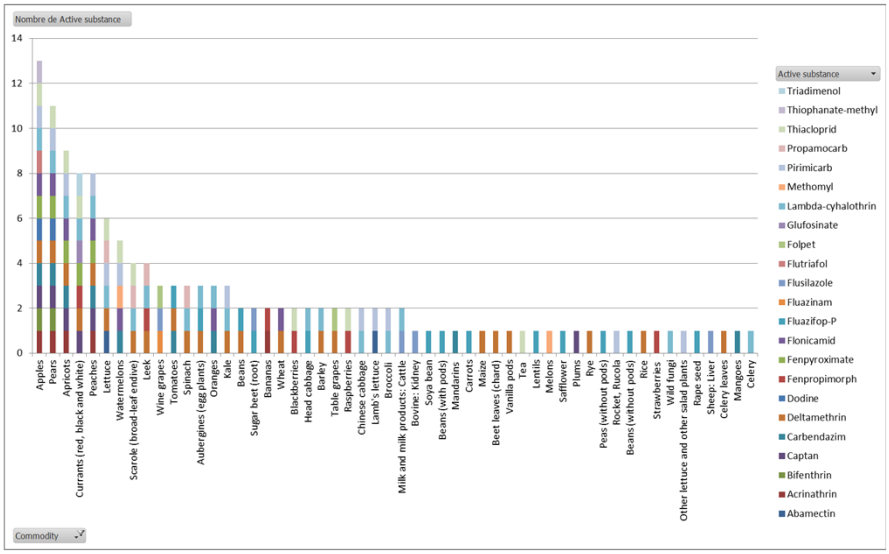
New IESTI vs IESTI-calc-JMPR

MRL lost by AS and commodity group



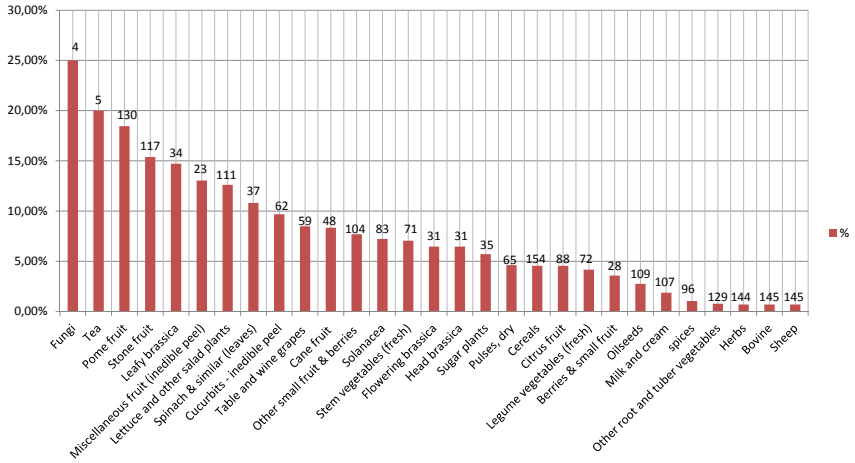
New IESTI vs IESTI-calc-JMPR

MRL lost by commodity



New IESTI vs IESTI-calc-JMPR

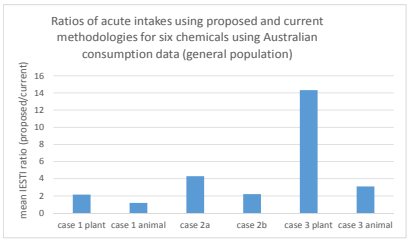
% of MRL lost by commodity group

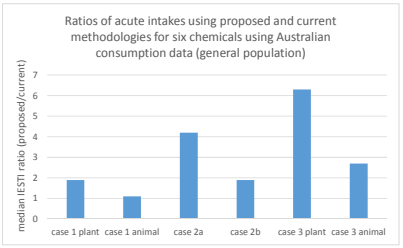


New IESTI vs IESTI-calc-JMPR

Total number of MRL for each commodity is indicated above each bar

APVMA: MEAN VERSUS MEDIAN, GEN. POP





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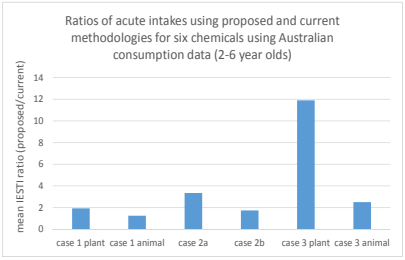
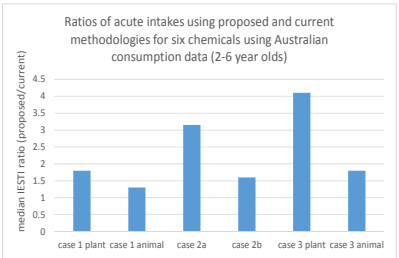
APVMA: MEAN VERSUS MEDIAN, 2-6 YEAR OLDS





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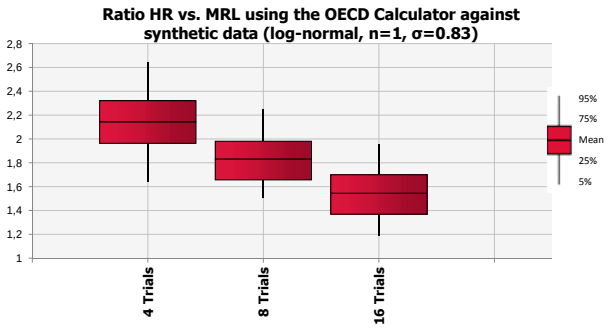
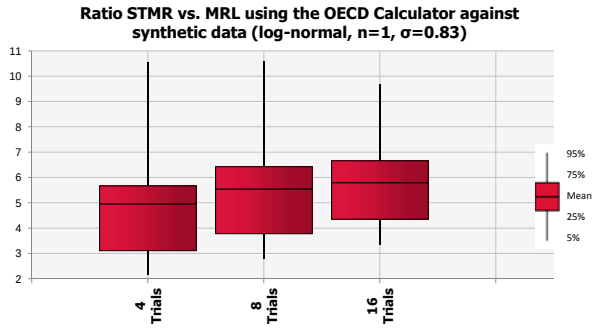
BFR: INFLUENCE OF NO. OF TRIALS

Impact of changing input parameters: HR → MRL (case 1, 2a & 2b)



BFR: INFLUENCE OF NO. OF TRIALS

Impact of changing input parameters: STMR → MRL (case 3)



ACKNOWLEDGEMENTS TO AD HOC WG

- anses
  - Nicolas Breysse
  - Gaelle Vial
  - Xavier Sarda
- Australian Government – Australian Pesticides and Veterinary Medicines Authority
  - Sam Margerison
  - Paul Humphrey
  - Jason Lutze
  - Raj Bhula
- BfR – Bundesinstitut für Risikobewertung
  - Christian Sieke
- HSE Health & Safety Executive /CRD:
  - Paul Hamey
- efsa European Food Safety Authority
  - Hermine Reich
  - Luc Mohimont
- National Institute for Public Health and the Environment, Ministry of Health, Welfare and Sport
  - Trijntje van der Velde-Koerts
  - Jacqueline Siljee
  - Karin Mahieu
  - Anton Rietveld
  - Bernadette Ossendorp

ROADMAP

- EFSA event report by end 2015 ✓
- Draft report considered by JMPR 2015 ✓
- Side-event at CCPR 2016 (25-30 April) ✓
- Need for further international discussions with JMPR and stakeholders and dissemination of information ✓
- Please refer to CRD3 for background information and proposal for future work ✓

THANK YOU FOR YOUR ATTENTION!

謝謝

Perspectives on Proposed Changes to IESTI

April 2016 CCPR

Cheryl Cleveland, Ph.D. on behalf of
Crop Life International Delegation






What is the Issue?

CropLife International is concerned the proposed change to the IESTI equation will lead to a significant loss of CODEX MRLs without international justification.

CropLife International is also concerned that the proposal leads to inflated dietary estimates for all commodities.

Outline of Talk

Background

Proposal made via international workshop hosted by EFSA, RIVM, WHO, FAO in September

Once derived, MRLs are supported by dietary risk assessments by various methods globally

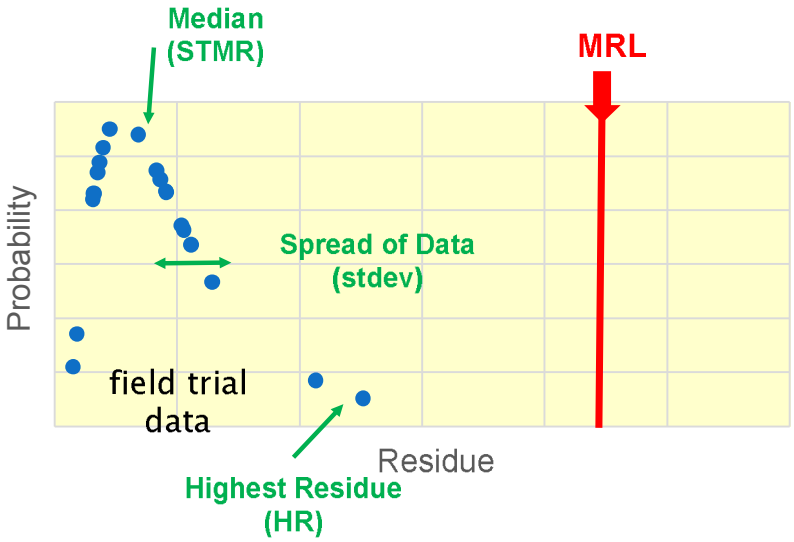
Calculation of MRLs is standardized by OECD calculator

The changes inflate the acute dietary exposure estimates
The increased conservatism will result in fewer MRLs

Within JMPR, IESTI equation is used for acute dietary exposure
EU leading proposal for changes to JMPR IESTI

- IESTI = International Estimate of Short Term Intake

How are MRLs Established? The OECD MRL Calculator



➔ **Process relies on conduct of field trials at critical or worse case GAP for highest residues (max rate, Max # applications, min RTI, min PHI)**

IESTI Equations:
Proposal from EFSA / WHO workshop, 2015

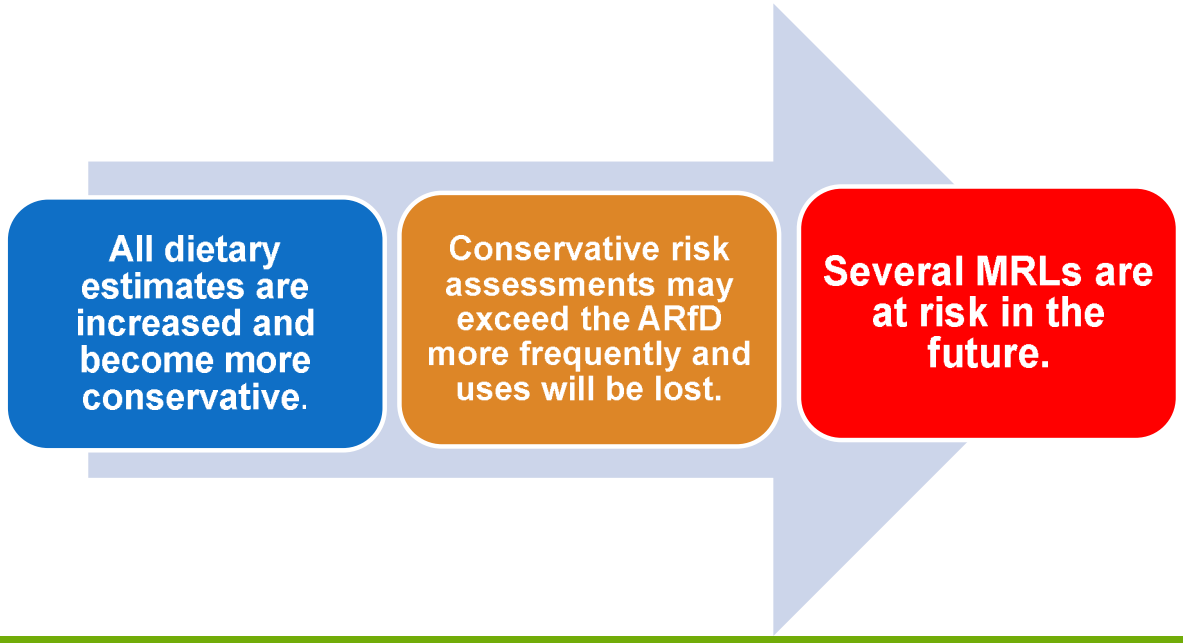
Dietary exposure = consumption X residues

Case	Current IESTI (mg/kg bw)	*Proposed IESTI (mg/kg bw)*
1	$\frac{(LP \times (HR \text{ or } HR-P))}{bw}$	$LP_{bw} \times MRL \times CF \times PF$
2a	$\frac{((Ue \times (HR \text{ or } HR-P)) \times v + (LP-Ue) \times (HR \text{ or } HR-P))}{bw}$	$LP_{bw} \times MRL \times v \times CF \times PF$
2b	$\frac{((LP \times (HR \text{ or } HR-P)) \times v))}{bw}$	$LP_{bw} \times MRL \times v \times CF \times PF$
3	$\frac{(LP \times STMR-P))}{bw}$	$LP_{bw} \times MRL \times CF \times PF$

The proposal . . .

- Replaces all field data (HR and STMR) with MRL as exposure
- Keeps variability factor 3, but applies it to the MRL
- Removes unit weight from Case 2a
- Introduces new CF in order to use MRL
- Projects use of LP_{bw} data not yet available

What is the Impact?



- Assessment gives idea on impact; also provides indications for further work
- 70% of new AI have ARfD in JMPR and could be impacted

Impact on MRL approvals:

Case Study Ethephon (2015): ARfD: 0.05 mg/kg bw

Crop	Residue (mg/kg)			PF	Case	IESTI (%ARfD)	
	STMR	HR	MRL			2015	Future
Apple	0.15	0.49	0.8	1	2a	57.4	199.8
Cherry	0.65	2.7	5	1	1	62.7	116.1
Grape	0.19	0.52	0.8	1	2b	70.9	109.1
Table olive	1.9	4.3	7	0.01	1	0.3	0.5
Fig	0.73	0.75	3	1	2a	25.9	156.5
Pineapple	0.42	0.72	1.5	0.29	2b	37.0	77.2
Tomato	0.52	0.79	2	1	2a	61.1	196.2
Tomato (dried)	0.52	0.79	2	5	1	101.5	257.0
Barley	0.13	0.73	1.5	0.19	3	2.8	31.8
Rye	0.10	0.31	0.5	1	3	1.2	5.9
Wheat	0.10	0.31	0.5	1	3	5.2	25.8
Olive (oil)	1.9	4.3	7	0.02	3	0.1	0.4

- Increased exposure for all commodities presents new communication issues
- Fewer MRLs will be approvable in the proposed system

Preliminary impact assessment - Revision of the IESTI equation

Case	Crops / commodities	Increase of Calculated exposure
1	  **Meal portion < 0.025 kg** *including meat, eggs*	1.7X
2a	  **Meal portion > 0.025 kg** Ue<LP *Use of 3 x MRL for all food*	3.5X
2b	  Ue>LP	2.3X
3	   **Bulked and blended**	5.2X

➔ Prior to change: Investigations on the use of variability factor recommended
➔ Prior to revision: Investigations on blending procedures recommended

Preliminary impact assessment - Revision of the IESTI equation

Commodity MRLs most impacted:

- Citrus fruits: Oranges, mandarins
- Lettuce and leafy vegetables
- Apples
- Apricots and other stone fruits

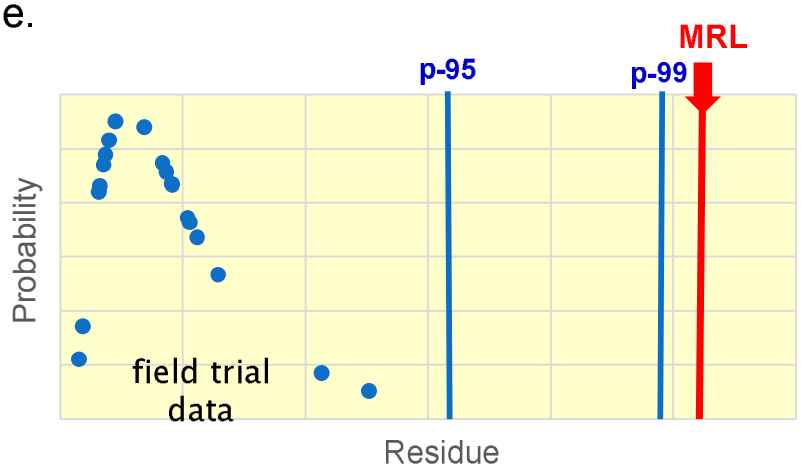
Assessment is Preliminary because . . .

- Consumption data (LP_{bw} and raw/processed data)
- Processing Factors
- Conversion Factors

➔ Highest "CXL failure" rate for leafy vegetables followed by stone fruits and apples (above 10% of investigated cases)

What do we know about MRLs? The OECD MRL Calculator

- During development emphasis was on <u>not under-estimating</u> the 95th percentile, little emphasis was on *not over-estimating* the 95th percentile.



- *On average, the OECD MRL calculator proposes MRLs which are approximately 2 x p95, corresponding to the **99th percentile** of the residue distribution.*

What do we know about Dietary Exposure?

- The MRL is not a good measure of ACTUAL dietary exposure because . . .
  - *not all commodities are treated at the critical GAP and a variety of timings and actives are used*
  - *residue levels decline significantly between harvest and transportation to consumers*
  - *reduction of residues typically occurs in household preparation, cooking or industrial processing*
- Most global dietary models use field data (HR/STMR) - initial refinement in dietary exposure
- Monitoring data allows a *reality check* on models

Comparing MRLs, Field Trial & Monitoring: Example with US PDP Data

MRL Levels

- Single upper bounds from MRL calculator

Field Trial Residues

- Residues under "worst-case conditions"

Monitoring Values

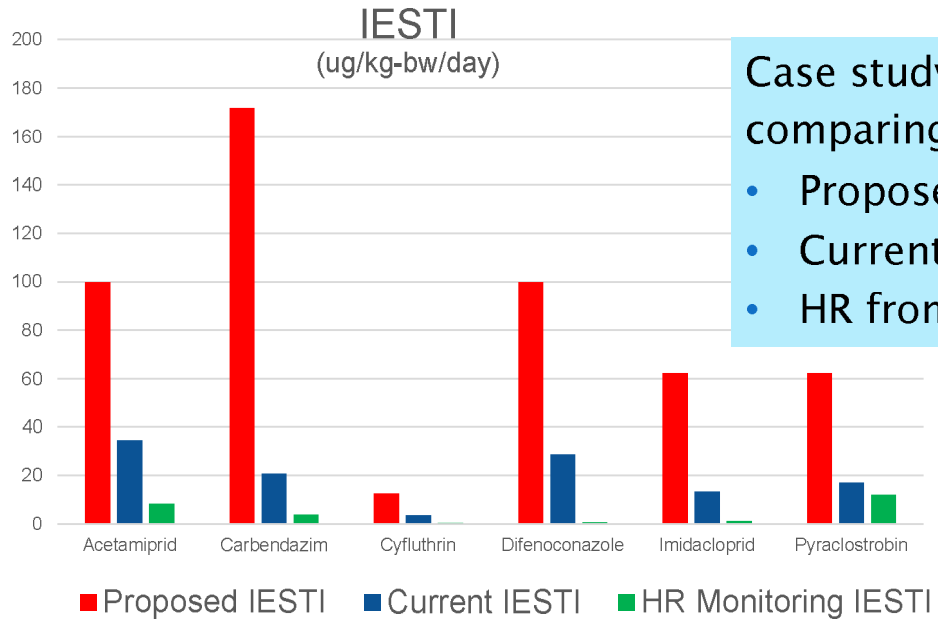
- Monitored commodities in food supply

Field Trial residues ~ 3X lower

USDA PDP residues ~ 4X-400X lower

- Likelihood of exceeding MRL levels at consumer level is very small

Comparison of calculated exposure (IESTI) with monitoring data for apples

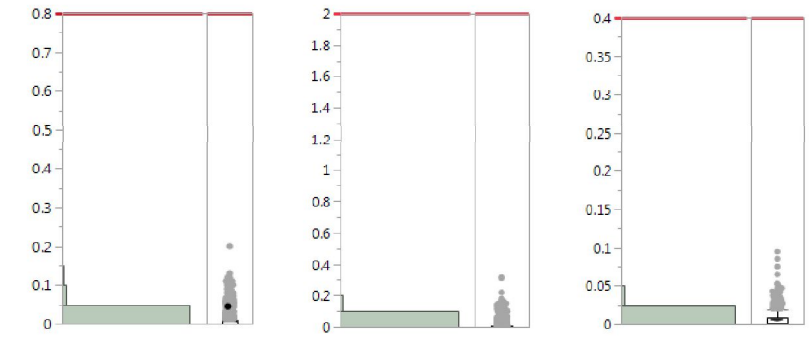


Case study for apples comparing:

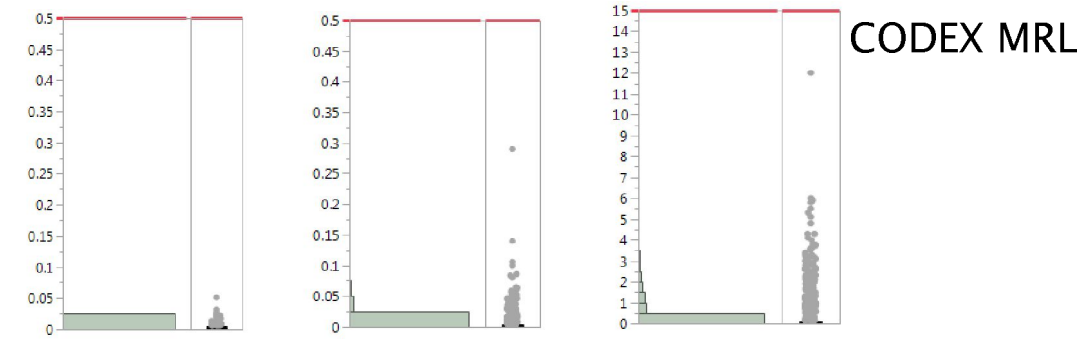
- Proposed Use of MRL,
- Current Use of HR,
- HR from US monitoring

→ Monitoring Data provides a benchmark for current and proposed IESTI
→ Proposed additional conservatism with high impact is not justified

USDA Pesticide Data Program for Apples (2009, 2010, 2014)
Distribution for 6 actives with highest residue % of MRL



Acetamiprid Boscalid Chlorantraniliprole



Imidacloprid Pyraclostrobin Pyrimethanil

➔ **The deterministic HR from monitoring is conservative for the remainder of the full distribtution**

What are unresolved issues?

- No change to the IESTI should be made without comprehensive review of interplay of all factors.
- The current $v = 3$ used with the HR for was not mathematically derived for use with an MRL
- Nor is it reasonable to apply $v = 3$ to all units in a large portion for consumption
- The CRD lists multiple items as “future work” which need to be addressed before
  - e.g. information on bulking and blending or improved LP_{bw} for consumption

The Variability Factor

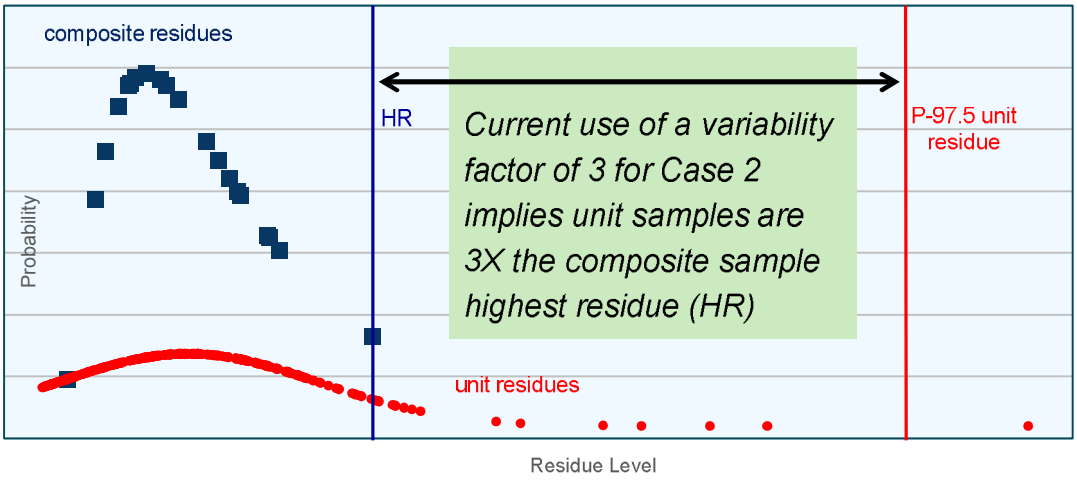
Is V=3 appropriate when used with the MRL?

IESTI – case 2a and 2b

Acute Exp (mg/kg-bw/day) = MRL x V x LP

The variability factor is an upper percentile estimate of the ratio between the pesticide residue in the unit samples and the residue in the composite samples

$$V = \frac{\text{97.5th percentile Unit Residue}}{\text{Composite Residue}}$$



Current use of a variability factor of 3 for Case 2 implies unit samples are 3X the composite sample highest residue (HR)

➔ **Preliminary calculations demonstrate that a more appropriate variability factor <<3 could be derived for use with the MRL**

The Variability Factor

Is V=3 appropriate when used with the MRL?

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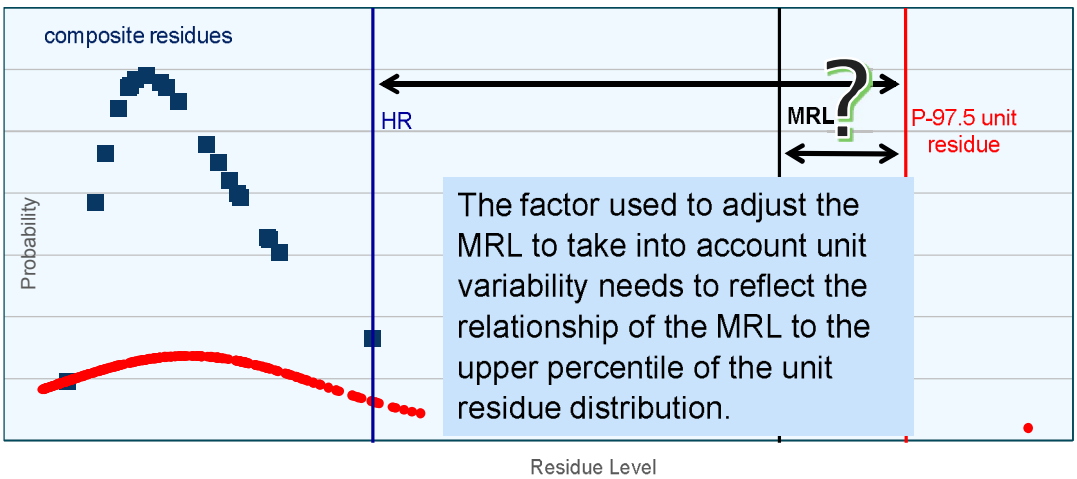


The factor used to adjust the MRL to take into account unit variability needs to reflect the relationship of the MRL to the upper percentile of the unit residue distribution.

➔ **Preliminary calculations demonstrate that a more appropriate variability factor <<3 could be derived for use with the MRL**

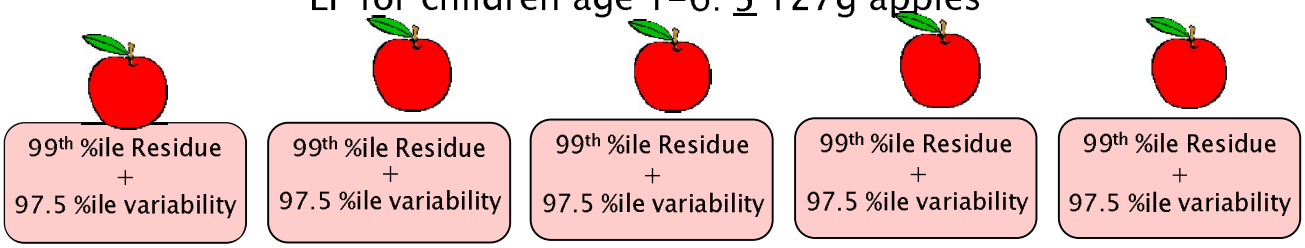
The Variability Factor

Is V=3 appropriate when used with the MRL?

Case 2a – apples and oranges

IESTI = MRL x **V** x LP

LP for children age 1–6: 5 127g apples



The proposed IESTI equation assumes that EACH apple included in the large portion consumption will have MRL-level (p-99) residue AND p-97.5 level unit variability.

Smaller case 2a commodities like apricots, kiwi, fig, garlic, carrot, mandarin are even more affected by this compounded conservatism.

➔ **The variability factor is SIGNIFICANTLY over conservative for case 2a commodities**

Blending and bulk:
Case 3 Study on wheat

- There are 38 CODEX MRLs on wheat
- USDA PDP monitoring data for wheat (2012) had 51 analytes
  - Only 4 had detections above the LOD;
- Use of the MRL inflates the actual exposure 20 to 100X

Compound	Highest monitoring (ppm)	STMR field (ppm)	CODEX MRL (ppm)	MRL/ STMR Factor	MRL/ monitoring Factor
Azoxystrobin	0.004	0.01	0.2	20X	50X
Boscalid	0.005	0.075	0.5	7X	100X
Deltamethrin/ Cypermethrin	0.042	1.38	2	1.4X	48X
Metconazole	0.007	-	None 0.15 (US)	-	20X

➔ **The current STMR is more appropriate than MRL for blended and bulk commodities**

Conservatism in Current and Proposed IESTI

Current IESTI already has much conservatism built in

- Acute RfD has **100X** Safety Factor from No Adverse Effect Level
- Use of a **point Estimate of HR** at the critical GAP is highest point in full distribution of potential residue values
- **Variability factors very conservative**
- **Field** trial data **does not account for degradation** during transport and food preparation

Proposed IESTI would add even more conservatism

- Use of the **MRL** is set above **worse case** field trial
- Continued use of variability factor in Case 2 sets exposure at **3X MRL!**
- Use of **MRL for blended** commodities **not justified**
- **Monitoring** data does not support use of MRL for **dietary exposure estimate**

➔ **Assessment of entire equation needed prior to modification**

Conclusions

- **Monitoring data show that MRL is an overestimate for dietary exposure**
- Proposed **changes** introduce **more conservatism**, without clear justification
- **CropLife International offers technical support** in any future EWG.
- **Partial implementation** of change without all data and factors **should not be made**
- Change should not be introduced until **full impact assessment** on trade and developing countries is understood

THANK YOU

Special Thanks to:
Monika Bross, Jane Stewart, Arpad Szarka, Phil Brindle, Frank LaPorte, Michael Kaethner, Bruce Young, Kent Rupprecht, Dave Johnson, Angela Klemmens

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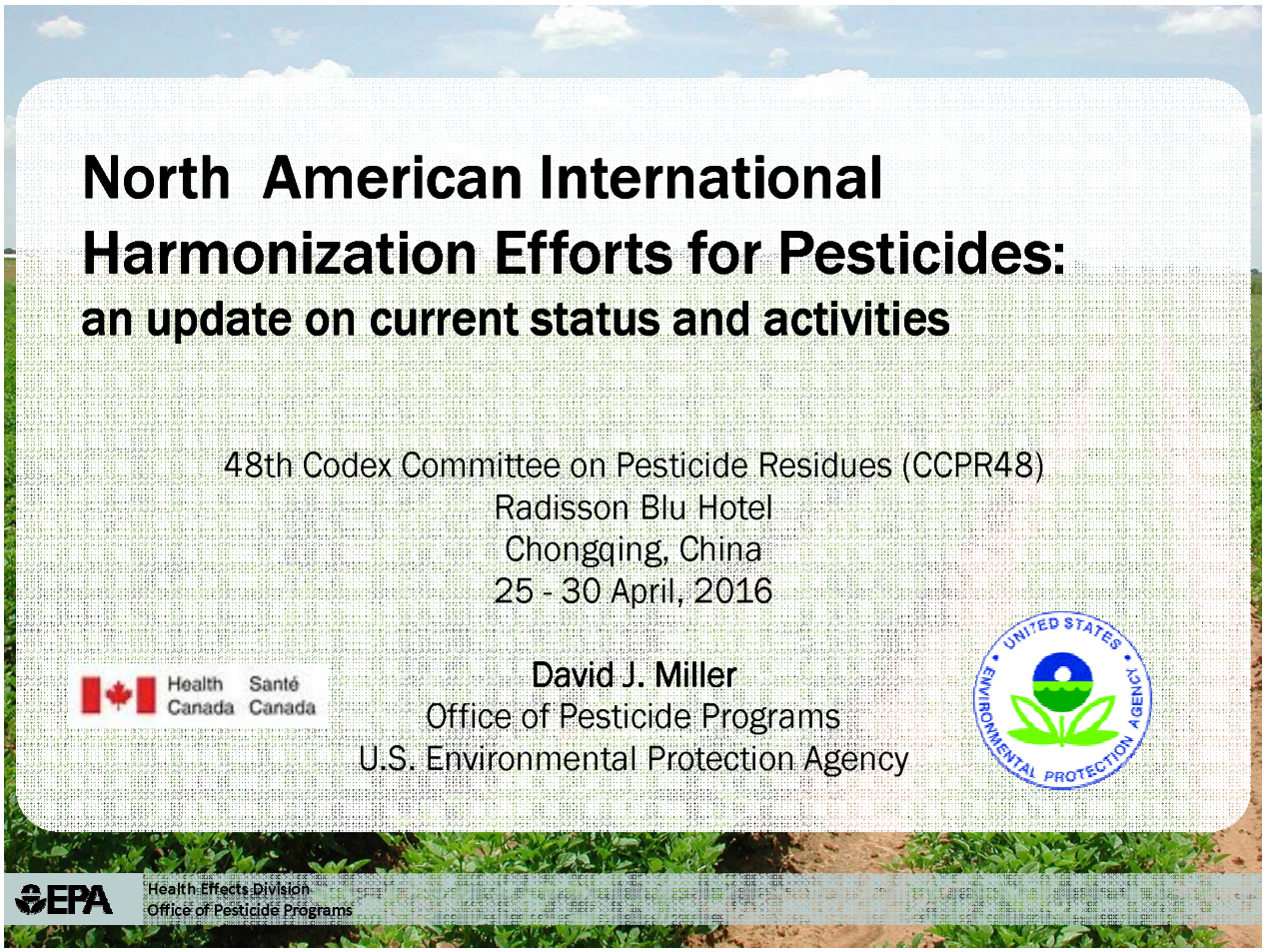
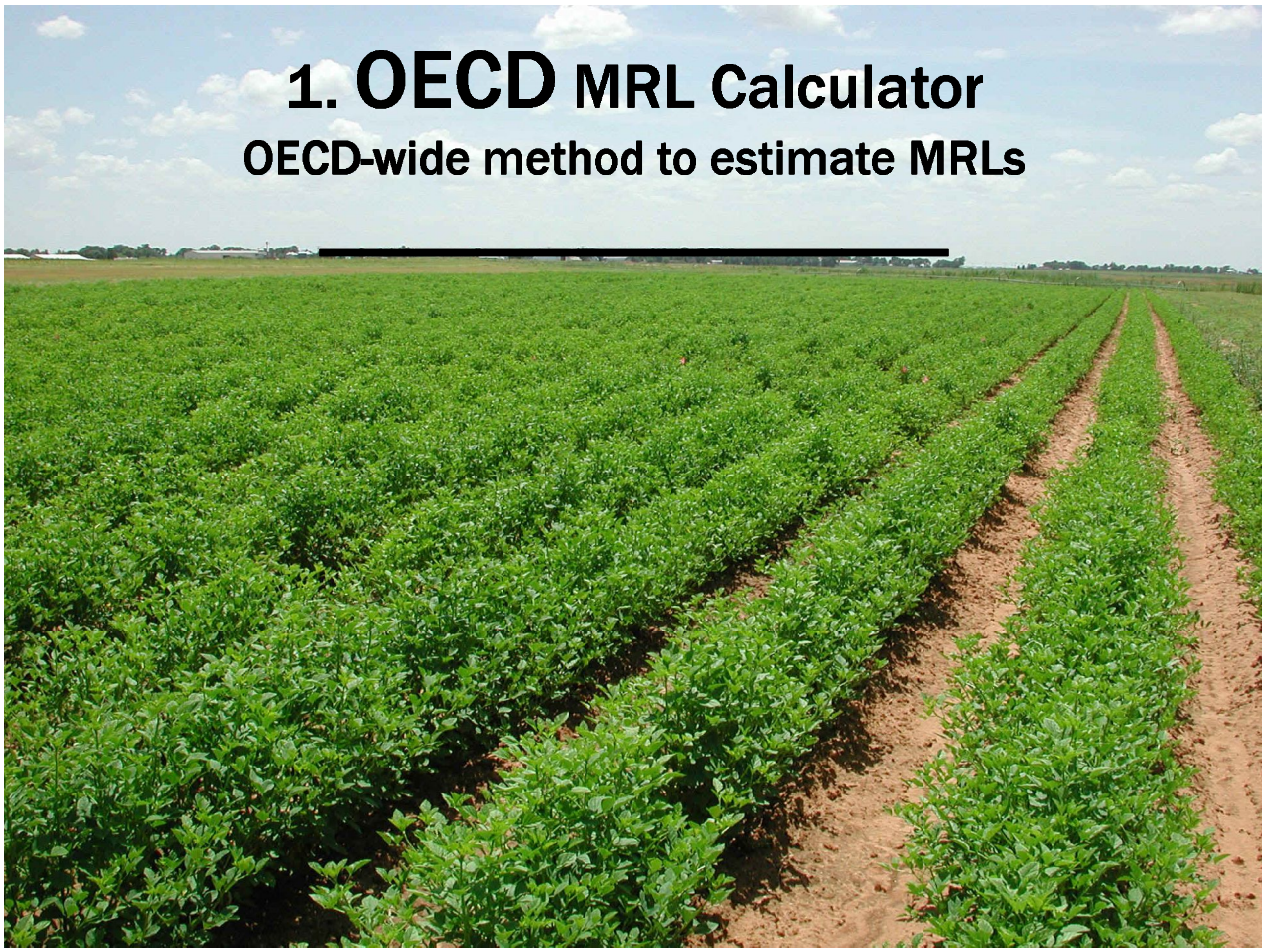


Update Topics

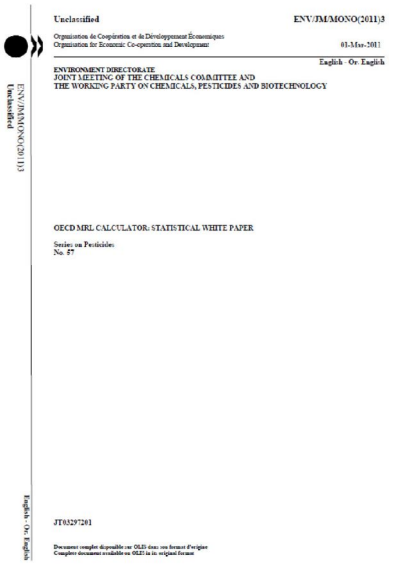
- OECD MRL calculator
- Global zoning project
- Crop Grouping
- Global MRL database (GlobalMRL.com)



OECD MRL Calculator

- NAFTA calculator (US, Canada, CA)
- OECD Workgroup formed in 2008 with the goal of harmonizing the calculation of MRLs across the OECD
  - Practical implementation of sound statistical methods
  - Simple to use
  - Clear and unambiguous MRL proposal
  - Harmonize EU and NAFTA procedures to extent possible
- Working Group on Pesticides approved draft OECD MRL calculator in 2010
- Links to OECD User Guide, White paper, and draft calculator available at

http://www.epa.gov/pesticide-tolerances/oecd-maximum-residue-limit-calculator


Unclassified ENV/JM/MONO(2011)3

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

01-May-2011

English - Or. English

ENVIRONMENT DIRECTORATE
JOINT MEETING OF THE CHEMICALS COMMITTEE AND
THE WORKING PARTY ON CHEMICALS, PESTICIDES AND BIOTECHNOLOGY

ENV/JM/MONO(2011)3
Unclassified

OECD MRL CALCULATOR: STATISTICAL WHITE PAPER

Series on Pesticides:
No. 57

English - Or. English

JT03297201

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

OECD MRL Calculator

- EPA and PMRA use OECD MRL calculator as standard practice
- If Codex MRL exists, law requires EPA to harmonize with Codex, if feasible/practical as per OECD MRL calculator result
  - Section 408(b)(4) of Federal Food, Drug, and Cosmetic Act (FFDCA)
  - Otherwise, reviewers need to describe reasons for non-harmonized tolerance

    EPA Exceptions:
    - Harmonization with key trading partners (e.g., Canada)
    - Specific peculiarities/oddities in field trial data

OECD MRL Calculator

- Field trial issues may result in non-harmonized OECD Calculator results among different reviewers
  - For example, how to handle:
    - replicate samples or non-independent field trials
    - LOD or LOQ values
      - Statistical techniques for handling censored data
    - specific peculiarities/oddities in field trial data or conditions
    - Outliers
- EPA and PMRA working to develop common practices with respect to use of and input to the OECD calculator

Global Zoning & Exchangeability of Field Trial Residues between Zones

- Joint project between US EPA, PMRA, IR-4 and Crop Life America to investigate the question:

"How Important are Geographic Zones in Determining MRLs?"

Global Zoning & Exchangeability of Field Trial Residues between Zones

- Currently, crop field trials are required to be conducted in a variety of (specified) zones
  - Zones are specific to each country/region

BUT:

Climatic (zonal?) differences may not have as much of an impact on residues as might be commonly or traditionally believed

-AND-

There may be a big advantage to MRL setting process in being able to combine field trials from across a larger (global) database

- save field trial review resources
- a more robust MRL can be estimated
- same data set = better harmonization

Early History: Global Zones/Regions

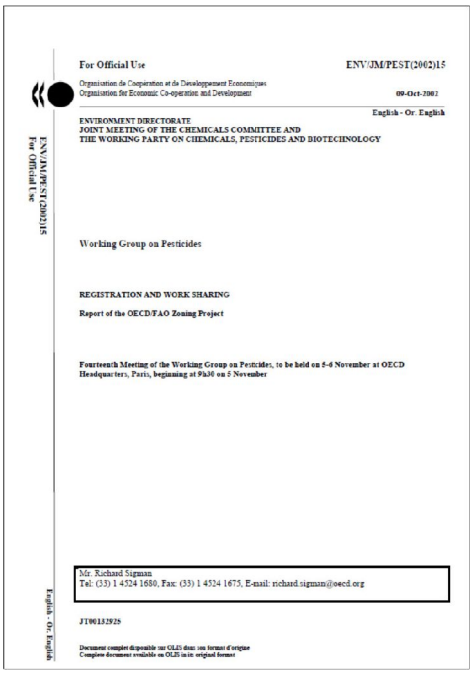
- OECD has supported a zoning committee to study whether world-wide climatic zones could be established for food crop residue trials.
  - **Purpose**: "to develop the concept of a global zoning scheme to define areas in the world where pesticide trial data could be considered comparable, and therefore where such trials could be used within each zone for MRL–setting purposes, irrespective of national boundaries" -- Report of the OECD/FAO Zoning Project, 29 August 2002
  - **Goal**: "to provide a technical position to support establishment of a finite number of worldwide zones to conduct food residue studies as part of the Codex process to establish MRLs globally."

-- Report of the OECD/FAO Zoning Project, 29 August 2002

Early History: Global Zones/Regions

- OECD group recommended (2002) that:

"JMPR and residue assessors… be encouraged to review the extent to which they use climatic differences to determine the acceptability of comparable residue trials data from other localities when establishing MRLs, taking into account the relatively small impact that pre-harvest climatic conditions appear to have on residue variability and recognizing the potential advantage of being able to accept residue trials from a larger global database of comparable trials"



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Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development 09-Oct-2002

English - Or. English

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ENV/JM/PEST(2002)15
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Working Group on Pesticides

REGISTRATION AND WORK SHARING

Report of the OECD/FAO Zoning Project

Fourteenth Meeting of the Working Group on Pesticides, to be held on 5-6 November at OECD Headquarters, Paris, beginning at 9h30 on 5 November

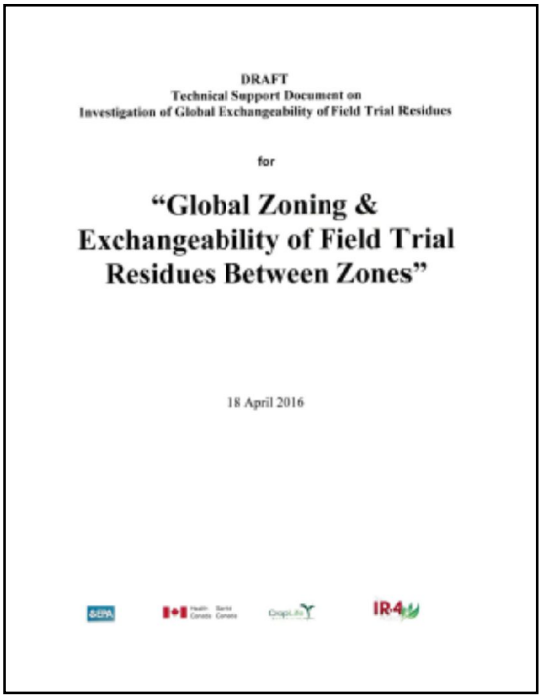
Mr. Richard Sigman
Tel: (33) 1 4524 1680, Fax: (33) 1 4524 1675, E-mail: richard.sigman@oecd.org

JT00135925

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

English - Or. English

- US EPA, PMRA, IR-4, and CLA have recently collaborated to investigate further the overall conclusions of the 2002 OECD report, using statistical methods that are now more commonly used to evaluate this kind of data
- A draft version of report is publically available on Codex website (see agenda item 0.81)



DRAFT
Technical Support Document on
Investigation of Global Exchangeability of Field Trial Residues

for

"Global Zoning & Exchangeability of Field Trial Residues Between Zones"

18 April 2016

How Important are Geographic Zones in Determining MRLs?

QUESTION: Are there systematic differences in pesticide residue concentrations between zones?

- If not, residue data of a same crop-pesticide combination from various zones conducted under similar application/harvest scenarios and appropriate growing conditions could be combined to develop (international?) MRLs (possibly after adjusting for application rate)

Global Zoning & Exchangeability of Field Trial Residues between Zones

- Statistical Methods
  - Rank-Sum Test for Clustered Data
    - *non-parametric, analog to Kruskal-Wallis*
  - Mixed-effects model
    - *parametric, assumes residues within each crop-pesticide combination are lognormal*

Global Zoning & Exchangeability of Field Trial Residues between Zones

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    - *parametric, assumes residues within each crop-pesticide combination are lognormal*

What did we find?

Rank-Sum Test for Clustered Data:

- Field trial residues are NOT significantly different between geographic zones (p=0.69)

Mixed-effects models to analyze log(residue)

- Field trial residues do not significantly differ between geographic zones (within ca. +/- 25%)

Global Zoning
Analyses and Results

- **Global Zoning** (North America, Europe, South America, Australia-New Zealand)

Methods	Comparison	Ratio (95% CI)	p-value	ANOVA p-value	# crop-pesticide combos, both zones
Rank Sum Test			0.686		
Mixed-effects model	AU-NZ vs.EU	0.724 (0.507, 1.033)	0.074	0.285	19
	AU-NZ vs.NA	0.874 (0.613, 1.246)	0.449		19
	AU-NZ vs.SA	0.862 (0.496, 1.499)	0.593		5
	EU vs.NA	1.207 (0.919, 1.585)	0.172		32
	EU vs.SA	1.191 (0.713, 1.991)	0.498		7
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CLA database (700 FTs, 36 crop-pesticide combinations, most are insecticides and fungicides) + IR-4 data

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Zones differ by no more than ca +/- 25%

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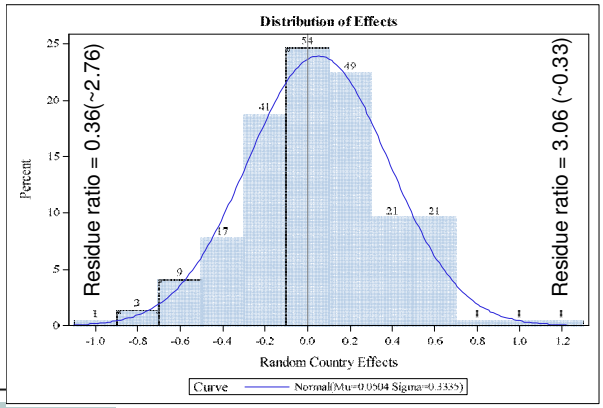
Estimates differ by no more than 2-fold

Canada vs. United States Results

219 crop-pesticide combinations		
Pest Type	N field trials	
	Canada	United States
F	562	1331
I	297	622
H	27	56

Covariance Parameter Estimates		
Cov Parm	Subject	Estimate
Intercept	Crop_Chem	2.1426
Country	Crop_Chem	0.1150
Trials (Crop_Chem)		0.4754
Residual		0.0613

	Mixed-effects model		Rank-Sum test for clustered data
Comparison	Ratio (95% CI)	p-value	p-value
Canada vs. United States	1.052 (0.959, 1.153)	0.281	0.268



What does it mean?

Rank-Sum Test for Clustered Data:
- Field trial residues are NOT significantly different between Canada and the United States

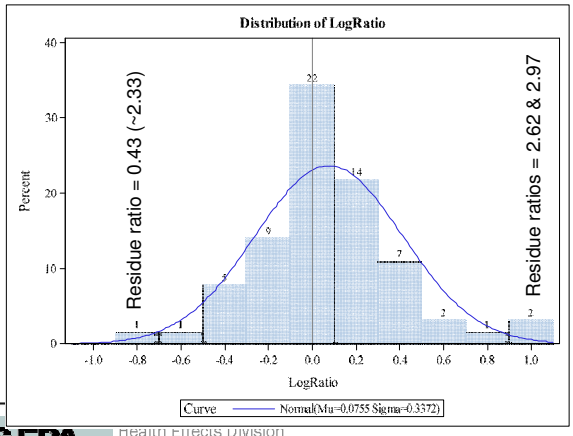
Mixed-effects models to analyze log(residue)
- Field trial residues in Canada are about 5% higher than the United States, but NOT significantly different

Northern Europe vs. Southern Europe Results

64 crop-pesticide combinations		
Pest Type	N field trials	
	EU-N	EU-S
F	91	104
H	8	8
I	234	257

Covariance Parameter Estimates		
Cov Parm	Subject	Estimate
Intercept	CropPest	2.9975
Zone	CropPest	0.1210
Trials (CropPest)		0.5528
Residual		0.0968

	Mixed-effects model		Rank-Sum test for clustered data
Comparison	Ratio (95% CI)	p-value	p-value
EU-N vs.EU-S	1.078 (0.902, 1.290)	0.403	0.876



What does it mean?

Rank-Sum Test for Clustered Data:

- Field trial residues are NOT significantly different between Northern and Southern Europe

Mixed-effects models to analyze log(residue)

- Field trial residues in Northern Europe are about 8% higher than Southern Europe, but NOT significantly different

Steps in Current EPA-PMRA-IR4-CLA Initiative

☑ ***STEP 1*** *: Review past attempts and methods to evaluate Global Zoning*

☑ ***STEP 2****: Develop Statistical Methods appropriate for use in evaluating the Global Zoning concept*

☑ ***STEP 3****: Evaluate the selected statistical methods using synthetic residue data*

☑ ***STEP 4:*** *Evaluate the "exchangeability" of residues between* ***US and Canada*** *as a test case using a real residue database provided by PMRA*

☑ ***STEP 5****: Extend the method to a global basis based on datasets collected from around the world*

- ☒ *EU-North vs. EU- South*
- ☒ *Global* (North America, Europe, South America, Australia-New Zealand)

☐ ***STEP 6:*** *Internal/External Review*

☐ ***STEP 7:*** *Policy, Policy, Policy!*

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☐ *STEP 6: Internal/External Review*

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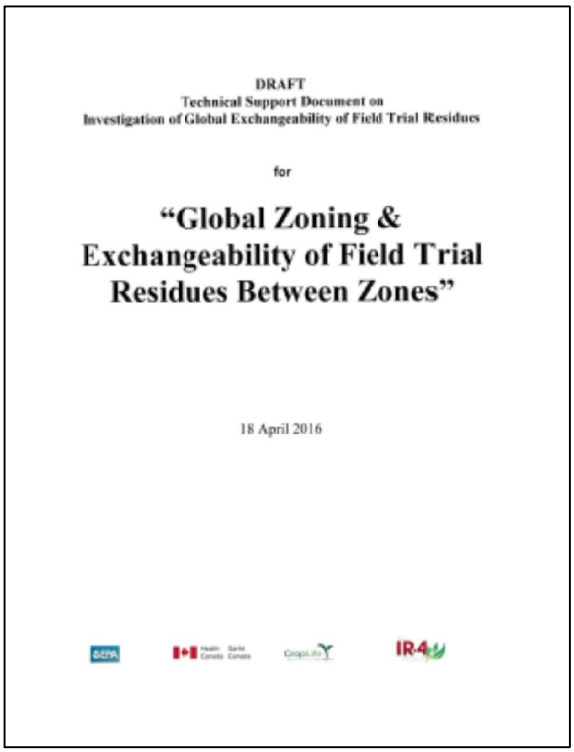
Results/Findings for Global, US vs. Canada, and EU-N vs. EU-S are detailed in associated issue paper available on Codex agenda page website

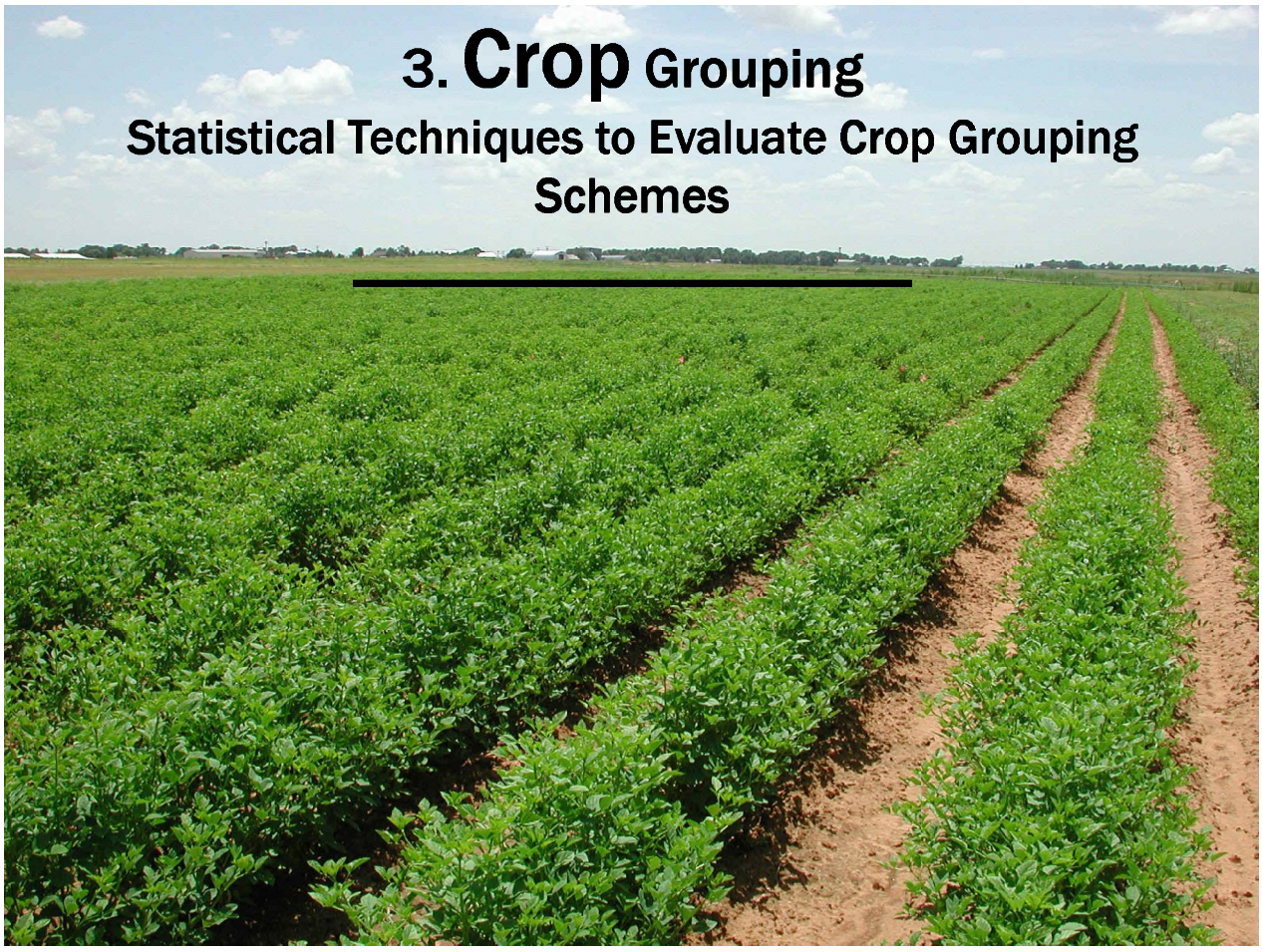


DRAFT
Technical Support Document on
Investigation of Global Exchangeability of Field Trial Residues

for

"Global Zoning & Exchangeability of Field Trial Residues Between Zones"

18 April 2016



3. Crop Grouping

Statistical Techniques to Evaluate Crop Grouping Schemes

Crop Grouping Background

- Crop Grouping is a well-accepted approach that facilitates the establishment of pesticide tolerances for major and minor crops
  - allows field trials supporting MRLs in certain defined "representative crops" to be used to support MRLs in similar crops in that group
  - Used to determine if representative crops can support a crop group

- Several regulatory procedures have been used to establish parameters regarding when a single MRL among crops within a group can be established

  - US EPA / Canada PMRA: rule of 5X maximum values ("Rule of 5X Max")
    - The MRL for each representative crop is calculated separately
      ⇒ if within 5-fold, can be grouped into a crop group, with crop group MRL determined by residues in highest representative crop

  - JMPR: rule of 5X median values ("Rule of 5X Med")
    - ratios of median residue values of representative crops

  - The established statistical Kruskal-Wallis or Wilcoxon-Mann-Whitney test

Crop Grouping Background

- **Why are there concerns?**
  - Differing criteria and methods used for setting crop group MRLs may lead to non-harmonized crop-group MRLs across countries for the same pesticide-commodity combination
    - This, despite use of (common) OECD MRL calculator
- Our current (preliminary) analyses focus on *simulations* to:
  - Illustrate how different two lognormal distributions with median values that differ by 5 fold (or 2-, 3-, or 4- fold) can be.
  - Compare the ***power*** of various methods to detect ***target differences*** between the residues of representative crops (e.g., 2-, 3-, 4-, or 5- fold)
  - Explore what resulting MRLs might be depending on what is -- and what is not -- combined.
- Currently, investigation is *exploratory* using *synthetic data* and is a work in progress

Three Issues:

- Question 1: How can we visualize the differences between residue distributions?

- Question 2: "How reliably can we detect "x-fold" differences?
  - Corollary: ...and with what statistical methods?

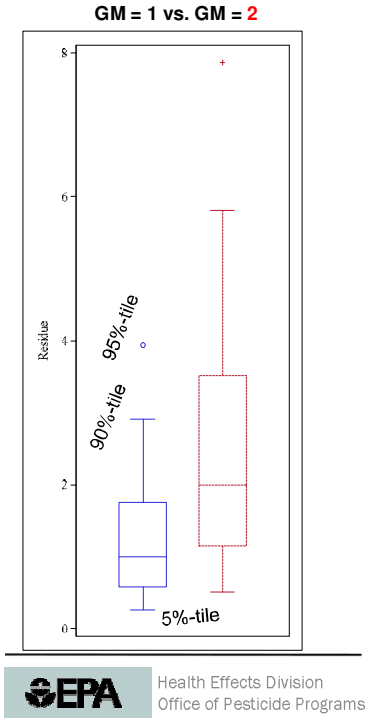
- Question 3: How different will a crop group MRL be when a crop group MRL is established compared to the "would have been" individual representative crop MRLs

Caveat: **All analyses performed here are based on simulated data.. no actual field trial data were used**

Numerical Difference vs. Practical Difference

To what extent are 2-fold-different residues "sufficiently similar"?

- KEY QUESTION: How different is "different"?

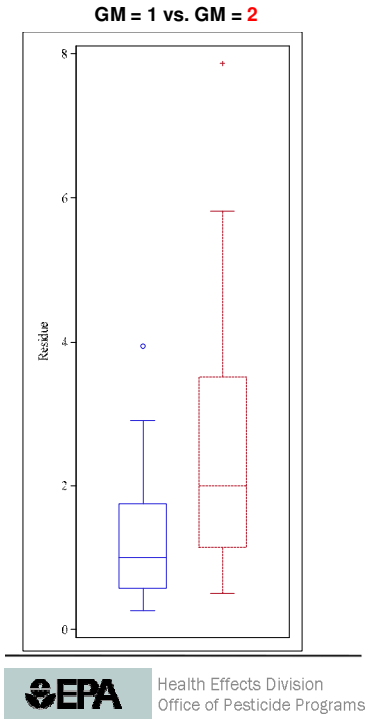


Health Effects Division
Office of Pesticide Programs

Numerical Difference vs. Practical Difference

How reliably can one detect 2-fold-differences?

- KEY QUESTION: What difference can we detect?



Health Effects Division
Office of Pesticide Programs

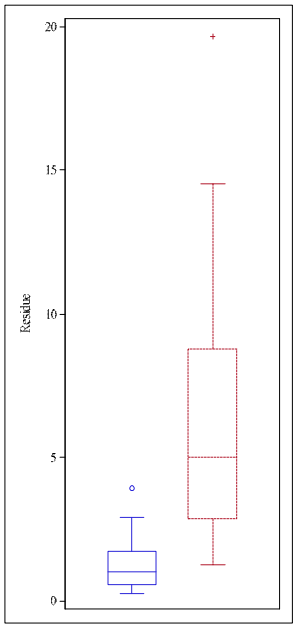
Designed Max Ratio Factor (R)	Number of Groups (rep crops)	N Field Trials per group	Power to detect differences between groups when R=2		
			Kruskal Wallis	Max 5X	Med 5X
2	2	5	0.22	0.12	0.07
		7	0.29	0.10	0.04
		10	0.41	0.09	0.02
	3	5	0.17	0.22	0.13
		7	0.27	0.19	0.08
		10	0.39	0.16	0.03
	4	5	0.18	0.33	0.20
		7	0.29	0.28	0.14
		10	0.44	0.25	0.05
	5	5	0.21	0.44	0.27
		7	0.31	0.37	0.17
		10	0.49	0.33	0.07

Numerical Difference vs. Practical Difference

To what extent are 5-fold-different residues "sufficiently similar"?

- KEY QUESTION: How different is "different"?

GM = 1 vs. GM = 5

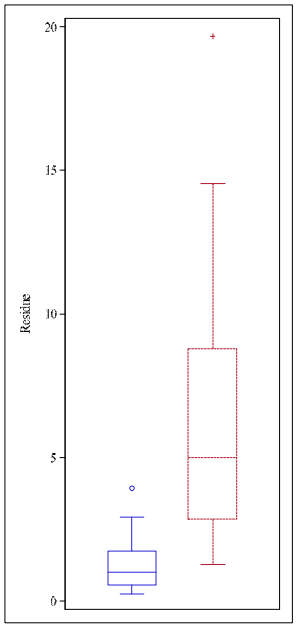


Numerical Difference vs. Practical Difference

How reliably can one detect 5-fold-differences?

- KEY QUESTION: What difference can we detect?

GM = 1 vs. GM = 5

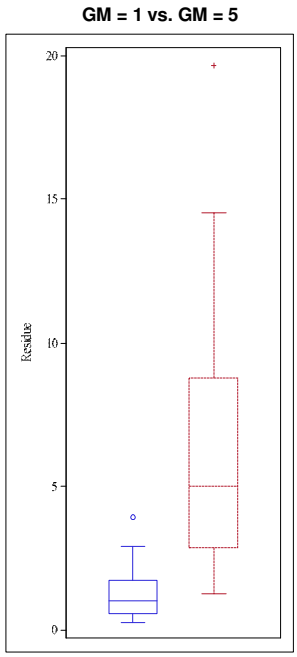


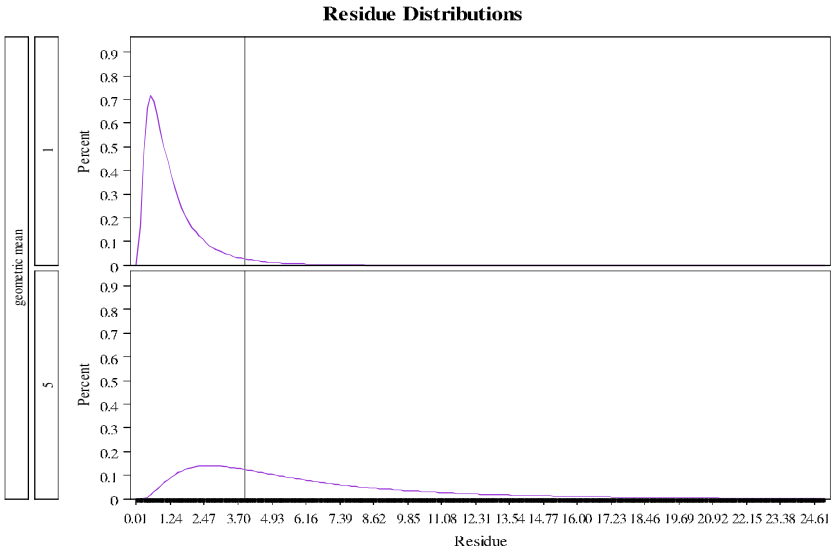
Designed Max Ratio Factor (R)	Number of Groups (rep crops)	N Field Trials per group	Power to detect differences between groups when R=5		
			Kruskal Wallis	Max 5X	Med 5X
5	2	5	0.75	0.49	0.50
		7	0.89	0.50	0.50
		10	0.98	0.49	0.50
	3	5	0.66	0.60	0.56
		7	0.86	0.61	0.59
		10	0.97	0.60	0.58
	4	5	0.65	0.69	0.66
		7	0.85	0.69	0.66
		10	0.97	0.68	0.63
	5	5	0.66	0.78	0.73
		7	0.87	0.75	0.70
		10	0.97	0.74	0.69

Numerical Difference vs. Practical Difference

How reliably can one detect x-fold-differences?

- KEY QUESTION: What difference can we detect?





CONCLUSION: **Using the KW test, we can reliably (> ca 70%) detect 5-fold differences (re-illustrated here) in residue distributions**

- detecting < 5 fold is less reliable (as low as ~50%

Side-note: Risk of False Rejection

There is also in interest in not rejecting the combining of rep crops when there is indeed no difference in residue distributions

Probabilities here are of incorrectly rejecting the combining of the rep crops (here Max Ratio Factor, R = 1, so distributions are equal)

- NOTE: look for these probabilities to be small

Risk of False Rejection (R=1)

Designed Max Ratio Factor (R)	Number of Groups (rep crops)	N Field Trials per group	Power to detect differences between groups when R=1		
			Kruskal Wallis	Max 5X	Med 5X
1	2	5	0.06	0.05	0.01
		7	0.05	0.03	0.00
		10	0.05	0.02	0.00
	3	5	0.05	0.11	0.03
		7	0.04	0.07	0.01
		10	0.04	0.05	0.00
	4	5	0.04	0.18	0.06
		7	0.04	0.12	0.02
		10	0.04	0.10	0.00
	5	5	0.04	0.24	0.08
		7	0.04	0.18	0.03
		10	0.04	0.13	0.00

Probabilities here are of incorrectly rejecting the combining of the rep crops (recall: here Max Ratio Factor, R = 1, so distributions are equal)

Developing and Evaluating Crop Group MRLs

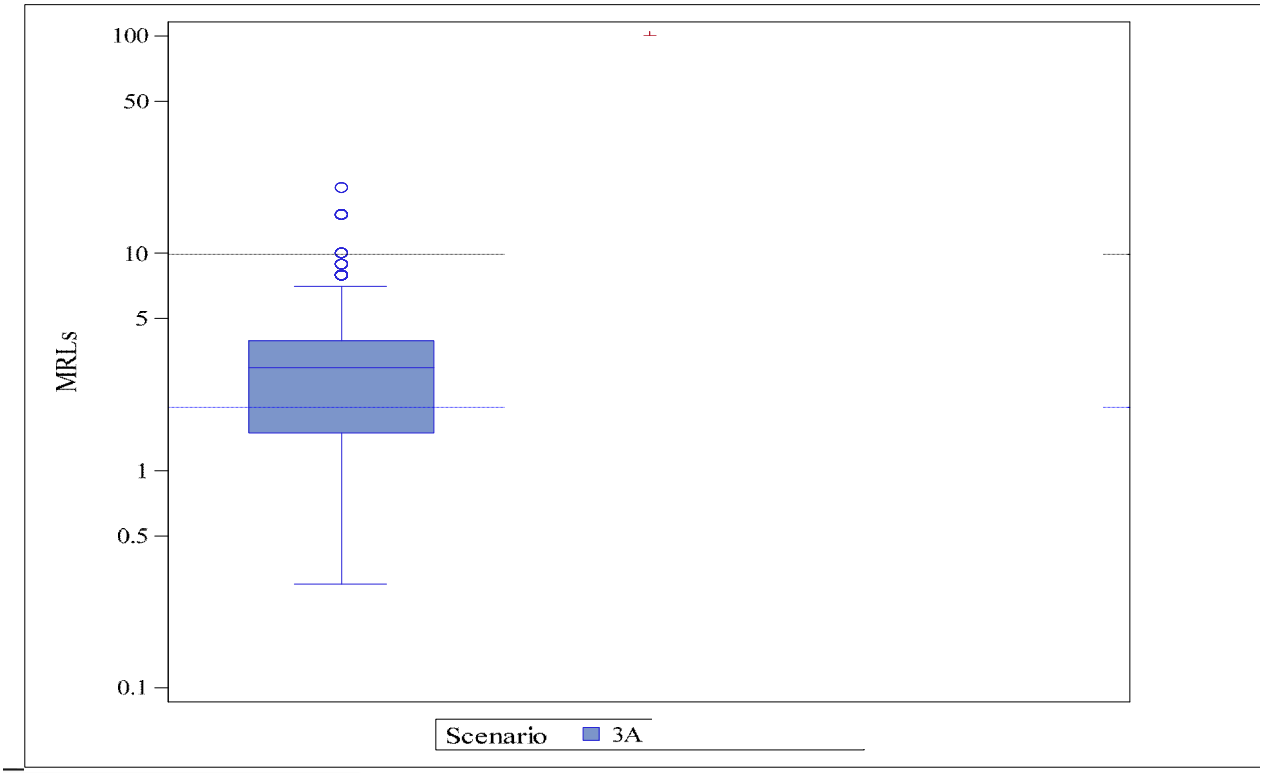
- In addition to:
  1) being able to reliably (e.g., > 70%) determine a difference determined to be of substantive importance (e.g., 5 fold) ; and
  2) not incorrectly rejecting the combining of crops when there is no difference,

  ...we want to ensure that the resulting crop group tolerance is not inordinately high or inordinately low

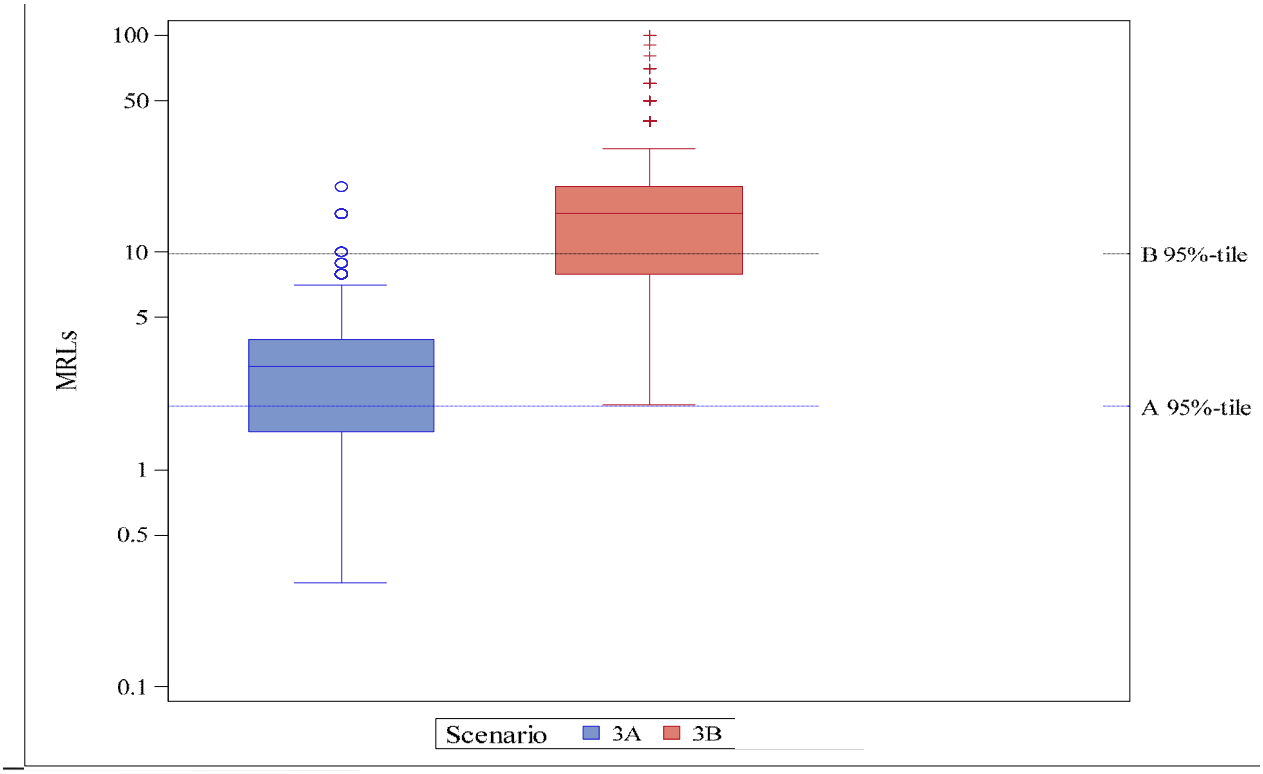
  - Necessarily a judgement call

- Possible to simulate a crop group MRL and compare it what would have been individual representative crop MRLs had they not been combined
  - How does crop group MRL compare to ("would have been") individual (rep crop) MRLs?

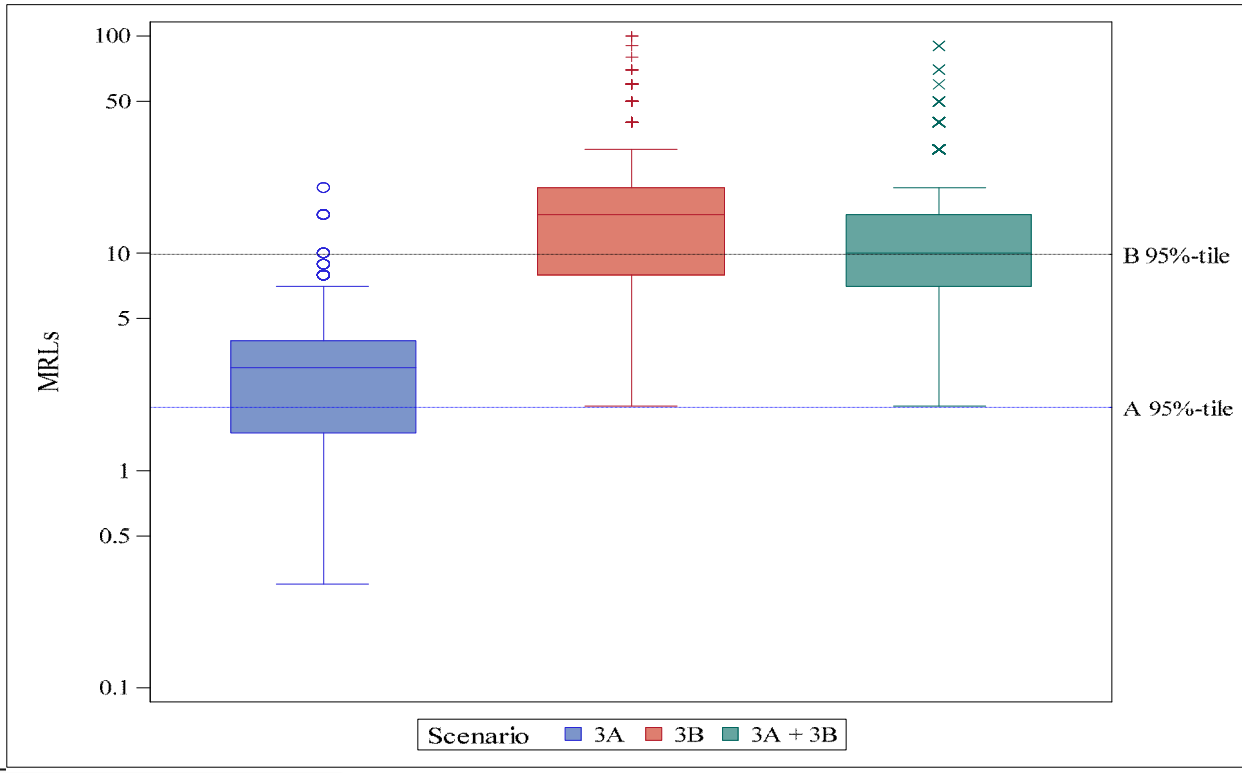
Impact of crop grouping 1X & 5X on MRLs: 3 trials



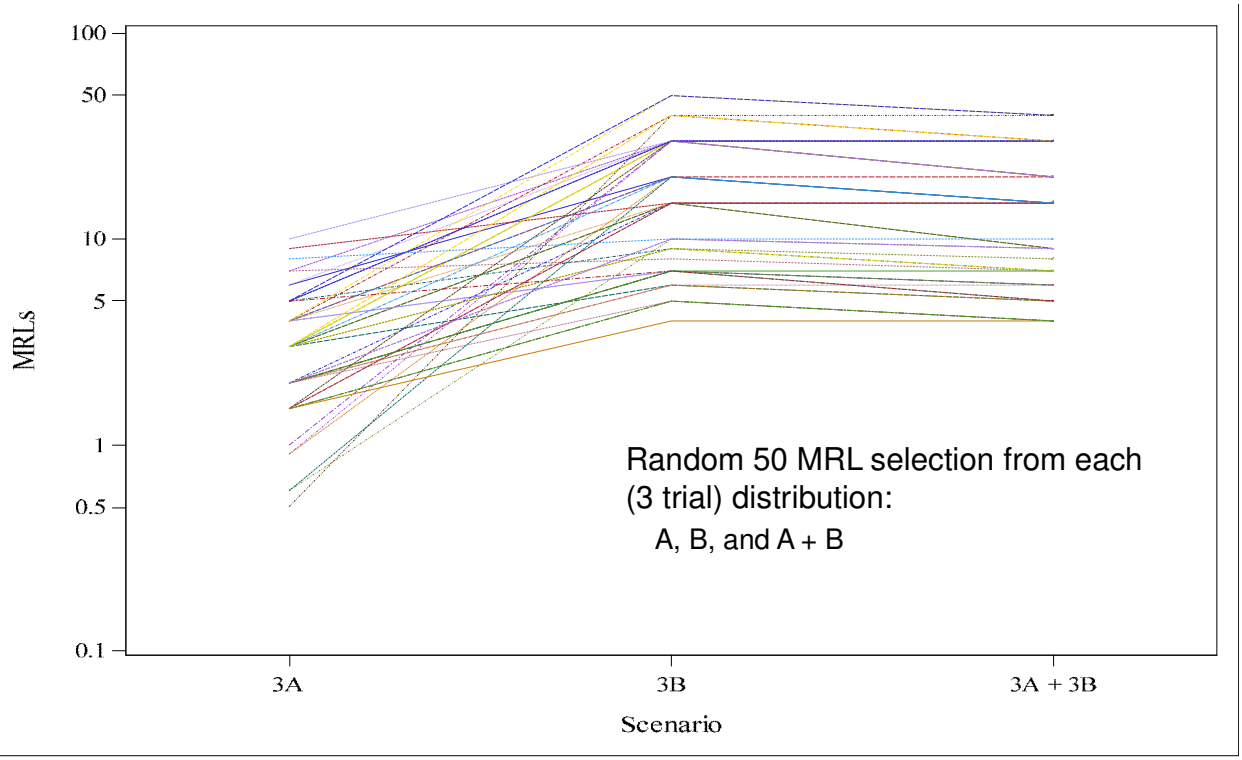
Impact of crop grouping 1X & 5X on MRLs: 3 trials



Impact of crop grouping 1X & 5X on MRLs: 3 trials



Impact of crop grouping 1X & 5X on MRLs: 3 trials



GlobalMRL.com

- US EPA MRLs (aka "tolerances") published in the electronic Code of Federal Regulations (40 CFR, 180, Subpart C) available at eCFR.gov
- eCFR has limited search capability – mostly textual
  - Good for "forward searches" by chemical
  - Can be difficult to reliably search in other directions
    - e.g., "backward search" by crop or crop group
      => *Strawberry* listed a dozen different ways

GlobalMRL.com

- US EPA and USDA have cooperatively funded Bryant-Christie, Inc. to make GlobalMRL.com available worldwide
  - Launched February 2015
  - Subscription currently "open access" to all for US tolerances (through December 2019)
  - updated version of FAS-Online, MRLdatabase.com
    - Improved user interface (to include Excel downloads)
    - Includes veterinary drug tolerances, processed commodity MRLs, facility use tolerances, and US import tolerances
  - User doesn't need to know that US MRLs for strawberries listed more than a dozen ways in eCFR
    - GlobalMRL.com "maps" each of these back to "strawberry"

GlobalMRL.com

- Requires users to login and register at http://globalmrl.com
  - *Non-US based users*: access to US MRLs (including import MRLs) only
  - *US-based users*: access to US MRLs and foreign *MRLs for which there are US tolerances*
    - Global perspective with MRLs available for over 800 active ingredients and 700 commodities in more than 100 countries
  - *USEPA and USDA users*: further enhanced access (Enterprise version)
- User selects Commodities, Pesticides, and Markets + additional optional filters
  - User guide and FAQs available to users
  - See example video at https://player.vimeo.com/video/145323858

SUMMARY

- OECD MRL Calculator generally considered a success

  ..and at least puts national regulators on the same page with respect to initiating a discussion on MRL differences

- OECD established a workgroup in the early 2000s to explore establishment of a finite number of worldwide zones to conduct residue studies as part of the Codex process to establish MRLs globally
  - Using earlier OECD work, EPA-PMRA-IR4-CLA sought to advance this using currently available residue data and more current statistical methods. This is actively under investigation and we anticipate bringing this to OECD in the near future.

SUMMARY

- EPA and PMRA are currently conducting exploratory analyses with respect to Crop Grouping Issues and how the OECD MRL calculator might be best used in setting Crop Group MRLs
  - Using the KW test, we can reasonably reliably (> ca 70%) detect 5-fold differences in residue distributions
    - detecting < 5 fold is less reliable (as low as ~50%)
  - Kruskal-Wallis is better technique to compare residue distribution in crop grouping than 5X-Max rule and 5X-Median rule
  - Determination of whether a 5-fold difference is meaningful in the regulatory context of crop grouping and field trials is a judgment call

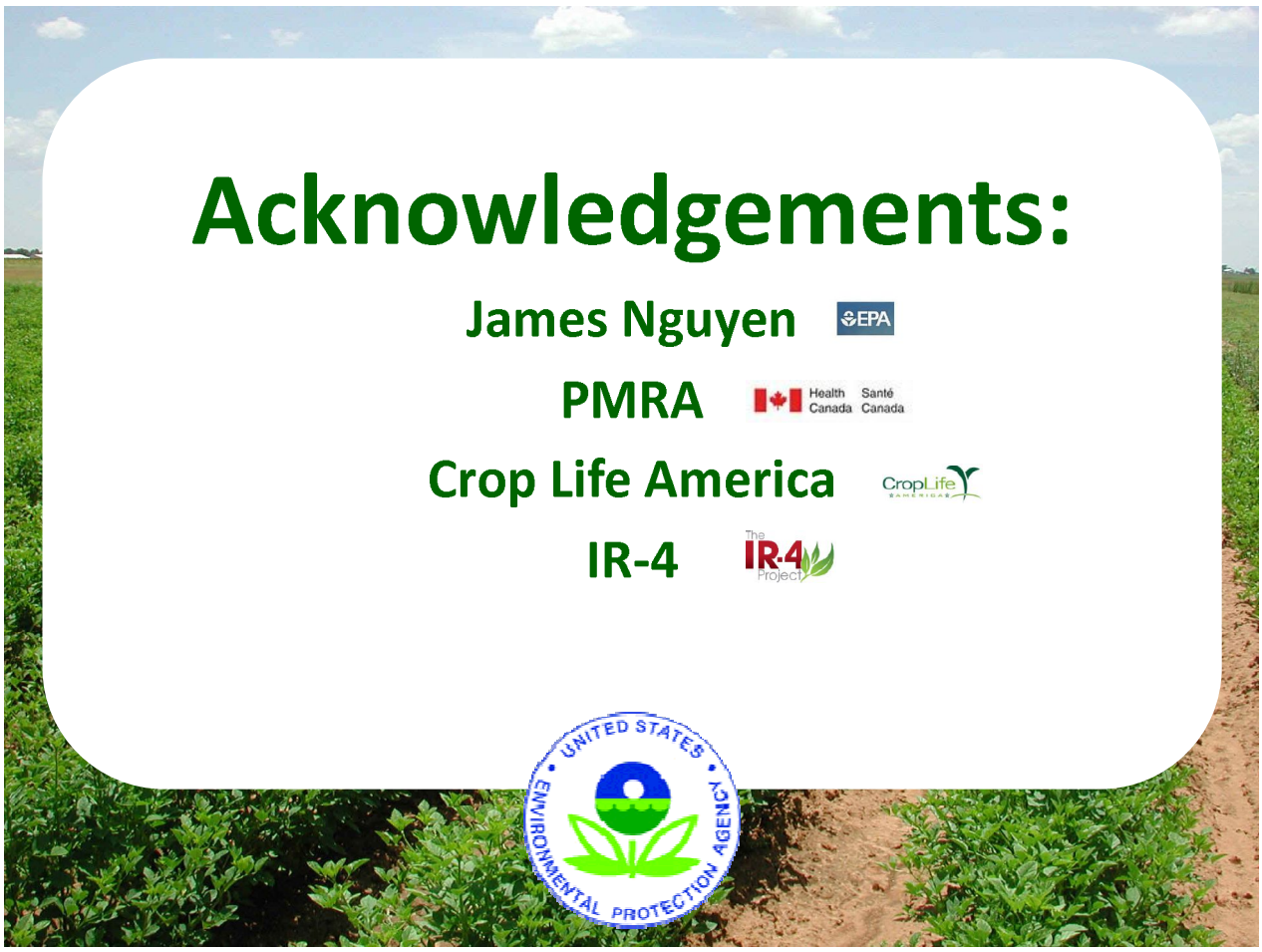
SUMMARY

- Simulation of a crop group MRL and individual representative crop MRLs can be used to show impact on crop group MRL of using KW test to determine if representative crops can be combined into a single crop group

  ...we want the resulting crop group tolerance to be "reasonable" for all crops in established group

  - not inordinately high or inordinately low
  - Necessarily a judgment call

- US EPA and USDA have jointly funded a GlobalMRL.com database that provides international users no-charge access to a database of US tolerances on the internet
  - US users have expanded access



Acknowledgements:

James Nguyen

PMRA

Crop Life America

IR-4

Thank you !

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Health Effects Division

Office of Pesticide Programs

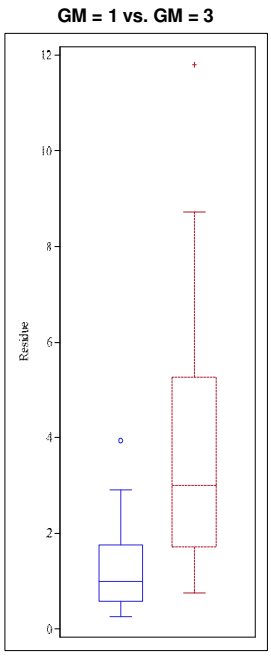
Email: miller.davidj@epa.gov

Additional Slides

Numerical Difference vs. Practical Difference

How reliably can one detect 3-fold-differences?

- KEY QUESTION: What difference can we detect?



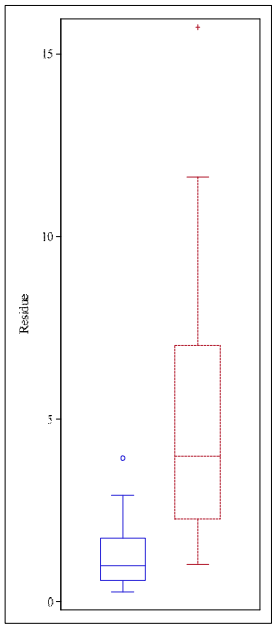
Designed Max Ratio Factor (R)	Number of Groups (rep crops)	N Field Trials per group	Power to detect differences between groups when R=3		
			Kruskal Wallis	Max 5X	Med 5X
3	2	5	0.46	0.25	0.20
		7	0.60	0.24	0.17
		10	0.78	0.23	0.12
	3	5	0.36	0.37	0.28
		7	0.54	0.34	0.24
		10	0.74	0.32	0.17
	4	5	0.35	0.47	0.37
		7	0.55	0.44	0.31
		10	0.75	0.40	0.22
	5	5	0.37	0.58	0.45
		7	0.57	0.53	0.37
		10	0.77	0.50	0.26

Numerical Difference vs. Practical Difference

How reliably can one detect 4-fold-differences?

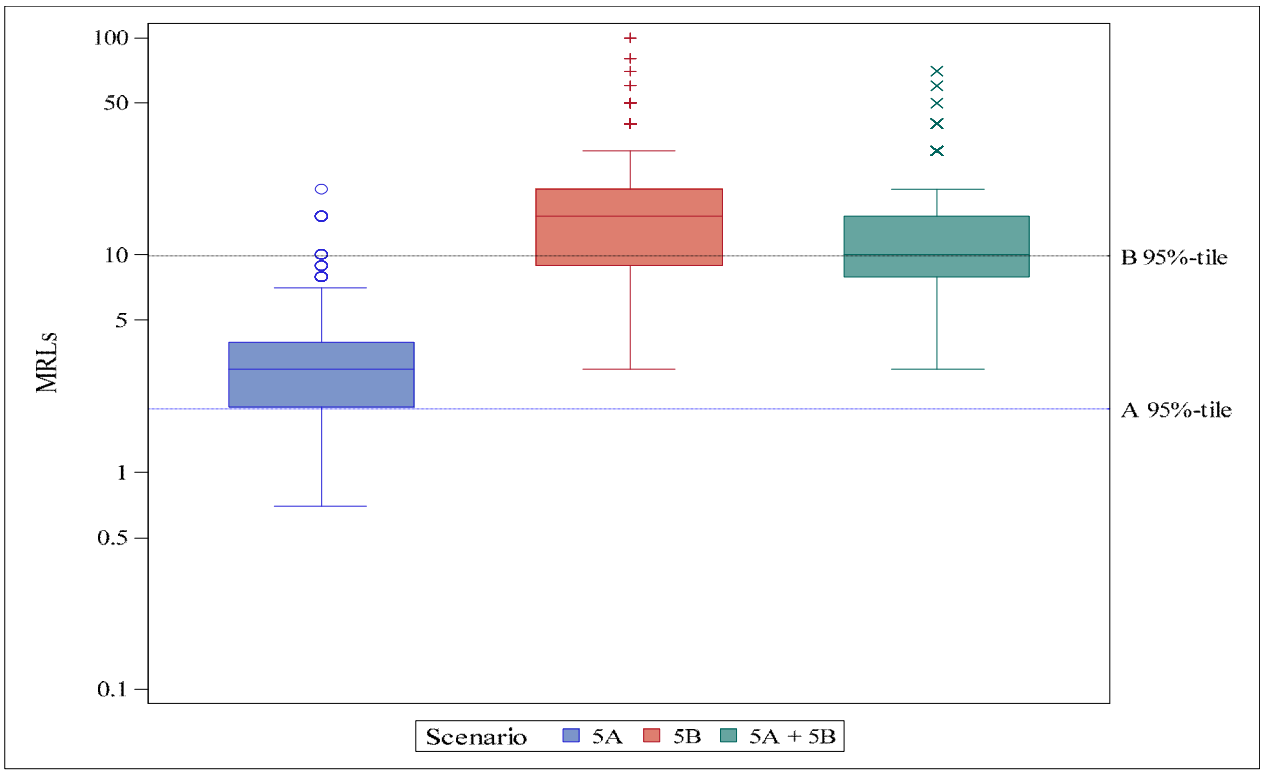
- KEY QUESTION: What difference can we detect?

GM = 1 vs. GM = 4

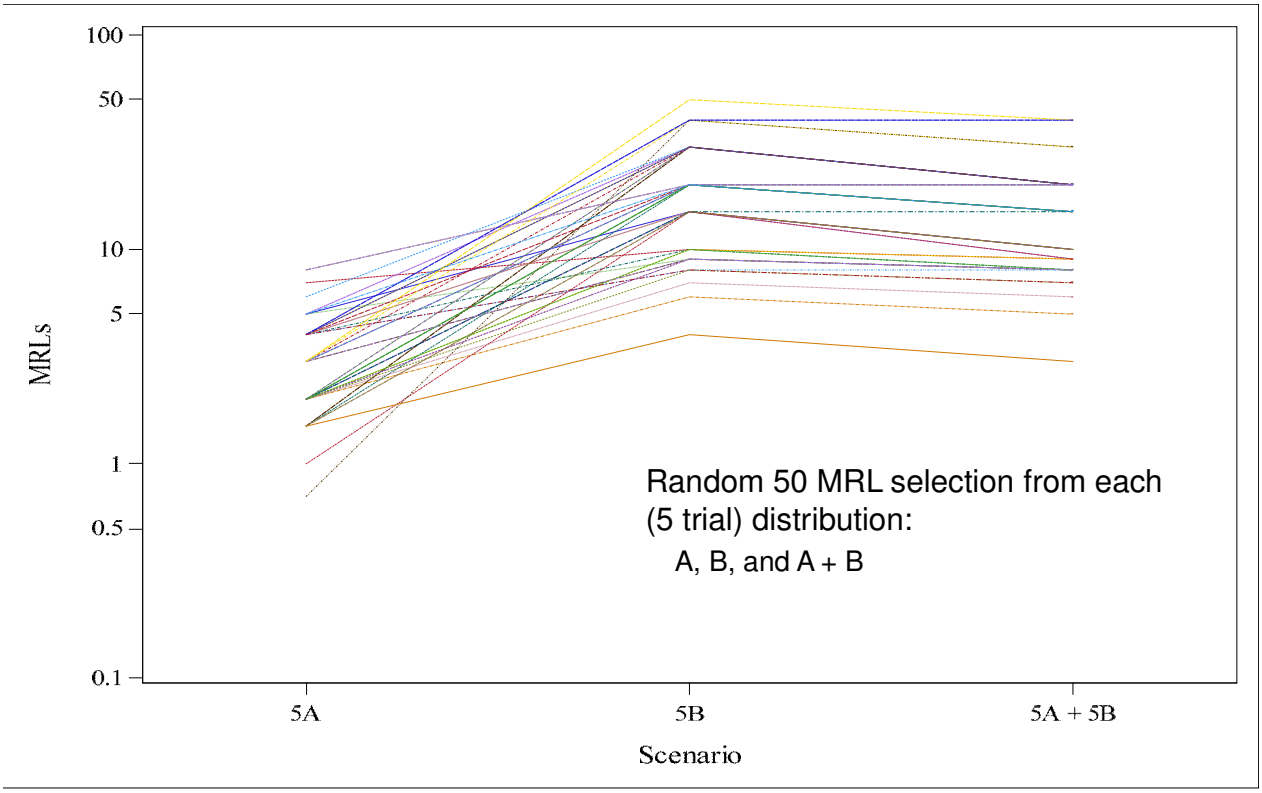


Designed Max Ratio Factor (R)	Number of Groups (rep crops)	N Field Trials per group	Power to detect differences between groups when R=4		
			Kruskal Wallis	Max 5X	Med 5X
4	2	5	**0.63**	0.38	0.36
		7	**0.80**	0.38	0.33
		10	**0.93**	0.36	0.31
	3	5	**0.53**	0.49	0.43
		7	**0.74**	0.49	0.42
		10	**0.91**	0.46	0.38
	4	5	0.51	**0.60**	0.54
		7	**0.74**	0.58	0.50
		10	**0.91**	0.56	0.44
	5	5	0.54	**0.69**	0.60
		7	**0.75**	0.65	0.55
		10	**0.92**	0.64	0.50

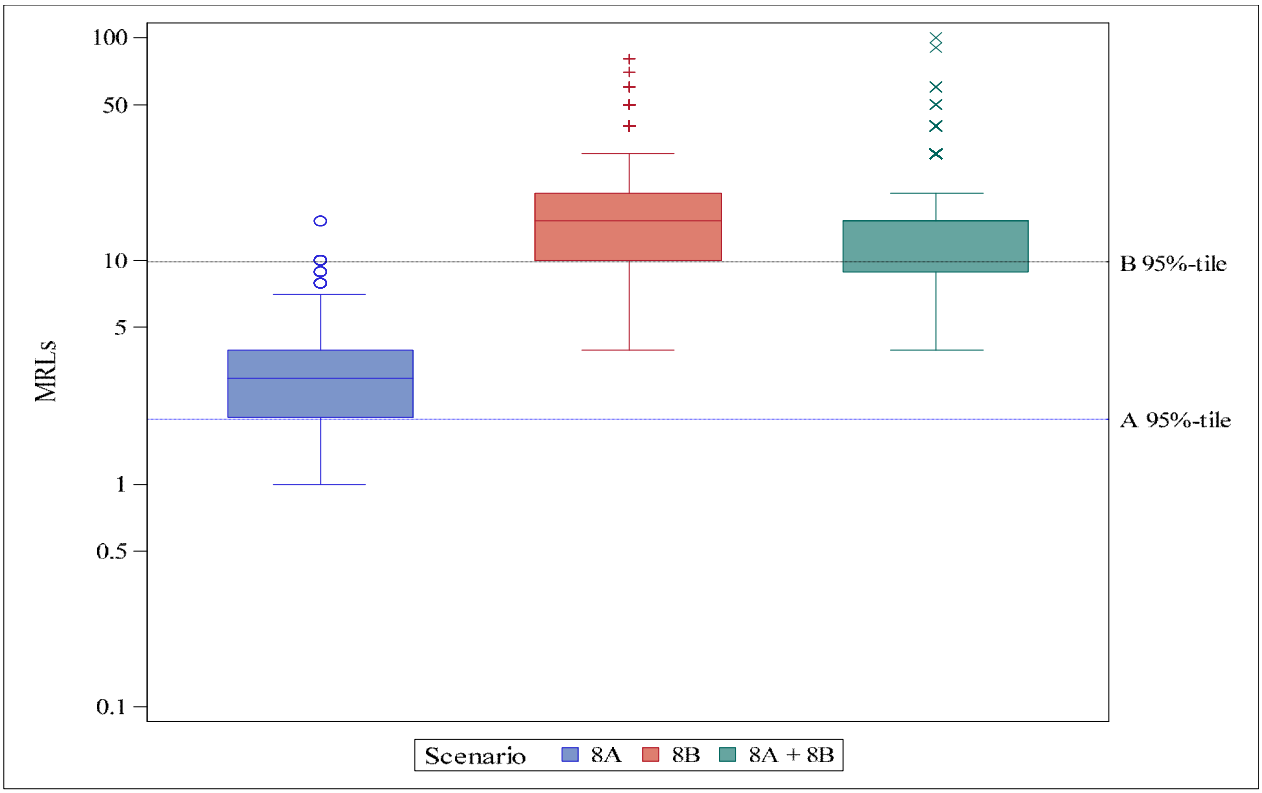
Impact of crop grouping 1X & 5X on MRLs: 5 trials



Impact of crop grouping 1X & 5X on MRLs: 5 trials



Impact of crop grouping 1X & 5X on MRLs: 8 trials



Impact of crop grouping 1X & 5X on MRLs: 8 trials