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Pesticide residues in food 2016

Joint FAO/WHO Meeting on Pesticide Residues

REPORT 2016

Pesticide residues in food 2016

Joint FAO/WHO Meeting on Pesticide Residues

Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues
Rome, Italy, 13–22 September 2016

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Contents

R, residue and analytical aspects; T, toxicological evaluation

* New compound

** Evaluated within the periodic review programme of the Codex Committee on Pesticide Residues

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2016 Joint FAO/WHO Meeting on Pesticide Residues

ROME, 13–22 SEPTEMBER 2016

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ABBREVIATIONS

ADI	acceptable daily intake
AHS	Agricultural Health Study
ai	active ingredient
AIC	Akaike Information Criterion
AR	applied radioactivity
ARfD	acute reference dose
as	as received
asp gr fn	aspirated grain fraction
AU	Australia
AUC	area under the plasma concentration–time curve
BBCH	**B**iologischen Bundesanstalt, **B**undessortenamt und **CH**emische Industrie
BMD	benchmark dose
BMD_{10}	benchmark dose for a 10% response
BMDL	lower 95% confidence limit on the benchmark dose
$BMDL_{10}$	lower 95% confidence limit on the benchmark dose for a 10% response
BMDS	Benchmark Dose Software
BSA	3,4,4-trifluorobut-3-ene-1-sulfonic acid
bw	body weight
CA	Chemical Abstracts
CAC	Codex Alimentarius Commission
CAS	Chemical Abstracts Service
CCN	Codex classification number (for compounds or commodities)
CCPR	Codex Committee on Pesticide Residues
*c*GAP	Critical GAP
C_{max}	maximum concentration in plasma
CSAF	chemical-specific adjustment factor
CYP/Cyp	cytochrome P450
DAA	days after application
DALA	days after last application
DAT	days after treatment
DM	dry matter
DNA	deoxyribonucleic acid
DT_{50}	time required for 50% dissipation of the initial concentration
DT_{90}	time required for 90% dissipation of the initial concentration

dw	dry weight
ECD	electron capture detector
EFSA	European Food Safety Authority
EHC	Environmental Health Criteria monograph
EU	European Union
19F-NMR	Fluorine-19 nuclear magnetic resonance
F_0	parental generation
F_1	first filial generation
F_2	second filial generation
FAO	Food and Agriculture Organization of the United Nations
fw	fresh weight
GAP	good agricultural practice
GC	gas chromatography
GC-ECD	gas chromatography with electron capture detection
GC/MS	gas chromatography/mass spectrometry
GC-NPD	gas chromatography coupled with nitrogen-phosphorus detector
GEMS/Food	Global Environment Monitoring System – Food Contamination Monitoring and Assessment Programme
GGT	gamma-glutamyltransferase
GI	gastrointestinal
GLP	good laboratory practice
GPC	gel permeation chromatography
HPLC	high performance liquid chromatography
HPLC-UV	high performance liquid chromatography with UV detector
HPRT	hypoxanthine–guanine phosphoribosyltransferase
HR	highest residue in the edible portion of a commodity found in trials used to estimate a maximum residue level in the commodity
HR-P	highest residue in a processed commodity calculated by multiplying the HR of the raw commodity by the corresponding processing factor
IEDI	international estimated daily intake
IESTI	international estimate of short-term dietary intake
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
JECFA	Joint FAO/WHO Expert Committee on Food Additives
JMPR	Joint FAO/WHO Meeting on Pesticide Residues
JP	Japan
LC_{50}	median lethal concentration

LD_{50}	median lethal dose
LOAEL	lowest-observed-adverse-effect level
LOD	limit of detection
log P_{ow}	octanol-water partition coefficient
LOQ	limit of quantification
MeS	2-methylsulfonyl-1,3-thiazole
MRL	maximum residue limit
MS	mass spectrometry
MS/MS	tandem mass spectrometry
NOAEC	no-observed-adverse-effect concentration
NOAEL	no-observed-adverse-effect level
OECD	Organisation for Economic Co-operation and Development
PBI	plant back interval
PES	post extraction solids
Pf	processing factor
PHI	pre-harvest interval
ppm	parts per million
QSAR	quantitative structure–activity relationship
RAC	raw agricultural commodity
RSD	relative standard deviation
RTI	re-treatment interval
S9	9000 × *g* supernatant fraction from rat liver homogenate
SC	suspension concentrate
SL	soluble liquid
SPE	solid phase extraction
STMR	supervised trials median residue
STMR-P	supervised trials median residue in a processed commodity calculated by multiplying the STMR of the raw commodity by the corresponding processing factor
T_3	triiodothyronine
T_4	thyroxine
T_{max}	time to reach the maximum concentration in plasma/blood
TRR	total radioactive residues
TSA	5-chloro-1,3-thiazole-2-sulfonic acid
TSH	thyroid stimulating hormone
TTC	threshold of toxicological concern
UK	United Kingdom

USA	United States of America
US/CAN	United States and Canada
USEPA	United States Environmental Protection Agency
WG	wettable granule
WHO	World Health Organization
WP	wettable powder

USE OF JMPR REPORTS AND EVALUATIONS BY REGISTRATION AUTHORITIES

Most of the summaries and evaluations contained in this report are based on unpublished proprietary data submitted for use by JMPR in making its assessments. A registration authority should not grant a registration on the basis of an evaluation unless it has first received authorization for such use from the owner of the data submitted for the JMPR review or has received the data on which the summaries are based, either from the owner of the data or from a second party that has obtained permission from the owner of the data for this purpose.

PESTICIDE RESIDUES IN FOOD

REPORT OF THE 2016 JOINT FAO/WHO MEETING OF EXPERTS

1. INTRODUCTION

A Joint Meeting of the Food and Agriculture Organization of the United Nations (FAO) Panel of Experts on Pesticide Residues in Food and the Environment and the World Health Organization (WHO) Core Assessment Group on Pesticide Residues (JMPR) was held at FAO Head-quarters, Rome (Italy), from 13 to 23 September 2016. The FAO Panel Members met in preparatory sessions from 8–12 September.

The Meeting was opened by Mr Bill Murray, Deputy Director, Plant Production and Protection Division (AGP), FAO. On behalf of FAO and WHO, Mr Murray welcomed and thanked the participants for providing their expertise and for devoting significant time and effort to the work of the JMPR. Mr Murray noted the important contribution of the JMPRs work in trade facilitation through the establishment of global standards for pesticide residues in food and feed, and in food safety via the published pesticide risk assessments, further underscoring the continued relevance of the JMPRs work.

Mr Murray also acknowledged the progress made by the JMPR in recent years in improving the transparency of its procedures and operational efficiencies while at the same time continuing to consider and incorporate new scientific principles and methodologies. He suggested the success of these efforts was demonstrated by the increasing importance and impact of the JMPRs work internationally. He highlighted recent examples such as the incorporation of JMPR Evaluations by national and regional regulatory authorities into their assessments; the increasing level of adoption by member countries of CODEX MRLs as recommended by JMPR; and the contribution of the JMPRs recent assessment of glyphosate to the global discussion on its continued use.

Mr Murray then suggested that perhaps the most significant example of JMPRs success was the continued and growing demand for JMPR assessments, with the number of compound nominations from member countries, through the Codex Committee on Pesticide Residues (CCPR), having increased by 70% from 2010 to 2015, while noting the constraints under which the JMPR operates.

During the meeting, the FAO Panel of Experts was responsible for reviewing residue and analytical aspects of the pesticides under consideration, including data on their metabolism, fate in the environment and use patterns, and for estimating the maximum levels of residues that might occur as a result of use of the pesticides according to good agricultural practice (GAP). Maximum residue levels and supervised trials median residue (STMR) values were estimated for commodities of animal origin. The WHO Core Assessment Group was responsible for reviewing toxicological and related data in order to establish acceptable daily intakes (ADIs) and acute reference doses (ARfDs), where necessary.

The Meeting evaluated 29 pesticides, including nine new compounds and three compounds that were re-evaluated within the periodic review programme of the CCPR, for toxicity or residues, or both.

The Meeting established ADIs and ARfDs, estimated maximum residue levels and recommended them for use by CCPR, and estimated STMR and highest residue (HR) levels as a basis for estimating dietary intake.

The Meeting also estimated the dietary exposures (both short-term and long-term) of the pesticides reviewed and, on this basis, performed dietary risk assessments in relation to their ADIs or ARfDs. Cases in which ADIs or ARfDs may be exceeded were clearly indicated in order to facilitate

the decision-making process of CCPR. The rationale for methodologies for long- and short-term dietary risk assessment are described in detail in the FAO Manual on the submission and evaluation of pesticide residue data for the estimation of maximum residue levels in food and feed (2016).

The Meeting considered a number of current issues related to the risk assessment of chemicals, the evaluation of pesticide residues and the procedures used to recommend maximum residue levels.

1.1 Declaration of Interests

The Secretariat informed the Meeting that all experts participating in the 2016 JMPR had completed declaration-of-interest forms and that no conflicts had been identified.

2. GENERAL CONSIDERATIONS

2.1 Update on the revision of *Principles and Methods for Risk Assessment of Chemicals in Food* (EHC 240)

2.1.1 Benchmark dose

The present Meeting utilized the results of benchmark dose (BMD) modelling in its assessment of teflubenzuron (see section 5.24). Although Environmental Health Criteria (EHC) 239 (*Principles for modelling dose–response for the risk assessment of chemicals*; http://www.inchem.org/documents/ehc/ehc/ehc239.pdf) and EHC 240 (http://www.who.int/foodsafety/publications/chemical-food/en/) provide guidance on the application, performance and interpretation of dose–response modelling, the Meeting felt that a number of additional points had emerged since publication of these guidance documents that need to be considered or emphasized.

In the BMD approach, criteria for judging model relevance using biological understanding are paramount. This includes the judgement of which types of data (e.g. external versus internal doses) should be put into the model. Biological considerations should take precedence over mathematical analysis when a clear way forward is not obvious. The results should be assessed for model fit using criteria described, for example, in the United States Environmental Protection Agency's (USEPA) Benchmark Dose Software (BMDS) guidance document (https://www.epa.gov/sites/production/files/2015-01/documents/benchmark_dose_guidance.pdf). The criteria consist of adequacy determinations of *P*-value, scaled residual, visual fit, determining whether the remaining models reflect no particular influence of the individual models (e.g. ratio between BMD and lower 95% confidence limit on the BMD, or BMDL), Akaike Information Criterion (AIC) and expert judgement. Each of these criteria needs to be addressed and also weighed in the sequence suggested, in order to make choices that are most biologically reasonable.

As this is a general item, the Meeting recommended that EHC 240 be updated to reflect experience gained in the application of dose–response modelling since the guidance was published.

2.1.2 Chemical-specific adjustment factors (CSAFs)

The Meeting received an overview of the CSAF approach. Dr Richard Brown of WHO then updated the Meeting on an ongoing activity within the WHO Risk Assessment Network, in which experience, progress and obstacles in the application of the CSAF approach since its introduction in 2005 were being evaluated. Following compilation of CSAFs both successfully and unsuccessfully applied in risk assessment, a review workshop was held, and the outcome will be published in the peer-reviewed literature. The need for clear terminology, templates for common reporting format and updated guidance was identified and will be the subject of further activity. Once complete, this may necessitate an update to the relevant section of EHC 240.

2.1.3 Guidance on the use and interpretation of statistical evaluations and historical control data

In EHC 240, some guidance is given on the use and interpretation of statistical evaluations and historical control data within the evaluation of toxicological data of compounds. Further details are provided in the JMPR guidance document for WHO monographers and reviewers (http://www.who.int/foodsafety/publications/JMPR-guidance-document/en/). However, the Meeting noted that some aspects of the use of statistics and the use of historical control data need elaboration or clarification. For example, this Meeting discussed the issues of multiple comparisons (e.g. pendimethalin; see section 5.19) and the use of historical control data (e.g. pinoxaden; see section 5.20).

In view of the relevance of these issues, the Meeting recommended that a joint JMPR/Joint FAO/WHO Expert Committee on Food Additives (JECFA) electronic working group be convened to consider possible amendments to EHC 240.

2.2 JMPR guidance documents for WHO monographers and reviewers

The Meeting recommended that the JMPR guidance document for WHO monographers and reviewers (http://www.who.int/foodsafety/publications/JMPR-guidance-document/en/) be updated, as appropriate, with the results of discussions on the issues raised in section 2.1.

2.3 Evaluation of genotoxicity data

The Meeting considered a number of issues related to genotoxicity evaluations, including a weight of evidence approach. The Meeting noted the intention of WHO to establish a working group to update the EHC 240 guidance on genotoxicity and expressed the need for specific considerations on pesticide residues. The Meeting raised in particular the need for guidance to balance data from regulatory dossiers and from published studies, the former usually providing more detailed information on the methodology and findings.

2.4 Update of the OECD Livestock Animal Burden Feed Table

The Meeting noted that the OECD Livestock animal dietary burden feed table, used for the estimation of livestock animal dietary burden, has been updated (Guidance Document on Residues in Livestock, Series on Pesticides No. 73, ENV/JM/MONO(2013)8; http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote = env/jm/mono(2013)8&doclanguage = en).

The Meeting decided to incorporate this update, using the consolidated feed compositions for USA/Canada, the EU, Australia and Japan, beginning with the 2017 Meeting.

3. RESPONSES TO SPECIFIC ISSUES

3.1 Concerns raised by the the Codex Committee on Pesticide Residues (CCPR)

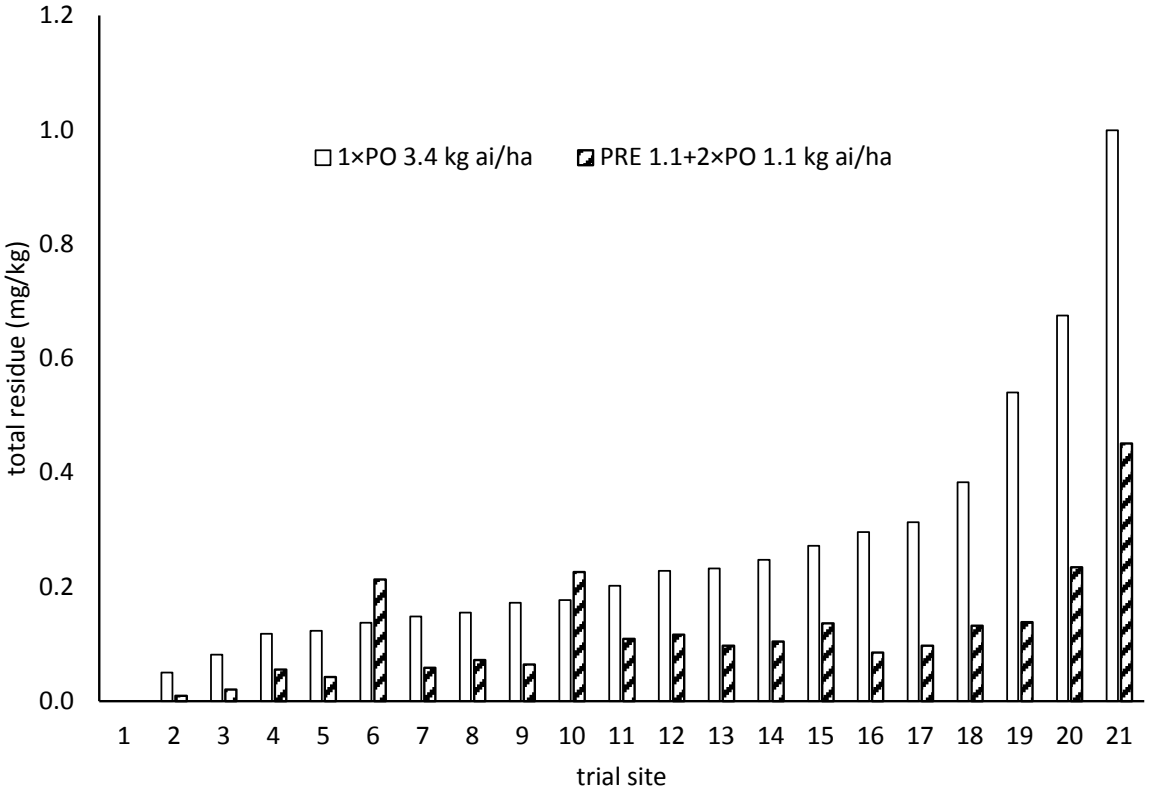
3.1.1 Acetochlor (280)

Background

Acetochlor was first evaluated by the JMPR in 2015. Following the 48th Session of the CPPR a concern form was submitted by the USA relating to the 2015 JMPR not recommending a maximum residue level for soya beans. In the USA acetochlor is approved for use on soya beans. GAP in the USA is applications pre-plant, pre-emergence or post-emergence but before the R2 growth stage (full flowering) at up to 1.7 kg ai/ha with a PHI not required. The maximum rate per year is 3.4 kg ai/ha.

No recommendation was made as the 2015 Meeting considered none of the trials as matching critical GAP (2 ×1.7 kg ai/ha post-emergence applications) as they included a pre-plant/pre-emergent application and that none were deemed suitable for application of the proportionality approach. The concern form proposed that the proportionality approach could be used for the soya bean trials and noted that:

- In the acetochlor soya bean metabolism study, total radioactive residues (TRR) in the soya beans resulting from a single 3.4 kg ai/ha pre-plant application were low. Scaled to an application rate of 1.12 kg ai/ha, the 45-day pre-plant application would result in TRR of 0.06 mg equiv/kg in soya bean seed at harvest.
- In the confined rotational crop study where soya beans were planted 30-days after a 3.1 kg ai/ha application of acetochlor to bare ground, TRR in the harvested soya beans were low. Scaled to an application rate of 1.12 kg ai/ha, the TRR in soya bean seed were 0.03 mg equiv/kg.
- A comparison of residues following a single application of 3.4 kg ai/ha at growth stage R1/R2 with those following a pre-plant and two post-emergence applications of 1.12 kg ai/ha each shows the post-emergence application at growth stage R1/R2 accounts for most of the residues at harvest, see figure below. Although the total applied acetochlor is (3.4 kg ai/ha) is the same for the two treatments, the application rate at growth stage R1/R2 for the single spray at 3.4 kg ai/ha is 3 × the application rate at growth stage R1/R2 for three applications at 1.12 kg ai/ha. If all residues in seed at harvest were due to the R1/R2 application alone, the residues following the three applications should be 3 × those following the single application. On average, the ratio of residues in seed at each site is 2.5, indicating that the last post-emergence application contributes most to the residues in seed.



- The pre-plant application (included in the residue study treatment but not in the cGAP) makes a negligible contribution to residues at harvest, compared to the two subsequent post-emergence applications at growth stages V3 and R1/R2.

Comments by JMPR

The Meeting noted that the trials submitted to the 2015 JMPR either involved a single post-emergent application at a nominal rate of 3.4 kg ai/ha at growth stage R1-R2 (beginning flowering to full flowering) or three applications, one pre-plant (45 days prior to planting), and two post-emergence (3rd trifoliate leaf and R1-R2), each nominally at 1.12 kg ai/ha to give a seasonal application rate of 3.4 kg ai/ha.

The CCPR developed "Principles and guidance for application of the proportionality concept for estimation of maximum residue limits for pesticides" that restrict the use of the proportionality approach. Principle 4 states "*Scaling is only acceptable if the application rate is the* only *deviation from critical GAP (cGAP). In agreement with JMPR practice, additional use of the ±25% rule for other parameters such as PHI is not acceptable. For additional uncertainties introduced, e.g. use of global residue data, these need to be considered on a case-by-case basis so that the overall uncertainty of the residue estimate is not increased*".

The available trials utilised three applications compared to critical GAP which is two post-emergent applications, each at 1.7 kg ai/ha with the last prior to full flowering (R2 growth stage). The 2015 JMPR considered trials with three applications could be considered for use of the proportionality approach if the initial pre-emergent application did not contribute to the final residue. However, pre-plant and pre-emergence applications give rise to residues in soya beans at harvest as noted above. In a rotational crop study residues in soya bean follow crops were planted 253-425 days after application to a primary maize crop at 2.2 kg ai/ha, residues in grain ranged from < 0.02 to

0.1 mg/kg suggesting the pre-plant application might contribute < 0.02 to 0.05 mg/kg to the terminal residue.

The Meeting confirmed its previous conclusion that, based on the CCPR principles and guidance, the data are not suitable for the application of the proportionality approach. With regards to maize, application of the proportionality approach by the 2015 JMPR was possible as in that case, residues at harvest from the pre-plant applications were <LOQ.

3.1.2 Chlorothalonil (081)

se of chlorothalonil on cranberries were evaluated by the 2015 JMPR, concluding storage stability data for both parent chlorothalonil and its metabolite SDS-3701 indicated a potential degradation within 10 months, which was the only interval tested. Samples from supervised field trials have been stored for such an interval and were therefore considered invalid by the Meeting.

At the 48th Session of the CCPR, the USA raised a concern to this decision, pointing out that under consideration of the procedural recovery data correction for the degradation could be made and that a dietary intake concern does not arise from residues of chlorothalonil in cranberries.

The Meeting reviewed the data submitted in 2015. In the respective storage stability study residues recovered in cranberry samples were generally below 70% for both analytes (55–70% for chlorothalonil, 38–39% for SDS-3701). In addition, procedural recoveries were also below 70% for both analytes (58–64% for chlorothalonil, 66-74% for SDS-3701). Since both, fortified sample recoveries and procedural recoveries were below 70%, the study is generally unsuitable to draw conclusions on the stability of chlorothalonil and SDS-3701 residues in cranberries. The Meeting therefore confirms its previous conclusion on the invalidity of the study.

3.1.3 Flonicamid (282)

Background

At the 48th Meeting of the Codex Committee on Pesticide Residues (CCPR), 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.

The Committee noted that the USA had submitted a concern form requesting a review of the JMPR decision on MRLs for cucurbits based upon the greenhouse 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.

JMPR responses

Fruiting vegetables, Cucurbits

The label from the USA allows foliar or soil/growth media applications to greenhouse cucumbers. Based on the supervised residue trials on greenhouse cucumbers reviewed by the 2015 Meeting, the foliar application was determined to be the method which resulted in the highest residues (0.54 mg/kg). Due to there being only four trials matching the critical GAP of the USA, the Meeting considered these trials insufficient to recommend a maximum residue level for greenhouse cucumbers. The Meeting confirms its previous recommendation of a maximum residue level of 0.2 mg/kg and an STMR of 0.04 mg/kg for Fruiting Vegetables, Cucurbits.

Residues in animal commodities

The estimated dietary burdens of farm animals and the estimated maximum residue levels for animal commodities were recalculated by the current Meeting to incorporate livestock feeds from the *Brassica* leafy vegetables subgroup (e.g., kale, turnip tops/greens, etc.), as recommended by the 2015 JMPR, using the estimated HR of 8.31 mg/kg and STMR of 4.59 mg/kg for mustard greens.

Estimated dietary burdens of farm animals

Maximum and mean dietary burden calculations for flonicamid are based on the feed items evaluated for cattle and poultry as presented in Annex 6. The calculations were made according to the livestock diets from Australia, the EU, Japan and US-Canada in the OECD feeding table.

	Livestock dietary burden, flonicamid, ppm of dry matter							
	US-Canada		EU		Australia		Japan	
	Max	Mean	Max	Mean	Max	Mean	Max	Mean
Beef cattle	0.27	0.13	17.6	10.1	27.7[A]	15.3[B]	0.005	0.005
Dairy cattle	0.12	0.12	11.2	6.2	22.2[C]	12.2[D]	0.003	0.003
Poultry - broiler	0.03	0.03	0.008	0.008	0.02	0.02	0	0
Poultry-layer	0	0	2.8[E]	1.5[F]	0	0	0	0

[A] Suitable for MRL estimates for mammalian meat, fat and edible offal

[B]. Suitable for STMR estimates for mammalian meat, edible offal

[C]. Suitable for MRL estimates for milks

[D]. Suitable for STMR estimates for milks

[E] Suitable for MRL estimates for eggs, meat, fat and edible offal of poultry

[F] Suitable for STMR estimates for eggs, meat, fat and edible offal of poultry

Animal commodities maximum residue level estimation

	Feed level (ppm) for milk residues	Total flonicamid and TFNA-AM residues in milk (mg/kg)	Feed level for tissue residues (ppm)	Flonicamid and TFNA-AM Residues			
				Muscle	Liver	Kidney	Fat
Maximum residue level - beef or dairy cattle							
Feeding study	6.89 23.69	0.03 0.11	6.89 23.69	0.06 0.11	0.07 0.15	0.06 0.15	<0.02 0.03
Dietary burden and residue estimate	22.2	0.10	27.7	0.12	0.17	0.17	0.03
STMR - beef or dairy cattle							
Feeding study	6.89 23.69	0.03 0.10	6.89 23.69	0.05 0.08	0.06 0.14	0.06 0.13	0.02 0.02
Dietary burden and residue estimate	12.2	0.05	15.3	0.06	0.10	0.10	0.02

	Feed level (ppm) for egg residues	Total flonicamid and TFNA-AM residues in eggs (mg/kg)	Feed level for tissue residues (ppm)	Flonicamid and TFNA-AM Residues		
				Muscle	Liver	Fat
Maximum residue level – poultry broiler or layer						
Feeding study	2.51 7.47	0.11 0.38	2.51 7.47	0.07 0.20	0.08 0.20	0.04 0.09
Dietary burden and residue estimate	2.8	0.12	2.8	0.08	0.09	0.04
STMR – poultry broiler or layer						
Feeding study	0.26 2.51	0.02 0.10	0.26 2.51	<0.02 0.06	<0.02 0.06	<0.02 0.03
Dietary burden and residue estimate	1.5	0.06	1.5	0.04	0.04	0.04

The Meeting recommends the maximum residue levels of 0.05 mg/kg for mammalian fats and 0.15 mg/kg for each, meat from mammals other than marine mammals and milks and 0.20 mg/kg for edible offal (mammalian), to replace those estimated at the 2015 Meeting. The STMRs for mammalian fats, milks, meat from mammals other than marine mammals and edible offal (mammalian) are 0.02 mg/kg, 0.05 mg/kg, 0.06 mg/kg and 0.10 mg/kg, respectively.

In addition, the Meeting recommends maximum residue levels of 0.15 mg/kg for eggs, 0.05 mg/kg for poultry fats and 0.10 mg/kg for each, edible offal and meat of poultry, to replace those estimated at the 2015 Meeting. The STMR is 0.06 mg/kg for eggs and 0.04 mg/kg for each meat, edible offal and fat.

Dietary risk assessment

Long-term dietary exposure

The International Estimated Dietary Intakes (IEDIs) of flonicamid were re-calculated for the 17 GEMS/Food cluster diets using revised STMRs for animal commodities estimated by the current Meeting (Annex 3). The ADI is 0–0.07 mg/kg bw and the calculated IEDIs were 0–10% of the maximum ADI. The Meeting concluded that the long-term exposure to residues of flonicamid, resulting from the revised dietary burdens is unlikely to present a public health concern.

Short-term dietary exposure

No ARfD was considered necessary. The Meeting concluded that the short-term dietary exposure to flonicamid residues from uses considered by the present Meeting is unlikely to present a public health concern.

3.1.4 Penthiopyrad (253)

The Meeting received confirmative GAP information from Australia for consideration, since maximum residue levels for penthiopyrad are currently retained at Step 4 awaiting JMPR assessment of an animal dietary burden that excludes forage and fodder crops from the Australian diet. In addition, consideration of an alternative GAP for mustard greens should be explored since an exceedance of the ARfD (150%) was identified for this commodity based on US GAP. No study data were submitted to the current Meeting.

The Meeting noted that the confirmative Australian GAP information submitted for penthiopyrad is identical to the Australian GAP already considered by the 2013 Meeting. It was also noted, that the maximum and mean dietary burdens of livestock animals estimated by the 2013

Meeting already considered the registered Australian uses. In 2013 it was decided to exclude feed and fodder commodities (e.g., soya bean forage and fodder) from the calculation for the Australian livestock animal dietary burden, as penthiopyrad is not registered for such uses in Australia and respective feed items are not imported due to quarantine constraints. Thus the maximum and mean livestock animal dietary burdens for ruminants and poultry were estimated for the US-Canadian and EU region, respectively, which were also the basis for the estimation of maximum residue levels, STMR and HR values in animal commodities.

Since both the US-Canadian and the EU livestock animal dietary burdens are unaffected by the confirmative Australian GAP information sent to this Meeting, the 2013 recommendations for penthiopyrad in animal commodities are confirmed. The Meeting points out, that the maximum residue levels recommended in 2013 for penthiopyrad are already based on a refined estimation of the livestock animal dietary burden and that residues in animal commodities were derived using intrapolation between dose levels of the feeding studies available.

GAP information provided by Australia allowed no consideration for an alternative GAP for mustard greens. Supervised field trial data on mustard greens are available from Canada and the USA (see 2012 Evaluation), but did not match the newly submitted GAP information from Australia.

3.2 OTHER MATTERS OF INTEREST

3.2.1 Bentazone (172)

Background

Bentazone is the International Organization for Standardization (ISO)–approved common name for 3-isopropyl-1*H*-2,1,3-benzothiadiazin-4(3*H*)-one-2,2-dioxide (International Union of Pure and Applied Chemistry), with the Chemical Abstracts Service (CAS) number 25057-89-0. Bentazone is a post-emergence herbicide that acts by interfering with photosynthesis.

Bentazone was evaluated by JMPR in 2012, as part of the periodic review programme of the Codex Committee on Pesticide Residues (CCPR). The 2012 Meeting established an acceptable daily intake (ADI) of 0–0.09 mg/kg body weight (bw), based on a no-observed-adverse-effect level (NOAEL) of 9 mg/kg bw per day from a 2-year study of toxicity and carcinogenicity in rats for prolonged blood coagulation and clinical chemistry changes indicative of effects on liver and kidney at 35 mg/kg bw per day and application of a safety factor of 100. The 2012 Meeting also reaffirmed its previous conclusion that no acute reference dose (ARfD) was necessary, as the Meeting considered that the post-implantation loss seen in the rat developmental toxicity study was not caused by a single dose and that no other effects were observed in repeated-dose toxicity studies that could be due to a single dose.

During the review of the background document on bentazone for the development of the WHO Guidelines for Drinking-water Quality, which was based on the 2012 JMPR evaluation, two comments were received that pertained to JMPR's conclusion that an ARfD for bentazone was unnecessary. The first comment, received from the European Food Safety Authority (EFSA), referred to its evaluation of bentazone, published in 2015, which concluded that an ARfD of 1 mg/kg bw was required based on the NOAEL of 100 mg/kg bw per day for increased post-implantation loss, reduced number of live fetuses and retarded fetal development observed in the developmental toxicity study in rats and application of an uncertainty factor of 100. The second comment, from Health Canada, identified an acute neurotoxicity study in rats, published in 2012, that was used by the USEPA in 2014 to set an ARfD of 0.5 mg/kg bw.

JMPR, at its meeting in 2015, recommended that bentazone be re-evaluated specifically to determine whether there is a need to establish an ARfD.

Biochemical and toxicological data

Several new biochemical and toxicological studies were made available to the present Meeting. The Meeting evaluated these studies and concluded that only the acute neurotoxicity study would have an impact on the consideration of the need to establish an ARfD for bentazone.

In an acute neurotoxicity study in which rats were administered bentazone by gavage at a single dose of 0, 50, 150 or 400 mg/kg bw, the NOAEL was 50 mg/kg bw, based on decreased motor activity in males observed on day 0 at 150 mg/kg bw.

Toxicological evaluation

Owing to the availability of new data, the Meeting established an ARfD of 0.5 mg/kg bw, based on a NOAEL of 50 mg/kg bw for decreased motor activity in males observed on day 0 in an acute neurotoxicity study in rats, using a safety factor of 100.

An addendum to the toxicological monograph was prepared.

Residue and analytical aspects

Bentazone, a post-emergence herbicide to control dicotyledonous weeds, it was originally evaluated by the JMPR in 1991 and re-evaluated under the periodic review program for toxicology in 2012 and for residues in 2013. The 2012 JMPR established an ADI for bentazone of 0-0.09 mg/kg bw and concluded that no ARfD was necessary. In the present Meeting, the WHO Core Assessment Group reviewed new data and established an ARfD for bentazone of 0.5 mg/kg bw.

Based on the uses assessed by the 2013 Meeting, the short-term dietary exposure for bentazone was estimated by the present Meeting. In the 2013 Meeting, the following residue definition was derived by the Meeting:

Definition of the residue (for compliance with the MRL and for dietary risk assessment for plant and animal commodities): *bentazone*

The residue is not fat soluble.

Dietary risk assessment

In 2013 no HR values were derived for bentazone by the Meeting. Based on the highest residues from datasets used for recommendations, the following HR values were estimated for the short-term dietary exposure calculation, if required: onion, bulb (0.02 mg/kg); spring onions (0.04 mg/kg); sweet corn on the cob (0.01 mg/kg); peas (pods and succulent = immature seeds) (0.74 mg/kg); beans except broad beans and soya beans (0.01 mg/kg); beans, shelled (0); potato (0.06 mg/kg); peanuts (0); herbs, except dry hops (0.05 mg/kg); poultry meat (0); poultry fats (0); poultry edible offal (0) and eggs (0).

Long-term dietary exposure

No changes to the established ADI of 0-0.09 mg/kg bw or additional GAPs were considered by the current Meeting. The previous conclusion, that the long-term exposure to residues of bentazone, resulting from the uses that have been considered by JMPR, is unlikely to present a public health concern, is confirmed.

Short-term dietary exposure

The International Estimated Short term Intake (IESTI) for bentazone was calculated for all food commodities (and their processed fractions) for which recommendations were made by the 2013 Meeting and for which consumption data were available. The results are shown in Annex 4 of the 2016 Report.

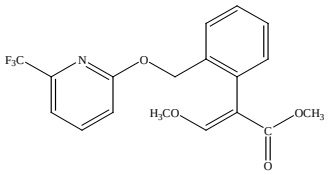
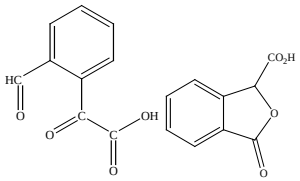
For benntazone the IESTI represented 0-1% of the ARfD (0.5 mg/kg bw) for the general population and 0-3% of the ARfD for children. On the basis of information provided to the Meeting it was concluded that the short-term exposure to residues of bentazone, when used in ways that have been considered by the JMPR, is unlikely to present a public health concern.

3.2.2 Picoxystrobin (258)

Background

Picoxystrobin was evaluated as a new compound by the 2012 JMPR for toxicology and residues. The 2012 JMPR established an ADI of 0-0.09 mg/kg bw for picoxystrobin and an ARfD of 0.09 mg/kg bw.

The 2012 JMPR proposed a residue definition for enforcement of picoxystrobin and estimated a number of maximum residue levels. However, the 2012 JMPR was unable to conclude on the toxicological relevance of two metabolites IN-H8612 and 2-(2-formylphenyl)-2-oxoacetic acid tentatively identified in plant metabolism studies, for which IEDIs were above the threshold of toxicological concern of 0.15 µg/person/day for compounds with alerts for genotoxicity. As a result, it was not possible to propose a residue definition for dietary risk assessment or calculate dietary intakes, and maximum residue levels were not recommended.

Common names	Chemical name	Structure
Picoxystrobin, ZA 1963, DPX-YT669	Methyl (E)-3-methoxy-2-[2-(6-trifluoromethyl-2-pyridyloxymethyl)-phenyl]acrylate	
IN-H8612	1,3-Dihydro-3-oxoisobenzofuran-1-carboxylic acid	
	2-(2-Formylphenyl)-2-oxoacetic acid	

The 2013 JMPR received additional toxicological data (a mouse micronucleus study) for IN-H8612 which showed no evidence of genotoxicity. Conservative estimates for chronic and acute exposure to IN-H8612 were both below the relevant TTC values for Cramer class III compounds with no evidence of genotoxicity. The 2013 JMPR concluded that there was no concern for dietary exposure to IN-H8612. However, no toxicological data were submitted for 2-(2-formylphenyl)-2-oxoacetic acid, as the compound was unable to be synthesised in sufficient amounts. Although argument was provided that levels in soya beans were likely to be extremely low, the 2013 JMPR concluded that genotoxicity data or additional residues information would be required to allow further evaluation of 2-(2-formylphenyl)-2-oxoacetic acid.

Assessment of new data

During the current Meeting, the FAO panel received a new metabolism study for picoxystrobin in soya bean intended to address the concerns regarding 2-(2-formylphenyl)-2-oxoacetic acid, which was reported as a metabolite in mature seed in the soya bean metabolism study considered by the 2012 JMPR.

A preliminary evaluation of the new study indicates that the metabolic pathway for picoxystrobin in soya beans is broadly similar to that observed in the earlier study. Metabolites identified in the new soya bean study were mostly also identified in the plant metabolism studies provided to the 2012 JMPR (for wheat, canola, soya bean and rotational crops).

The 2-(2-formylphenyl)-2-oxoacetic acid metabolite was not identified in the new soya bean study. The Meeting noted that IN-H8612 was a significant metabolite in soya bean matrices in the new study, particularly mature seed. Further, IN-H8612 is a structural isomer of 2-(2-formylphenyl)-2-oxo-acetic acid, and in chromatography conducted for the new metabolism study, IN-H8612 was reported as eluting as two peaks.

Conclusion

The Meeting concluded that further information was required on the possible interconversion of IN-H8612 and 2-(2-formylphenyl)-2-oxoacetic acid, possibly through ring-chain tautomerism.

4. DIETARY RISK ASSESSMENT FOR PESTICIDE RESIDUES IN FOOD

4.1 Long-term dietary exposure

At the present Meeting, an International Estimated Daily Intake (IEDI) was calculated for each compound for which an ADI was established, by multiplying the median concentrations of residues (STMRs and/or STMR-Ps) for each commodity for which maximum residue levels were recommended by the average daily per capita consumption estimated on the basis of the 17 GEMS/Food Consumption cluster diets[1]. Detailed description of the method is in the Environment Health Criteria 240 (EHC 240)[2].

The long-term dietary risk assessment was not conducted for sulfoxaflor as no new recommendations for maximum residue levels were made.

Fenpropimorph was evaluated for toxicology and an ADI and ARfD were established. Long-term and short-term dietary risk assessments will be conducted when the compound is evaluated for residues.

These IEDIs are expressed as a percentage of the upper bound of the ADIs for a 55 kg or 60 kg person, depending on the cluster diet (Table 1). The spreadsheet application is available at http://www.who.int/foodsafety/areas_work/chemical-risks/gems-food/en/.

The detailed calculations of chronic dietary exposure assessments are given in Annex 3.

Table 1: Summary of chronic dietary exposure assessments (IEDI)

CCPR code	Compound name	ADI (mg/kg body weight)	Range of IEDI, as % of the upper bound of the ADI
288	Acibenzolar-*S*-methyl	0–0.08	0–1
261	Benzovindiflupyr	0–0.05	0–2
172	Bentazone	0–0.09	0
262	Bixafen	0–0.02	1–9
173	Buprofezin	0–0.009	0–40
230	Chlorantraniliprole	0–2	0–1
135	Deltamethrin	0–0.01	0–50
225	Dimethomorph	0–0.2	0–2
202	Fipronil	0–0.0002	20–90
282	Flonicamid	0–0.07	0–10
283	Fluazifop-P-butyl	0–0.004	40–160
265	Fluensulfone	0–0.01	1–3
285	Flupyradiflurone	0–0.08	7–20
289	Imazethapyr	0–0.6	0
290	Isofetamid	0–0.05	0–1
147	Methoprene assessed as S-methoprene (see below)	0–0.09	
147	S-Methoprene	0–0.05	10–60
278	Metrafenone	0–0.3	0–10
291	Oxathiapiprolin	0–4	0
182	Penconazole	0–0.03	0–3
292	Pendimethalin	0–0.1	0

[1] https://extranet.who.int/sree/Reports?op=vs&path=/WHO_HQ_Reports/G7/PROD/EXT/GEMS_cluster_diets_2012&userid=G7_ro&password=inetsoft123

[2] http://apps.who.int/iris/bitstream/10665/44065/9/WHO_EHC_240_9_eng_Chapter6.pdf

CCPR code	Compound name	ADI (mg/kg body weight)	Range of IEDI, as % of the upper bound of the ADI
293	Pinoxaden	0–0.1	0–1
251	Saflufenacil	0–0.05	2–20
294	Spiromesifen	0–0.03	2–20
190	Teflubenzuron	0–0.005	1–30
269	Tolfenpyrad	0–0.006	0–8

4.2 Short-term dietary exposure

At the present Meeting, an International Estimated Short-Term Intake (IESTI) was calculated for compounds for which an Acute Reference Dose was established. For each relevant food commodity, the highest expected residue (HR or HR-P) and the highest large portion data for general population (all ages), women of childbearing age (14–50 years), and children (6 years and under) were used for the calculation of the IESTI. Detailed description of the method is in the Environment Health Criteria 240 (EHC 240)[1].

These IESTI results are expressed as a percentage of the ARfD (Table 2). The spreadsheet application is available at: http://www.who.int/foodsafety/areas_work/chemical-risks/gems-food/en/

The Meeting agreed that an ARfD for imazethapyr, oxathiapiprolin, spiromesifen and teflubenzuron were unnecessary and short-term dietary exposure assessments were not conducted.

The detailed calculations of acute dietary exposure are given in Annex 4 to the 2016 Report.

Table 2 Summary of acute dietary exposure assessments (IESTI)

CCPR code	Compound name	ARfD (mg/kg bw)	Max. percentage of ARfD and exceedances	
				For exceedances, population, age in years (country)
288	Acibenzolar-*S*-methyl	0.5	10	
261	Benzovindiflupyr	0.1	70	
172	Bentazone	0.5	3	
262	Bixafen	0.2	20	
173	Buprofezin	0.5	0	
135	Deltamethrin	0.05	0	
225	Dimethomorph	0.6	60	
202	Fipronil	0.003	20	
283	Fluazifop-P-butyl	0.4	40	
265	Fluensulfone	0.3	9	
285	Flupyradiflurone	0.2	Spinach (130) Spinach (420) Leaf lettuce (250) Mustard greens (250) Mustard greens (610) Celery (120) Others (80)	General population (South Africa) Children (South Africa) Children (China) General population (China) Children (China) Children (China)
290	Isofetamid	3	10	
182	Penconazole	0.8	10	
292	Pendimethalin	1	10	

1 http://apps.who.int/iris/bitstream/10665/44065/9/WHO_EHC_240_9_eng_Chapter6.pdf

CCPR code	Compound name	ARfD (mg/kg bw)	Max. percentage of ARfD and exceedances	
				For exceedances, population, age in years (country)
293	Pinoxaden	0.3	1	
269	Tolfenpyrad	0.01	0	

Possible refinement when the IESTI exceeds the ARfD

As no alternative GAP was available to the Meeting to estimate a lower HR value, no refinement of the short-term dietary exposure is currently possible for the considered commodities.

The Meeting recognized that the ARfD for flupyradiflurone may be conservative and a refinement might be possible if new data became available.

The present Meeting recognised that any refinement of the ARfD for flupyradiflurone is unlikely to result in an increase of sufficient magnitude that would alter the conclusion that short-term dietary exposure of flupyradiflurone from the consumption of spinach, leaf lettuce, mustard greens and celery may represent a public health concern.

6. FUTURE WORK

The items listed below are tentatively scheduled to be considered by the Metings in 2018. Yhe compounds listed include those recommended as priorities by the CCPR at its Forty-seventh and earlier Sessions and compounds scheduled for re-evaluation within the CCPR periodic review programme.

Updated calls for data are available at least ten months before each JMPR meeting from the web pages of the Joint Secretariat.

http://www.fao.org/agriculture/crops/core-themes/theme/pests/jmpr/en/

NEW COMPOUNDS

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
	Chlorfenapyr [BASF] (254)
Ethiprole [Bayer CropScience]	Ethiprole
Mandestrobin [Sumitomo Chemical]	Mandestrobin
Norflurazon [Tessenderlo Kerley Inc.]	Norflurazon
Pyrifluquinazon [Nihon Nohyaku]	Pyrifluquinazon
Pydiflumetofen - SYN545794 [Syngenta]	Pydiflumetofen - SYN545794
XDE-777 [Dow AgroSciences]	XDE-777
Metconazole [Valent USA Corporation, on behalf of Kureha Corporation]	Metconazole
Fluazinam [ISK Biosciences; Ishihara Sangyo Kaisha]	Fluazinam
Pyriofenone [IshiharaSangyoKaisha/ISK Biosciences]	Pyriofenone
Quinalphos [India]	Quinalphos
Tricyclazole [India]	Tricyclazole India
Tioxazafen [Monsanto]	Tioxazafen and its metabolite benzamidine
Ethion (034) [India[1]]	Ethion (034)
Hexaconazole (170)[2] India	Hexaconazole (170)

PERIODIC RE-EVALUATIONS	
Iprodione (111) [FMC]	Iprodione (111) [FMC]

[1] This compound was previously been removed from the Pesticide List and all CXLs revoked.
[2] This compound was previously been removed from the Pesticide List and all CXLs revoked.

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
Flumethrin (195) [Bayer CropSciences]	Flumethrin (195) [Bayer CropSciences]
Metalaxyl (138) [Quimicas del Vallés - SCC GmbH]	Metalaxyl (138) [Quimicas del Vallés - SCC GmbH]
Dithiocarbamates (105) [Taminco]	Dithiocarbamates (105) [Taminco]
Tolclofos-methyl (191) [Sumitomo Chemical]	Tolclofos-methyl (191) [Sumitomo Chemical]
Imazalil (110) [Janssen] First reserve for 2017	Imazalil (110) [Janssen] First reserve for 2017
Bromopropylate (070) No manufacturer support	Bromopropylate (070) No manufacturer support
Permethrin (120) No manufacturer support	Permethrin (120) No manufacturer support

NEW USES AND OTHER EVALUATIONS

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
	Abamectin (177) [Syngenta]
	Acephate (095) India
	Acetamiprid (246) [Nippon Soda]
	Bentazone [BASF] (172)
	Benzovindiflupyr (261) [Syngenta]
	Bifenthrin (178) [FMC]
	Chlorpyrifos (017) India
	Chlorothalonil (081); (fungicide) [Syngenta]
	Cyantraniliprole (263) [DuPont]
	Cyazofamid (281) [ISK Biosciences]
	Diquat (031) [Syngenta]
	Diazinon (22) India
	Fluazifop-p-butyl (283) ([Syngenta]
	Fludioxonil (211) [Syngenta]
	Fluensulfone (265) [Adama]
	Imidacloprid (206) India
	Isofetamid (290) [Ishihara Sangyo Kaisha]

TOXICOLOGY EVALUATIONS	RESIDUE EVALUATIONS
Isoprothiolane LATAM	Isoprothiolane LATAM
	Lufenuron (286) [Syngenta]
	Mesotrione (277) [Syngenta]
	Metalaxyl-M [Syngenta] (212)
	Methomyl (094) India
	Penthiopyrad (253)
	Pyriproxyfen (200) [Valent USA Corporation; subsidiary of Sumitomo Chemical Co., Ltd.]
	Profenofos (171) India
	Propamocarb (148) [Bayer CropSciences]
Spiromesifen (294) [India]	Spiromesifen (294) [India]
Sulfoxaflor [Dow AgroSciences]	Sulfoxaflor (252) [Dow AgroSciences]
	Thiabendazole (065) [Syngenta]
	Triazophos (143) India
	Trinexapac (271) [Syngenta]

7. CORRIGENDA

Pesticide Residues in Food 2015. Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues. FAO Plant Production and Protection Paper, 223, 2015.

Changes are shown in bold

Abamectin (177)

Annex 1 Page 347 entries for Blackeberries and Raspberry red, black should read

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Abamectin (177)** ADI: 0–0.001 mg/kg bw ARfD: 0.003 mg/kg bw	FB 0264	Blackberries	**0.05**		**0.02**	**0.03**
	FB 0272	Raspberry, red, black	**0.05**		**0.02**	0.03

ANNEX 1: ACCEPTABLE DAILY INTAKES, SHORT-TERM DIETARY INTAKES, ACUTE REFERENCE DOSES, RECOMMENDED MAXIMUM RESIDUE LIMITS AND SUPERVISED TRIALS MEDIAN RESIDUE VALUES RECORDED BY THE 2016 MEETING

Established ADI and ARfD values and recommended maximum residue level, STMR and HR values

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Acibenzolar-S-methyl (288)*	FP 0226	Apple	0.3		0.01	0.17
ADI: 0–0.08 mg/kg bw	FI 0327	Banana	0.06		0.02	0.03
ARfD: 0.5 mg/kg bw	VB 0040	Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas	0.7		0.315	0.62
	VL 0054	Brassica leafy vegetables	1		0.585	0.795
	FC 0001	Citrus fruits	0.015		0.01	0.01
	MO 0105	Edible offal (Mammalian)	0.02 *		0	0
	PE 0112	Eggs	0.02 *		0	0
	VC 0045	Fruiting vegetables, Cucurbits	0.8		0.175	0.47
	VA 0381	Garlic	0.15		0.05	0.06
	FI 0341	Kiwifruit	0.03		0.01	0.02
	VL 0482	Lettuce, Head	0.2		0.0825	0.15
	VL 0483	Lettuce, Leaf	0.4		0.18	0.27
		Low growing berries (including strawberries)	0.15		0.045	0.08
	MF 0100	Mammalian fats (except milk fats)	0.02 *		0	0
	MM 0095	Meat (from mammals other than marine mammals)	0.02 *		0	0
	ML 0106	Milks	0.01 *		0	0
	VA 0385	Onion, Bulb	0.15		0.05	0.06
	FS 0247	Peaches (including nectarines and apricots)	0.2		0.05	0.13
	PF 0111	Poultry fats	0.02 *		0	0
	PM 0110	Poultry meat	0.02 *		0	0
	PO 0111	Poultry, Edible offal of	0.02 *		0	0
	VA 0388	Shallot	0.15		0.05	0.06
	VL 0502	Spinach	0.6		0.285	0.54
	VO 0448	Tomato	0.3		0.09	0.15
	JF 0048	Tomato juice			0.0702	
	MW 0448	Tomato purée			0.169	
		Tomato canned			0.0594	0.10

Definition of the residue (for compliance with MRLs for animal and plant commodities and for dietary risk assessment for animal commodities): *Sum of acibenzolar-S-methyl and 1,2,3-benzothiadiazole-7-carboxylic acid (acibenzolar acid) (free and conjugates), expressed in terms of acibenzolar-S-methyl.*

Definition of residue (for dietary risk assessment for plants): *Sum of acibenzolar-S-methyl and 1,2,3-benzothiadiazole-7-carboxylic acid (acibenzolar acid), (free and conjugated) and 1,2,3-benzothiadiazole-4-hydroxy-7-carboxylic acid (4-OH acibenzolar acid) (free and conjugated), expressed as acibenzolar-S-methyl.*

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
The residue is not fat soluble.						
Bentazone (261) **ADI: 0–0.09 mg/kg bw** **ARfD: 0.5 mg/kg bw** *Definition of the residue (for compliance with the MRL and for dietary risk assessment for animal and plant commodities):* bentazone. *The residue is not fat soluble*.						
Benzovindiflupyr(172) **ADI: 0–0.05 mg/kg bw** **ARfD: 0.1 mg/kg bw**	VC 0045	Fruiting vegetables, Cucurbits	0.2		0.023	0.16
	GC 0640	Barley	1		0.18	
	AS 0640	Barley straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	VD 0071	Beans (dry)	0.2		0.011	
	SB 0716	Coffee beans	0.15		0.015	
	DF 0269	Dried grapes (= currants, raisins and sultanas)	3		0.7	1.9
	MO0105	Edible offal (Mammalian)	0.1	0.01	0.014	0.064
	PE0112	Eggs	0.01 *	0.01	0	0
	VO 0050	Fruiting vegetables other than Cucurbits	0.9		0.089	0.62
	FB 0269	Grapes	1		0.29	0.81
	MF0100	Mammalian fats (except milk fats)	0.03	0.01	0.01	0.019
	MM0095	Meat (from mammals other than marine mammals)	0.03(F)	0.01	0.01 muscle 0.01 fat	0.01 muscle 0.019 fat
	ML0106	Milks	0.01 *	0.01	0	
	AS 0647	Oat straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	GC 0647	Oats	1		0.18	
	AL 0072	Pea hay or fodder, dry	8 (dw)		2.2 (ar)	3.8 (ar)
	SO 0697	Peanut	0.04		0.01	
	AL 0697	Peanut fodder	15 (dw)		2.2 (ar)	7.6 (ar)
	VD 0072	Peas (dry)	0.15		0.011	
	HS 0444	Peppers Chili, dried	9		0.89	6.2
	FP 0009	Pome fruits	0.2		0.058	0.17
	VR 0589	Potato	0.02		0.01	0.015
	PF 0111	Poultry fats	0.01 *	0.01	0	0
	PM 0110	Poultry meat	0.01 *	0.01	0	0
	PO 0111	Poultry, Edible offal of	0.01 *	0.01	0	0
	SO 0495	Rape seed	0.2		0.023	
	GC 0650	Rye	0.1		0.023	
	AS 0650	Rye straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	VD 0541	Soya bean (dry)	0.08	0.05	0.01	
	GS 0659	Sugar cane	0.04		0.02	0.02
	VO 0447	Sweet corn (corn-on-the-cob)	0.01 *		0.01	0.01
	GC 0653	Triticale	0.1		0.023	
	AS 0653	Triticale straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
	GC 0654	Wheat	0.1		0.023	
	AS 0654	Wheat straw and fodder, dry	15 (dw)		3.9 (ar)	12 (ar)
		Apple jelly			0.005	
	JF 0226	Apple juice			0.003	
		Apple sauce			0.026	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
		Apple, canned fruit			0.003	
		Baked potatoes			0.022	0.033
		Barley bran			0.07	
		Barley flour			0.072	
		Boiled potatoes			0.005	0.044
		Canned tomato			0.003	0.019
	SM 0716	Coffee beans, roasted			0.006	
		Crystal sugar			0.005	
		Dried tomato			0.79	5.52
		Fried potatoes			0.003	0.004
	JF 0269	Grape juice			0.022	
		Instant coffee			0.008	
		Peanut butter			0.023	
		Pearl barley			0.083	
		Potato chips			0.003	
		Red wine			0.023	
		Soya sauce			0.0023	
		Soya bean milk			0.0023	
		Tofu			0.0033	
		Tomato juice			0.008	
	VW 0448	Tomato paste			0.037	
		Tomato purée			0.015	
	CM 0654	Wheat bran, unprocessed			0.053	
	CF 1211	Wheat flour			0.003	
	CF 1210	Wheat germ			0.023	
		White flour			0.008	
		White wine			0.012	
	CP 1212	Wholemeal bread			0.012	
		Wholemeal flour			0.015	
Definition of the residue (for compliance with the MRL and for estimation of dietary risk assessment for plant and animal commodities): *benzovindiflupyr* *The residue is fat soluble.* (ar) Expressed on an "as received" basis						
Bixafen (262)*	GC 0640	Barley	0.4		0.08	-
ADI: 0–0.02 mg/kg bw	AS 0640	Barley, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
ARfD: 0.2 mg/kg bw	MO 0105	Edible offal (Mammalian)	4		kidney: 0.4 liver: 1.7	kidney: 0.93 liver: 3.9
	PE 0112	Eggs	0.05		0.02	0.047
	MF 0100	Mammalian fats (except milk fats)	2		0.5	1.3
	MM 0095	Meat (from mammals other than marine mammals)	2 (fat)		muscle: 0.21 fat: 0.5	muscle: 0.71 fat: 1.3
	FM 0183	Milk fat	5		2.05	-
	ML 0106	Milks	0.2		0.082	-
	GC 0647	Oats	0.4		0.08	-
	AS 0647	Oats, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
	PO 0111	Poultry, Edible offal of	0.05		0.02	0.03
	PF 0111	Poultry fats	0.05		0.02	0.04
	PM 0110	Poultry meat	0.02*		0	0
	SO 0495	Rape seed	0.04		0.02	-
	OR 0495	Rape seed oil, refined	0.08		0.03	-

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	GC 0650	Rye	0.05		0.02	-
	AS 0650	Rye, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
	GC 0653	Triticale	0.05		0.02	-
	AS 0653	Triticale, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
	GC 0654	Wheat	0.05		0.02	-
	CM 0654	Wheat, bran	0.15		0.052	-
	AS 0654	Wheat, straw and fodder, dry	20 (dw)		2.2 (ar)	11 (ar)
		Barley, pearl			0.02	
		Beer			0.009	
	CF 1211	Wheat flour			0.007	
	CF 1210	Wheat germ			0.022	
	CP 1211	White bread			0.007	
	CF 1212	Wheat wholemeal			0.018	
	CP 1212	Wholemeal bread			0.012	
Definition of the residue (for compliance with MRLs) for plant commodities: *bixafen.*						
Definition of the residue (for compliance with MRLs) for animal commodities and (for dietary risk assessment) for plant and animal commodities: *sum of bixafen and N-(3',4'-dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1H-pyrazole-4-carboxamide (bixafen-desmethyl), expressed as bixafen.*						
The residue is fat soluble.						
(dw) Dry weight (ar) Expressed on an “as received” basis						
Buprofezin (173) **ADI: 0–0.009 mg/kg bw** **ARfD: 0.5 mg/kg bw**	FI 0326	Avocado	0.1		0.01	0.01
	HH 0722	Basil	1.5		0.45	0.72
	VD 0541	Soya bean, dry	0.01*		0.01	
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *Buprofezin.*						
The residue is not fat soluble.						
Chlorantraniliprole (230) **ADI: 0–2 mg/kg bw** **ARfD: Unnecessary**	PE 0112	Eggs	0.2	0.2	0.099	
	SO 0697	Peanut	0.06		0.01	
	PF 0111	Poultry fats	0.08	0.01*	0.031	
	PM 0110	Poultry meat	0.02	0.01*	0.008	
	PO 0111	Poultry, Edible offal of	0.07	0.01*	0.028	
	AS 0161	Straw, fodder (dry) and hay of cereal grains and other grass-like plants (except corn and rice).	30 (dw)	-	5.2	15
Definition of the residue (for compliance with MRL and for dietary risk assessment) for plant and animal commodities: *chlorantraniliprole.*						
The residue is fat soluble.						
(dw) Dry weight						

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Deltamethrin (135) **ADI: 0–0.01 mg/kg bw** **ARfD: 0.05 mg/kg bw**	SO 0495	Rape seed	0.2		0.07	
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *sum of deltamethrin and its α-R- and trans– isomers.* *The residue is fat soluble.*						
Dimethomorph (225) **ADI: 0–0.2 mg/kg bw** **ARfD: 0.6 mg/kg bw**	VL 0483	Lettuce, Leaf	9	20	0.8	6.2
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *dimethomorph (sum of isomers).* *The residue is not fat soluble.*						
Fenpropimorph (188)** **ADI: 0–0.003 mg/kg bw** **ARfD: 0.1 mg/kg bw**						
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *fenpropimorph* Definition of the residue (for compliance with the MRLs and for dietary risk assessment) for animal commodities*: 2-methyl-2-{4-[2-methyl-3-(cis-2,6-dimethylmorpholin-4-yl)propyl]phenyl}propionic acid, expressed as fenpropimorph.* *The residue is not fat soluble*						
Fipronil (202) **ADI: 0–0.0002 mg/kg bw** **ARfD: 0.003 mg/kg bw** *Fipronil and fipronil-desulfinyl, alone or in combination*	HH 0722	Basil	1.5		0.23	0.57
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *fipronil.* Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *sum of fipronil and 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethylphenyl)-4- trifluoromethylsulphonylpyrazole (MB 46136), expressed as fipronil.* *The residue is fat soluble.*						
Flonicamid (282) **ADI: 0–0.07 mg/kg bw** **ARfD: Unnecessary**	MM 032	Edible offal (Mammalian)	0.2	0.06	0.1	
	PE 0112	Eggs	0.15	0.03	0.06	
	MM 031	Mammalian fats	0.05	0.02	0.02	
	MM 030	Meat (from mammals other than marine mammals)	0.15	0.05	0.06	
	MM 033	Milks	0.15	0.04	0.05	
	PF 0111	Poultry fats	0.05	0.02	0.04	
	PM 0110	Poultry meat	0.1	0.02	0.04	
	PO 0111	Poultry, Edible offal of	0.1	0.02	0.04	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Definition of the residue (for compliance with MRLs and estimation for dietary risk assessment) for plant commodities*: Flonicamid.* Definition of the residue (for compliance with MRLs and estimation for dietary risk assessment) for animal commodities*: Flonicamid and the metabolite TFNA-AM, expressed as flonicamid.* *The residue is not fat soluble*.						
Fluazifop-P-butyl (283)* [a] **ADI: 0–0.004 mg/kg bw** **ARfD: 0.4 mg/kg bw**	TN 0660	Almonds	0.01*		0.011	0.011
	FI 0327	Banana	0.01*		0.011	0.011
	AL 0061	Bean fodder	7 (dw)		0.43 (dw)	3.5 (dw)
	VD 0071	Beans (dry)	40		2.4	
	VP 0061	Beans, except broad bean and soya bean	6		0.32	4.9
	VB 0041	Cabbages, Head	3		0.2	3.7
	FB 2005	Caneberries	0.01*		0.011	0.011
	VR 0577	Carrot	0.6		0.18	0.69
	VR 0578	Celeriac	0.4		0.12	0.4
	FC 0001	Citrus fruits	0.01*		0.011	0.011
	AB 0001	Citrus pulp, dry	0.06*		0.06	
	SB 0716	Coffee beans	0.01*		0.011	0.011
	SO 0691	Cotton seed	0.7		0.053	
	FB 0021	Currants, black, red, white	0.01*		0.011	0.011
	MO 0105	Edible offal (Mammalian)	0.2		0.088	0.18
	VO 0440	Eggplant	0.4		0.053	0.26
	PE 0112	Eggs	0.03		0.014	0.027
	VD 0561	Field pea (dry)	3		0.4	
	AM 1051	Fodder beet	0.5		0.095	0.32
	VA 0381	Garlic	0.3		0.12	0.28
	FB 0268	Gooseberries	0.01*		0.011	0.011
	FB 0269	Grapes	0.01*		0.011	0.011
	VL 0483	Lettuce, Leaf	0.01*		0.013	0.022
	TN 0669	Macadamia nuts	0.01*		0.011	0.011
	MF 0100	Mammalian fats (except milk fats)	0.09		0.048	0.081
	MM 0095	Meat (from mammals other than marine mammals)	0.09 (fat)		0.024	0.038
	ML 0106	Milks	0.2		0.1	
	SO 0305	Olives for oil production	0.01*		0.011	0.011
	VA 0385	Onion, Bulb	0.3		0.12	0.28
		Orange oil	0.05*		0.055	
	VP 0063	Peas (pods and succulent = immature seeds)	2		0.44	1
	VP 0064	Peas, shelled (succulent seeds)	15		0.42	8.1
	TN 0672	Pecan	0.01*		0.011	0.011
	FP 0009	Pome fruits	0.01*		0.011	0.011
	VR 0589	Potato	0.6		0.1	1
	PF 0111	Poultry fats	0.03		0.016	0.025
	PM 0110	Poultry meat	0.03		0.016	0.025
	PO 0111	Poultry, Edible offal of	0.09		0.054	0.082
	VA 0388	Shallots	0.3		0.12	0.28
	VD 0541	Soya bean (dry)	15		2.9	
	AL 0541	Soya bean fodder	4 (dw)		0.32 (dw)	2.1 (dw)
	FS 0012	Stone fruits	0.01*		0.011	0.011
	FB 0275	Strawberries	0.3		0.063	0.13

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VR 0596	Sugar beet	0.5		0.19	0.76
	DM 0596	Sugar beet molasses	7		1.33	
	AB 0596	Sugar beet pulp, dry	20		3.8	
	GS 0659	Sugar cane	0.01*		0.011	0.011
	SO 0702	Sunflower seed	7		0.3	
	VR 0497	Swede	4		1.3	4.8
	VR 0508	Sweet potato	2		1	2
	FT 0305	Table Olives	0.01*		0.011	0.011
	VO 0448	Tomato	0.4		0.053	0.26
	VR 0506	Turnip, Garden	4		1.3	4.8
	TN 0678	Walnuts	0.01*		0.011	0.011
	VR 0600	Yams	2		1	2
	OC 0541	Soya bean oil, crude			2.4	
	OR 0702	Sunflower seed oil, edible			0.009	
	JF 0001	Citrus juices			0.0077	
		Peas, green, cooked			0.37	7.1
		Peas, green, canned			0.30	5.8
		Potato, flesh			0.11	1.1
		Potato, cooked without peel			0.080	0.80
		Soya flour			3.2	
		Soya milk			0.46	
		Sugar beet, refined sugar			0.068	
Definition of the residue (for compliance with MRLs for plant commodities): *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid.* Definition of the residue (for dietary risk assessment) for plant commodities: *the sum of fluazifop-P-butyl, fluazifop-P-acid (II), 2-[4-(3-hydroxy-5-trifluoromethyl-2-phenoxy)pyridyloxy] propionic acid (XL), 5-trifluoromethyl-2-pyridone (X) and their conjugates, expressed as fluazifop-P-acid.* Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities): *total fluazifop, defined as the sum of fluazifop-P-butyl, fluazifop-P-acid (II) and their conjugates, expressed as fluazifop-P-acid.* *The residue is fat soluble.* (dw) Dry weight [a] The information provided to the JMPR precludes an estimate that the dietary exposure would be below the ADI.						
Fluensulfone (265)	VR 0574	Beetroot	4		0.12	0.50
ADI: 0–0.01 mg/kg bw	VB 0400	Brassica (cole or cabbage) vegetables, Head cabbage, Flowerhead brassicas	1.5		0.01	0.01
ARfD: 0.3 mg/kg bw	VR 0577	Carrot	4		0.12	0.50
	VR 0578	Celeriac	4		0.12	0.50
	VS 0624	Celery	2		0.1085	0.55
	VR 0579	Chervil, Turnip-rooted	4		0.12	0.50
	VC 0424	Cucumber	0.7		0.01	0.017
	MO 0105	Edible offal (Mammalian)	0.01*		0	0
	PE 0112	Eggs	0.01*		0	0
	VC 0045	Fruiting vegetables, Cucurbits	W	0.3		
	VO 0050	Fruiting vegetables, other than Cucurbits, except sweetcorn and mushroom	0.7	0.3	0.01	0.01
	VR 0583	Horseradish	4		0.12	0.50
	VL 0481	Komatsuma	9		0.01	0.01

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VL 0053	Leafy vegetables (not specified elsewhere)	1 (R)		0.01	0.01
	VP 0060	Legume vegetables	0.1 (R)		0.01	0.01
	VL 0482	Lettuce, Head	0.8		0.01	0.018
	FB 2009	Low-growing berries	0.5		0.01	0.01
	MF 0100	Mammalian fats (except milk fats)	0.01*		0	0
	MM 0095	Meat (from mammals other than marine mammals)	0.01* (fat)		0	0
	VC 0046	Melons, except watermelon	0.3		0.01	0.01
	ML 0106	Milks	0.01*		0	
	VL 0485	Mustard greens	20		0.01	0.01
	VR 0588	Parsnip	4		0.12	0.50
	HS 0444	Peppers, chilli, dried	7	2	0.10	0.10
	VR 0589	Potato	0.8		0.01	0.01
	DV 0589	Potato, dried	2		0.01	
	PO 0111	Poultry, Edible offal of	0.01*		0	0
	PF 0111	Poultry fats	0.01		0.0005	0.0021
	PM 0110	Poultry meat	0.01*		0 0.005 (fat)	0 0.0021 (fat)
	VR 0494	Radish	4		0.12	0.50
	VR 0591	Radish Japanese	4		0.12	0.50
	VL 0494	Radish leaves	50		0.01	0.01
	VR 0075	Root and tuber vegetables (not specified elsewhere)	3 (R)		0.01	0.01
	VL 0502	Spinach	4		0.01	0.01
	VC 0431	Squash, summer	0.7		0.01	0.017
	VR 0497	Swede	4		0.12	0.50
	VR 0508	Sweet potato	0.8		0.01	0.01
	DV 0448	Tomato, dried	1.5	0.5	0.01	0.01
	VW 0448	Tomato paste	1.5	0.5	0.01	
	VR 0506	Turnip, Garden	4		0.12	0.50
	VL 0506	Turnip greens	10		0.01	0.01
	VC 0432	Watermelon	0.3		0.01	0.01

Definition of the residue (for compliance with MRLs) for plant commodities: *sum of fluensulfone and 3,4,4-trifluorobut-3-ene-1-sulfonic acid (BSA), expressed as fluensulfone equivalents.*

Definition of the residue (for dietary risk assessment) for plant commodities: *fluensulfone.*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *fluensulfone.*

Residue is fat soluble.

(R) Indicates a maximum residue level relating to rotational crops.

Flupyradifurone (285)*		Alfalfa hay	30 (dw)		14	42
ADI: 0–0.08 mg/kg bw	DF 0226	Apples, dried	2		0.44	1.2
ARfD: 0.2 mg/kg bw	VD 0071	Beans, dry	0.4		3.22	
	VP 0062	Beans, shelled (succulent = immature seeds)	0.2		1.17	2.77
	VP 0061	Beans, except broad bean and soya bean (green pods and immature seeds)	1.5		2.63	5.1
		Bean hay	30 (dw)		5.7	17

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VA 0036	Bulb vegetables, except Fennel, Bulb	0.01*		0.18	0.39
	FB 2006	Bush berries	4		0.725	2.6
	VB 0041	Cabbages, Head	1.5		0.79	1.71
	VB 0404	Cauliflower	6		0.48	3.01
	VS 0624	Celery	9[a]		2.38	7.19
	GC 0080	Cereal grains (except maize and rice)	3		1.315	
	SO 0691	Cotton seed	0.8		0.395	
	VC 0424	Cucumber	0.4			
	DF 0269	Dried grapes	8		1.6	5.8
	MO 0105	Edible offal (Mammalian)	4		Kidney 0.87 Liver 0.81	Kidney 3.40 Liver 2.75
	PE 0112	Eggs	0.7		0.15	0.42
	FB 0269	Grapes	3		0.63	2.3
	FC 0002	Lemons and limes (including citron)	1.5		0.32	0.73
	VL 0482	Lettuce, Head	4		1.3	2.4
	VL 0483	Lettuce, Leaf	15[a]		2.6	8.0
	FC 0003	Mandarins	1.5		0.44	0.99
	MF 0100	Mammalian fats (except milk fats)	1		0.15	0.86
	MM 0095	Meat (from mammals other than marine mammals)	1.5		Muscle 0.30 Fat 0.15	Muscle 1.27 Fat 0.86
	GC 0645	Maize	0.015		0.49	
		Maize bran	0.05		0.76	
	VC 0046	Melons, except watermelon	0.4		0.57	1.07
	ML 0106	Milks	0.7		0.11	0.48
	VL 0485	Mustard greens	40[a]		12	25
	FC 0004	Oranges, Sweet, Sour	4		0.505	2.2
	SO 0697	Peanut	0.04		0.225	0.35
		Peanut hay	30(dw)		11	20
	VD 0072	Peas (dry)	3		3.605	
		Pea hay	50(dw)		19.5	36
	VP 0063	Peas (pods and succulent = immature seeds)	3		2.68	5.5
	VP 0064	Peas, shelled (succulent seeds)	3		2.78	5.7
	TN 0672	Pecan	0.015		0.060	0.063
	VO 0051	Peppers	0.9		0.68	2.39
	HS 0444	Peppers Chili, dried	9		6.8	23.9
	FP 0009	Pome fruits	0.9		0.45	0.69
	VR 0589	Potato	0.05		0.291	0.57
	PF 0111	Poultry fats	0.3		0.11	0.24
	PM 0110	Poultry meat	0.8		Muscle 0.27 Fat 0.11	Muscle 0.64 Fat 0.24
	PO 0111	Poultry, Edible offal of	1		0.39	0.88
	FC 0005	Pummelo and Grapefruits	0.7		0.21	0.32
	VR 0075	Root and tuber vegetables (except potato)	0.7		0.29	1.37
	VD 0541	Soya bean (dry)	1.5		3.44	
		Soya bean hay	40(dw)		15.5	41
	VL 0502	Spinach	30[a]		8.5	19
	AS 0081	Straw and fodder, dry of cereal grains	40(dw)		9.6 (hay) 6.3 (straw and stover)	31 (hay) 23 (straw and stover)
	FB 0275	Strawberry	1.5		1.505	2.74
	VC 0431	Squash, Summer	0.2		0.655	2.19

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VO 0447	Sweet corn (corn-on-the-cob)	0.05		0.56	1.59
	VR 0508	Sweet potato	0.05		0.291	0.57
	VO 0448	Tomato	1		0.71	2.79
	CM 0654	Wheat bran, unprocessed	8		2.0	
	CF 1210	Wheat germ	5		1.64	
	CF 1212	Wheat wholemeal	5		1.64	
	JF 0226	Apple juice			0.14	0.37
		Apple sauce			0.18	0.50
		Beer			0.099	
	VD 0523	Broad bean (dry)			2.49	
	VD 0524	Chick pea (dry)			2.49	
	JF 0001	Citrus juice			0.068	0.30
	OR 0691	Cotton seed oil, edible			0.079	
	JF 0269	Grape juice			0.43	1.6
	VD 0533	Lentil (dry)			2.49	
	VD 0545	Lupin (dry)			2.49	
	CF 1255	Maize flour			0.44	
		Maize germ			0.51	
		Maize meal			0.44	
	OR 0645	Maize oil, edible			0.44	
		Maize starch			0.44	
		Orange marmalade			0.078	0.34
		Orange oil			0.068	0.30
		Pearled barley			0.16	
		Peanut butter			0.17	0.26
		Peanuts, roasted			0.17	0.26
	OR 0697	Peanut oil, edible			0.13	0.20
	VD 0537	Pigeon pea (dry)			2.49	
		Potato chips			0.36	0.71
		Potato flakes			0.45	0.88
		Potato starch			0.16	0.31
		Soya bean milk			0.72	
		Soya flour			5.3	
	OR 0541	Soya bean oil, refined			0.13	
	JF 0048	Tomato juice			0.48	1.9
	VW 0448	Tomato paste			1.3	5.3
	MW 0448	Tomato purée			1.1	4.2
	CF 1211	Wheat flour			0.59	
		Wheat gluten			0.53	
		Wheat starch			0.034	
	CP 1211	White bread			0.42	
	CP 1212	Whole meal bread			1.05	
		Wine			0.26	0.95

Definition of the residue (for compliance with MRLs) for plant commodities: *Flupyradifurone.*

Definition of the residue (for dietary risk assessment) for plant commodities: *Sum of flupyradifurone, difluoroacetic acid and 6-chloronicotinic acid, expressed as parent equivalents.*

Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *Sum of flupyradifurone and difluoroacetic acid, expressed as parent equivalents.*

The residue is not fat soluble.

[a] The information provided to the JMPR precludes an estimate that the dietary intake for celery, leaf lettuce, spinach and

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
mustard greens would be below the ARfD. (dw) Dry weight						
Imazethapyr (289)*	AL 1031	Clover hay or fodder	1.5 (dw)	-	0.80 (ar)	2.81 (ar)
ADI: 0–0.6 mg/kg bw	MO 0105	Edible offal (Mammalian)	0.01*	-	Kidney 0.001 Liver 0	-
ARfD: Unnecessary	PE 0112	Eggs	0.01*	-	0	-
	VD 0533	Lentil (dry)	0.1*	-	0.078	-
	GC 0645	Maize	0.1*		0	-
	AS 0645	Maize fodder	0.1* (dw)	-	0.04 (ar)	0.04 (ar)
	MF 0100	Mammalian fats (except milk fats)	0.01*	-	0	-
	MM 0095	Meat (from mammals other than marine mammals)	0.01 *	-	0	-
	ML 0106	Milks	0.01 *	-	0	-
	SO 0697	Peanut	0.1*		0.056	-
	PF 0111	Poultry fats	0.01*	-	0	-
	PM 0110	Poultry meat	0.01*	-	0	-
	PO 0111	Poultry, Edible offal of	0.01*	-	0	-
	SO 0495	Rape seed	0.1*		0	-
	GC 0649	Rice	0.1*	-	0.078	-
	AS 0649	Rice straw and fodder, dry	0.15* (dw)	-	0.078 (ar)	0.084 (ar)
	VD0541	Soya bean (dry)	0.03	-	0.0475	-
		Maize oil			0	
	OR 0541	Soya bean oil, refined			0.012	
Definition of the residue (for compliance with MRLs) for plant commodities and (for compliance with MRLs and dietary risk assessment) for animal commodities: *Sum of imazethapyr, 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid, expressed as imazethapyr*. Definition of the residue (for dietary risk assessment) for plant commodities: *Sum of imazethapyr, and 5-hydroxyethyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid (OH-imazethapyr), and 5-[1-(beta-D-glucopyranozyloxyethyl)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid, expressed as imazethapyr.* *The residue is not fat soluble.* (dw) Dry weight (ar) Expressed on an “as received” basis.						
Isofetamid (290)*	TN 0660	Almonds	0.01*		0.01	0.01
ADI: 0–0.05 mg/kg bw	AB 0660	Almond hulls	0.8 (dw)		0.01 (dw)	-
ARfD: 3 mg/kg bw	DF 0269	Dried grapes (= Currants, Raisins and Sultanas)	7		1.7	5.98
	MO 0105	Edible offal (Mammalian)	0.07		0.058	0.058
	PE 0112	Eggs	0.01*		0	0
	VL 0482	Lettuce, Head	5		0.29	4.7
	VL 0483	Lettuce, Leaf	7		0.115	5.2
	FB 2009	Low growing berries (includes all commodities in this subgroup)	4		0.49	3.1

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	MF 0100	Mammalian fats (except milk fats)	0.02		0.012	0.012
	MM 0095	Meat (from mammals other than marine mammals)	0.02 (fat)		0.012 fat 0.01 muscle	0.012 fat 0.01 muscle
	ML 0106	Milks	0.01*		0.003	0.003
	PO 0111	Poultry, Edible offal of	0.01*		0	0
	PF 0111	Poultry fats	0.01*		0	0
	PM 0110	Poultry meat	0.01*		0	0
	SO 0495	Rape seed	0.015		0.01	-
	OR 0495	Rape seed oil, edible	0.03		0.02	-
	FB 2008	Small fruit vine climbing (includes all commodities in this subgroup)	3		0.73	2.6
	JF 0269	Grape juice			0.095	
		Red wine			0.15	
		White wine			0.28	
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant commodities: *Isofetamid.* Definition of the residue (for compliance with MRLs and for dietary risk assessment) for animal commodities: *Sum of isofetamid and 2-[3-methyl-4-[2-methyl-2-(3-methylthiophene-2-carboxamido) propanoyl]phenoxy]propanoic acid (PPA), expressed as isofetamid.* *The residue is fat soluble.* (dw) Dry weight							
Methoprene (147) **ADI: 0–0.09 & 0.05. mg/kg body weight (0–0.09 mg/kg bw for the R,S racemate; 0–0.05 mg/kg bw for S-methoprene** **ARfD: Unnecessary**	SO 0089	Oilseed except peanut	4 Po		2.0	2.6
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Methoprene.* *The residue is fat soluble.*						
Metrafenone (278) **ADI: 0–0.3 mg/kg bw** **ARfD: Unnecessary**	FS 0013	Cherries	2		0.52	
	VC 0424	Cucumber	W	0.2		
	VO 0440	Egg plant	0.6		0.11	
	VC 0045	Fruiting vegetables, Cucurbits	0.5		0.13	
	VC 0245	Gherkin	W	0.2		
	DH 1100	Hops, dry	70		21	
	FS 2001	Peaches	0.7		0.21	
	HS 0444	Peppers Chili, dried	20	20	3.5	
	VO 0444	Peppers, Chili	2	2	0.35	
	VO 0445	Peppers, Sweet (including Pimento or pimiento)	2	2	0.35	
	FP 0009	Pome fruits	1		0.23	
	VC 0431	Squash, Summer	W	0.06		
	VO 0488	Tomato	0.6	0.4	0.11	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	JF 0226	Apple juice			0.048	
	DF 0226	Apples, dried			0.13	
		Apple sauce			1.0	
	JF 00488	Tomato juice			0.037	
	VW 0488	Tomato paste			0.042	
	MW 0448	Tomato purée			0.089	
		Tomato (canned)			0.002	
		Beer			<0.01	
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *metrafenone.* *The residue is fat soluble.*						
Oxathiapiprolin (291)*	VB 0400	Broccoli	1.5		0.22	
ADI: 0–4 mg/kg bw	VB 0041	Cabbages, Head	0.7		0.14	
ARfD: Unnecessary	VB 404	Cauliflower	0.3		0.08	
	DF 0269	Dried grapes	1.3		0.29	
	MO 0105	Edible offal (Mammalian)	0.01*		0.015	
	PE 0112	Eggs	0.01*		0	
	VC 0045	Fruiting vegetables, Cucurbits	0.2		0.03	
	VO 0050	Fruiting vegetables, other than Cucurbits (except sweetcorn and mushrooms)	0.4		0.04	
	VA 381	Garlic	0.04		0.01	
	VA 382	Garlic, Great-headed	0.04		0.01	
	DR 0604	Ginseng, dried including red ginseng	0.15		0.04	
	FB 0629	Grapes	0.9		0.21	
	VA 384	Leek	2		0.6	
	VL 482	Lettuce, Head	3		0.97	
	VL 483	Lettuce, Leaf	5		2.2	
	MM 0100	Mammalian fats (except milk fats)	0.01*		0	
	MM 0095	Meat (from mammals other than marine mammals)	0.01*		0	
	ML 0106	Milks	0.01*		0	
	VA 0385	Onion, Bulb	0.04		0.01	
	VA 0387	Onion, Welsh	2		0.6	
	VP 0063	Peas (pods and succulent = immature seeds)	1		0.38	
	VP 0064	Peas, shelled	0.05		0.09	
	HS 0444	Peppers Chili, dried	4		0.4	
	VR 0589	Potato	0.01*		0	
	PF 0111	Poultry fats	0.01*		0	
	PM 0110	Poultry meat	0.01*		0	
	PO 0111	Poultry, Edible offal of	0.01*		0	
	VD 0070	Pulses			0.12	
	VA 388	Shallots	0.04		0.01	
	VA 389	Spring onion	2		0.6	
	VL 502	Spinach	15		3.7	
	VR 0508	Sweet potato	0.01*		0	
	DV 0448	Tomato, dried	3.0		0.28	
		Tomato, canned (and peeled)			0.0016	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VW 0448	Tomato paste			0.044	
	MW 0448	Tomato purée			0.024	
	JF 0448	Tomato juice			0.006	
	JF 0269	Grape juice			0.034	
		Wine			0.029	
Definition of the residue (for compliance with the MRL) for plant and animal commodities: *oxathiapiprolin.*						
Definition of the residue (for dietary risk assessment) for plant and animal commodities: *Sum of: oxathiapiprolin, 5-(Trifluoromethyl)-1H-pyrazole-3-carboxylic acid and 1-ß-D-Glucopyranosyl-3-(-(trifluoromethyl)-1H-pyrazole-5-carboxylic acid, expressed as parent.*						
The residue is not fat soluble.						
Penconazole (182)**	FP 0226	Apple	0.1		0.1	0.4
ADI: 0–0.03 mg/kg bw	VS 0620	Artichoke, globe	0.06		0.1	0.2
ARfD: 0.8 mg/kg bw	FB 0278	Blackcurrant	2		1.5	4.4
	MM 0812	Cattle meat	W	0.05*		
	ML 0812	Cattle milk	W	0.01*		
	MO 0812	Cattle, Edible offal of	W	0.05*		
	PE 0840	Chicken eggs	W	0.05*		
	PM 0840	Chicken meat	W	0.05*		
	VC 0424	Cucumber	0.06	0.1	0.05	0.15
	DF 0269	Dried grape (= currants, raisins and sultanas)	1.5	0.5	0.57	6.1
	MO 0105	Edible offal (Mammalian)	0.05*		0.004	0.004
	VO 0440	Egg plant	0.09		0.1	0.35
	PE 0112	Eggs	0.05*		0	0
	VC 0425	Gherkin	0.06		0.05	0.15
	FB 0269	Grapes	0.4	0.2	0.15	1.6
	DH 1100	Hops, dry	W	0.5		
	MF 0100	Mammalian fats (except milk fats)	0.05*		0	0
	MM 0095	Meat (from mammals other than marine mammals)	0.05*		0	0
	VC 0046	Melons, except watermelon	0.15	0.1	0.2	0.3
	ML 0106	Milks	0.01*		0	0
	FS 0245	Nectarine	W	0.1		
	FS 0247	Peach	W	0.1		
	FS 2001	Peaches	0.08	0.1	0.14	0.34
	FP 0230	Pear	0.1		0.1	0.4
	VO 0445	Pepper, Sweet	0.2		0.14	0.6
	FP 0009	Pome fruits	W	0.2		
	PM 0110	Poultry meat	0.05*		0	0
	PO 0111	Poultry, Edible offal of	0.05*		0	0
	VC 0431	Squash, summer	0.06		0.05	0.15
	FB 0275	Strawberry	0.5	0.1	0.44	2.2
	VO 0448	Tomato	0.09	0.2	0.1	0.35
	JF 0226	Apple juice			0.025	0.1
		Apple sauce			0.017	0.068
		Blackcurrant juice			0.38	1.1
	JF 0269	Grape juice			0.038	0.4
		Strawberry Jam, sterilized			0.37	1.8
		Strawberry, canned pasteurized			0.24	1.2
		Wine			0.038	0.4

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Definition of the residue (for compliance with the MRL) for plant and animal commodities: *penconazole* Definition of the residue (for dietary risk assessment) for plant commodities: sum of penconazole and *4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated), expressed as penconazole.* Definition of the residue (for dietary risk assessment) for animal commodities: sum of *penconazole, 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentan-2-ol (free and conjugated) and 4-(2,4-dichloro-phenyl)-5-[1,2,4]triazol-1-yl-pentanoic acid , expressed as penconazole.* *The residue is fat soluble.*						
Pendimethalin (292)*	AL 1020	Alfalfa fodder	4 (dw)		0.97 (ar)	2.1 (ar)
ADI: 0–0.1 mg/kg bw	AB 0660	Almond hulls	7 (dw)		0.42 (ar)	
ARfD: 1 mg/kg bw	VS 0621	Asparagus	0.1		0.05	0.062
	AL 0061	Bean fodder	0.3 (dw)		0.05 (ar)	0.11 (ar)
	VD 0071	Beans, dry	0.05		0.05	
	VP 0061	Beans, except broad bean and soya bean (green pods and immature seeds)	0.05		0.05	0.05
	VL 0054	Brassica leafy vegetables, except kale	0.3		0.05	0.11
	VR 0577	Carrot	0.5		0.0625	0.38
	VX 0624	Celery	0.09		0.02	0.05
	FC 0001	Citrus fruits	0.03		0.005	0.019 (whole fruit)
	MO 0105	Edible offal (Mammalian)	0.05		0.026	0.05
	PE 0112	Eggs	0.01*		0	0
	VA 0380	Fennel Bulb	0.05*		0	0
	VA 0381	Garlic	0.05*		0	0
	AS 0162	Hay or fodder (dry) of grasses	2500 (dw)		492 (ar)	1030 (ar)
	DH 1100	Hops, dry	0.05		0.05	
	VL 0480	Kale	0.5		0.05	0.25
	VL 0483	Lettuce, Leaf	4		0.062	2.2
	MF 0100	Mammalian fats	0.2		0.009	0.085
	MM 0095	Meat (from mammals other than marine mammals)	0.2 (fat)		Muscle: 0.026 Fat: 0.051	Muscle: 0.05 Fat: 0.19
	FM 0183	Milk fats	0.8		0.3	
	ML 0106	Milks	0.02		0.006	
	VA 0385	Onion, Bulb	0.05*		0	0
	VA 0387	Onion, Welsh	0.4		0.095	0.12
	VD 0072	Peas (dry)	0.05		0.05	
	VP 0063	Peas (pods and succulent = immature seeds)	0.05		0.01	0.014
	VP 0064	Peas, shelled (succulent seeds)	0.05		0.01	0.036
	PF 0111	Poultry fats	0.01*		0	0
	PM 0110	Poultry meat	0.01*		0	0
	PO 0111	Poultry, Edible offal of	0.01*		0	0
	VA 0388	Shallots	0.05*		0	0
	VA 0389	Spring onion	0.4		0.095	0.12
	TN 0085	Tree nuts	0.05		0.05	0.05
		Carrots, cooked			0.0031	0.019
		Carrot, canned			0.0031	
		Carrot juice			0.024	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Pendimethalin*. *The residue is fat soluble.* dw Dry weight (ar) Expressed on an "as received" basis						
Pinoxaden (293)*	GC 0640	Barley	0.7		0.09	
ADI: 0–0.1 mg/kg bw	AS 0640	Barley straw and fodder, dry	3 (dw)		0.16 (ar)	1.44
ARfD: 0.3 mg/kg bw	PE 039	Eggs	0.02*		0.02	
	PF 037	Poultry fats	0.02*		0.02	
	PM 0110	Poultry meat	0.02*		0.02	
	PO 038	Poultry, Edible offal of	0.02*		0.02	
	GC 0654	Wheat	0.7		0.1	
	AS 0654	Wheat straw and fodder, dry	3 (dw)		0.16 (ar)	1.44
		Pearled barley			0.04	
		Barley flour			0.04	
		Barley malt (after drying)			0.11	
		Barley malt sprouts			0.04	
		Barley malt (before brewing)			0.11	
		Beer			0.01	
	CM 0654	Wheat bran (unprocessed)			0.44	
	CF 1211	Wheat flour			0.02	
	CF 1210	Wheat germ			0.04	
	CF 1212	Wholemeal flour			0.11	
	CP 1212	Wholemeal bread			0.06	
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant commodities: Sum of free and conjugated M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden. Definition of the residue (for compliance with the MRL and for dietary risk assessment) for animal commodities: M4 (SYN 505164; *8-(2,6-Diethyl-4-hydroxymethyl-phenyl)-9-hydroxy-1,2,4,5-tetrahydro-pyrazolo[1,2-d][1,4,5]oxadiazepin-7-one*), expressed as pinoxaden. *The residue is not fat soluble.* (dw) Dry weight (ar) Expressed on an "as received" basis						
Saflufenacil (251)	AL 1020	Alfalfa fodder	0.06		0.025 (ar)	0.025 (ar)
ADI: 0–0.05 mg/kg bw	GC 0640	Barley	1		0.33	
ARfD: Unnecessary	CM 0640	Barley bran (unprocessed)	3		0.96	
	AS 0640	Barley straw and fodder, dry	10		1.85 (ar)	
	MO 0105	Edible offal (Mammalian)	60	0.3	31	
	PE 0112	Eggs	0.01*		0	
	AS 0162	Hay or fodder (dry) of grasses	30		5.3 (ar)	
	MF 0100	Mammalian fats (except milk fats)	0.05	0.01	0.03	
	MM 0095	Meat (from mammals other than marine mammals)	0.01	0.01	0.01	
	ML 0106	Milks	0.01	0.01	0.01	
	SO 0697	Peanut	0.01*		0	
	FI 0355	Pomegranate	0.01*		0	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	PF 0111	Poultry fats	0.01*		0	
	PM 0110	Poultry meat	0.01*		0	
	PO 0111	Poultry, Edible offal of	0.01*		0.01	
	GS 0659	Sugar cane	0.03		0.01	0.02
	DM 0659	Sugar cane molasses	1		0.03	
	SO 0702	Sunflower seed	0.7	0.7	0.12	
	GC 0653	Triticale	0.7		0.03	
	AS 0653	Triticale straw and fodder, dry	10		1.85 (ar)	
	GC 0654	Wheat	0.7		0.03	
	AS 0654	Wheat straw and fodder, dry	10		1.85 (ar)	
		Barley, pearled			0.03	
		Barley bran			0.96	
		Barley flour			0.032	
		Barely beer			0.032	
		Barley malt			0.019	
	CF 0654	Wheat bran, processed			0.038	
	CF 1211	Wheat flour			0.0048	
	CF 1210	Wheat germ			0.033	
	CP 1212	Wholemeal bread			0.012	
		Sugar cane, white sugar			0.005	
Definition of the residue (for compliance with MRLs and for dietary risk assessment) for plant and animal commodities: *saflufenacil*. *The residue is not fat soluble.* (ar) Expressed on an "as received" basis						
Spiromesifen (294)*	VB 0040	Brassica (cole or cabbage) vegetables, Head cabbages, flowerhead Brassicas	3		0.21	1.8
ADI: 0–0.03 mg/kg bw	VL 0054	Brassica leafy vegetables	15		2.06	12.5
ARfD: Unnecessary	VR 0463	Cassava	0.02*		0.01	0.01
	SB 0716	Coffee beans	0.2		0.02	
	VP 0526	Common bean (pods and/or immature seeds)	1		0.085	
	SO 0691	Cotton seed	0.7		0.11	
	VC 0424	Cucumbers	0.15		0.05	
	MO 0105	Edible offal (Mammalian)	0.3		0.055	
	VO 0440	Eggplants	0.7		0.165	
	PE 0112	Eggs	0.02		0.01	
	VC 0045	Fruiting vegetables, Cucurbits, except melon and cucumber	0.09		0.021	
	VL 0053	Leafy vegetables	15		2.06	
	FB 2009	Low-growing berries	3		0.52	
	GC 0645	Maize	0.02*		0	
	AS 0645	Maize fodder	6		0.915 (ar)	4.1 (ar)
	MF 0100	Mammalian fats (except milk fats)	0.15		0.017	
	MM 0095	Meat (from mammals other than marine mammals)	0.15 (F)		0.01 (muscle) 0.017 (fat)	
	VC 0046	Melon, except watermelon	0.3		0.075	
	ML 0106	Milks	0.015		0.0021	
	VO 0442	Okra	0.5		0.097	
	VO 0443	Pepino	0.5		0.097	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	VO 0051	Peppers	0.5		0.097	
	HS 0444	Peppers chili, dried	5		0.55	
	GC 0656	Popcorn	0.02*		0	
	VR 0589	Potato	0.02*		0.01	0.01
	PF 0111	Poultry fats	0.02		0.01	
	PM 0110	Poultry meat	0.02		0.01	
	PO 0111	Poultry, Edible offal of	0.05		0.05	0.05
	VO 0447	Sweet corn (corn-on-the-cob)	0.02*		0	
	VR 0508	Sweet potato	0.02*		0.01	
	DT 1114	Tea, Green, Black (black, fermented and dried)	70		18.5	
	VO 0448	Tomato	0.7		0.165	
	VW 0448	Tomato paste	2		0.43	
	DV 0448	Tomato, dried	4		0.82	
		Tomato purée			0.2	
		Tea (green and black infusion)			0.63	
Definition of the residue (for compliance with the MRL) for plant and animal commodities: *sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, expressed as spiromesifen.*						
Definition of the residue (for dietary risk assessment) for plant commodities: *sum of spiromesifen, 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, and 4-hydroxy-3-[4-(hydroxymethyl)-2,6-dimethylphenyl]-1-oxaspiro[4.4]non-3-en-2-one (free and conjugated), all expressed as spiromesifen.*						
Definition of the residue (for dietary risk assessment) for animal commodities*: sum of spiromesifen and 4-hydroxy-3-(2,4,6-trimethylphenyl)-1-oxaspiro[4.4]non-3-en-2-one, expressed as spiromesifen.*						
Residue is fat soluble.						
(ar) Expressed on an "as received" basis						
Sulfoxaflor (252) **ADI: 0–0.05 mg/kg bw** **ARfD: 0.3 mg/kg bw**						
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Sulfoxaflor.*						
The residue is not fat soluble.						
Teflubenzuron (190)** **ADI: 0–0.005 mg/kg bw** **ARfD: Unnecessary**	FP 0226	Apple	0.5		0.16	
	VB 0402	Brussels sprouts	W	0.5		
	VB 0041	Cabbages, Head	W	0.1		
	VB 0404	Cauliflower	0.01*		0.01	
	SB 0716	Coffee beans	0.3		0.01	
	VC 0424	Cucumber	0.5		0.1	
	MO 0105	Edible offal (Mammalian)	0.01*		0.01	
	PE 0112	Eggs	0.01*		0.01	
	VC 0425	Gherkin	1.5		0.33	
	FB 0269	Grapes	0.7		0.096	
	FC 0002	Lemons and limes (includes all commodities in this subgroup)	0.5		0.01	
	GC 0645	Maize	0.01*		0.01	
	OR 0645	Maize oil, edible	0.015		0.015	

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
	MF 0100	Mammalian fats (except milk fats)	0.01*		0.01	
	MM 0095	Meat from mammals (other than marine mammals)	0.01*		0.01	
	VC 0046	Melons, except watermelon	0.3		0.01	
	FM 0183	Milk fats	0.01*		0.01	
	ML 0107	Milk of cattle, goats and sheep	0.01*		0.01	
		Orange oil	126		28	
	FC 0004	Oranges, Sweet and Sour (includes all commodities in this subgroup)	0.5		0.01	
	FI 0350	Papaya	0.4		0.16	
	FS 0014	Plums (including fresh prunes)	W			
	FP 0009	Pome fruits	W	0.1		
	VR 0589	Potato	W	1		
	PF 0111	Poultry fats	0.01*	0.05		
	PM 0100	Poultry meat	0.01*		0.01	
	PE 0111	Poultry, Edible offal of	0.01*		0.01	
	VD 0541	Soya bean (dry)	0.05		0.01	
	AB 0541	Soya bean hulls	0.2		0.046	
	GS 0659	Sugar cane	0.01*		0	
	SO 0702	Sunflower seed	0.3		0.01	
	VO 0448	Tomato	1.5		0.3	
	JF 0004	Orange juice			0.0044	
	JF 0226	Apple juice			0.0056	
		Apple purée			0.04	
		Grapes young wine			0.0029	
		Peeled tomatoes			0.024	
	JF 0048	Tomato juice			0.051	
	MW 0448	Tomato purée			0.14	
		Canned tomatoes			0.021	
	OR 0541	Soya bean oil, refined			0.005	
	OR 0702	Sunflower seed oil, edible			0.001	
		Maize flour			0.01	
		Maize grits			0.005	
		Maize meal			0.005	
		Maize starch			0.005	
		Sugar cane, sugar			0	
		Roasted coffee beans			0.001	
		Coffee liquor extract			0.001	
		Instant coffee			0.001	
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant and animal commodities: *Teflubenzuron.* *The residue is fat soluble.*						
Tolfenpyrad (269) **ADI: 0–0.006 mg/kg bw** **ARfD: 0.01 mg/kg bw**	TN 0672	Pecan	0.01*		0.01	0.01
	VR 0589	Potato	0.01*		0	0
Definition of the residue (for compliance with the MRL and for dietary risk assessment) for plant commodities: *Tolfenpyrad.* Definition of the residue (for compliance with the MRL and dietary risk assessment) for animal commodities: *sum of*						

Pesticide (Codex reference number)	CCN	Commodity	Recommended Maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
			New	Previous		
tolfenpyrad and free and conjugated PT-CA (4-[4-[(4-chloro-3-ethyl-1- methylpyrazol-5-yl)carbonylaminomethyl] phenoxy]benzoic acid and OH-PT-CA (4-[4-[[4-chloro-3-(1-hydroxyethyl)-1-methylpyrazol-5-yl]carbonylaminomethyl]phenoxy] benzoic acid) (released with alkaline hydrolysis) expressed as tolfenpyrad. *The residue is not fat soluble.*						

ANNEX 2: INDEX OF REPORTS AND EVALUATIONS OF PESTICIDES BY THE JMPR

Numbers in parentheses after the names of pesticides are Codex classification numbers. The abbreviations used are:

T, evaluation of toxicology

R, evaluation of residue and analytical aspects

E, evaluation of effects on the environment

Abamectin (177)	1992 (T,R), 1994 (T,R), 1995 (T), 1997 (T,R), 2000 (R), 2015 (R)
Acephate (095)	1976 (T,R), 1979 (R), 1981 (R), 1982 (T), 1984 (T,R), 1987 (T), 1988 (T), 1990 (T,R), 1991 (corr. to 1990 R evaluation), 1994 (R), 1996 (R), 2002 (T), 2003 (R), 2004 (corr. to 2003 report), 2005 (T), 2006 (R), 2011 (R)
Acetamiprid (246)	2011 (T,R), 2012 (R), 2015 (R)
Acetochlor (280)	2015 (T,R)
Acibenzolar-*S*-methyl (288)	2016 (T,R)
Acrylonitrile	1965 (T,R)
Aldicarb (117)	1979 (T,R), 1982 (T,R), 1985 (R), 1988 (R), 1990 (R), 1991 (corr. to 1990 evaluation), 1992 (T), 1993 (R), 1994 (R), 1996 (R), 2001 (R), 2002 (R), 2006 (R)
Aldrin (001)	1965 (T), 1966 (T,R), 1967 (R), 1974 (R), 1975 (R), 1977 (T), 1990 (R), 1992 (R)
Allethrin	1965 (T,R)
Ametoctradin (253)	2012 (T,R)
Aminocarb (134)	1978 (T,R), 1979 (T,R)
Aminocyclopyrachlor (272)	2014 (T,R)
Aminomethylphosphonic acid (AMPA, 198)	1997 (T,R)
Aminopyralid (220)	2006 (T,R), 2007 (T,R)
Amitraz (122)	1980 (T,R), 1983 (R), 1984 (T,R), 1985 (R), 1986 (R), 1989 (R), 1990 (T,R), 1991 (R & corr. to 1990 R evaluation), 1998 (T)
Amitrole (079)	1974 (T,R), 1977 (T), 1993 (T,R), 1997 (T), 1998 (R)
Anilazine (163)	1989 (T,R), 1992 (R)
Atrazine	2007 (T)
Azinphos-ethyl (068)	1973 (T,R), 1983 (R)

Azinphos-methyl (002)	1965 (T), 1968 (T,R), 1972 (R), 1973 (T), 1974 (R), 1991 (T,R), 1992 (corr. to 1991 report), 1993 (R), 1995 (R), 2007 (T)
Azocyclotin (129)	1979 (R), 1981 (T), 1982 (R), 1983 (R), 1985 (R), 1989 (T,R), 1991 (R), 1994 (T), 2005 (T,R)
Azoxystrobin (229)	2008 (T,R), 2011 (R), 2012 (R), 2013 (R)
Benalaxyl (155)	1986 (R), 1987 (T), 1988 (R), 1992 (R), 1993 (R), 2005 (T), 2009 (R)
Bendiocarb (137)	1982 (T,R), 1984 (T,R), 1989 (R), 1990 (R)
Benomyl (069)	1973 (T,R), 1975 (T,R), 1978 (T,R), 1983 (T,R), 1988 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (R)
Bentazone (172)	1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1995 (R), 1998 (T,R), 1999 (corr. to 1998 report), 2004 (T), 2012 (T), 2013 (R), 2016 (T)
Benzovindiflupyr (261)	2013 (T), 2014 (R), 2016 (R)
BHC (technical-grade)	1965 (T), 1968 (T,R), 1973 (T,R) (see also Lindane)
Bifenazate (219)	2006 (T,R), 2008 (R), 2010 (R)
Bifenthrin (178)	1992 (T,R), 1995 (R), 1996 (R), 1997 (R), 2009 (T), 2010 (R), 2015 (R)
Binapacryl (003)	1969 (T,R), 1974 (R), 1982 (T), 1984 (R), 1985 (T,R)
Bioresmethrin (093)	1975 (R), 1976 (T,R), 1991 (T,R)
Biphenyl	See Diphenyl
Bitertanol (144)	1983 (T), 1984 (R), 1986 (R), 1987 (T), 1988 (R), 1989 (R), 1991 (R), 1998 (T), 1999 (R), 2002 (R)
Bixafen (262)	2013 (T,R), 2016 (R)
Boscalid (221)	2006 (T,R), 2008 (R), 2010 (R)
Bromide ion (047)	1968 (R), 1969 (T,R), 1971 (R), 1979 (R), 1981 (R), 1983 (R), 1988 (T,R), 1989 (R), 1992 (R)
Bromomethane (052)	1965 (T,R), 1966 (T,R), 1967 (R), 1968 (T,R), 1971 (R), 1979 (R), 1985 (R), 1992 (R)
Bromophos (004)	1972 (T,R), 1975 (R), 1977 (T,R), 1982 (R), 1984 (R), 1985 (R)
Bromophos-ethyl (005)	1972 (T,R), 1975 (T,R), 1977 (R)
Bromopropylate (070)	1973 (T,R), 1993 (T,R)
Butocarboxim (139)	1983 (R), 1984 (T), 1985 (T), 1986 (R)
Buprofezin (173)	1991 (T,R), 1995 (R), 1996 (corr. to 1995 report.), 1999 (R), 2008 (T,R), 2009 (R), 2012 (R), 2014 (R), 2016 (R)
sec-Butylamine (089)	1975 (T,R), 1977 (R), 1978 (T,R), 1979 (R), 1980 (R), 1981 (T), 1984 (T,R: withdrawal of temporary ADI, but no evaluation)

Cadusafos (174)	1991 (T,R), 1992 (R), 1992 (R), 2009 (R), 2010 (R)
Campheclor (071)	1968 (T,R), 1973 (T,R)
Captafol (006)	1969 (T,R), 1973 (T,R), 1974 (R), 1976 (R), 1977 (T,R), 1982 (T), 1985 (T,R), 1986 (corr. to 1985 report), 1990 (R), 1999 (ARfD)
Captan (007)	1965 (T), 1969 (T,R), 1973 (T), 1974 (R), 1977 (T,R), 1978 (T,R), 1980 (R), 1982 (T), 1984 (T,R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1990 (T,R), 1991 (corr. to 1990 R evaluation), 1994 (R), 1995 (T), 1997 (R), 2000 (R), 2004 (T), 2007 (T)
Carbaryl (008)	1965 (T), 1966 (T,R), 1967 (T,R), 1968 (R), 1969 (T,R), 1970 (R), 1973 (T,R), 1975 (R), 1976 (R), 1977 (R), 1979 (R), 1984 (R), 1996 (T), 2001 (T), 2002 (R), 2007 (R)
Carbendazim (072)	1973 (T,R), 1976 (R), 1977 (T), 1978 (R), 1983 (T,R), 1985 (T,R), 1987 (R), 1988 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (T,R), 2003 (R), 2005 (T), 2012 (R)
Carbofuran (096)	1976 (T,R), 1979 (T,R), 1980 (T), 1982 (T), 1991 (R), 1993 (R), 1996 (T), 1997 (R), 1999 (corr. to 1997 report), 2002 (T,R), 2003 (R) (See also carbosulfan), 2004 (R), 2008 (T), 2009 (R)
Carbon disulfide (009)	1965 (T,R), 1967 (R), 1968 (R), 1971 (R), 1985 (R)
Carbon tetrachloride (010)	1965 (T,R), 1967 (R), 1968 (T,R), 1971 (R), 1979 (R), 1985 (R)
Carbophenothion (011)	1972 (T,R), 1976 (T,R), 1977 (T,R), 1979 (T,R), 1980 (T,R), 1983 (R)
Carbosulfan (145)	1984 (T,R), 1986 (T), 1991 (R), 1992 (corr. to 1991 report), 1993 (R), 1997 (R), 1999 (R), 2002 (R), 2003 (T,R), 2004 (R, corr. to 2003 report)
Cartap (097)	1976 (T,R), 1978 (T,R), 1995 (T,R)
Chinomethionat (080)	1968 (T,R) (as oxythioquinox), 1974 (T,R), 1977 (T,R), 1981 (T,R), 1983 (R), 1984 (T,R), 1987 (T)
Chlorantraniliprole (230)	2008 (T,R), 2010 (R), 2013 (R), 2014 (R), 2016 (R)
Chlorbenside	1965 (T)
Chlordane (012)	1965 (T), 1967 (T,R), 1969 (R), 1970 (T,R), 1972 (R), 1974 (R), 1977 (T,R), 1982 (T), 1984 (T,R), 1986 (T)
Chlordimeform (013)	1971 (T,R), 1975 (T,R), 1977 (T), 1978 (T,R), 1979 (T), 1980 (T), 1985 (T), 1986 (R), 1987 (T)
Chlorfenapyr (254)	2013 (T)
Chlorfenson	1965 (T)
Chlorfenvinphos (014)	1971 (T,R), 1984 (R), 1994 (T), 1996 (R)

Chlormequat (015)	1970 (T,R), 1972 (T,R), 1976 (R), 1985 (R), 1994 (T,R), 1997 (T), 1999 (ARfD), 2000 (R)
Chlorobenzilate (016)	1965 (T), 1968 (T,R), 1972 (R), 1975 (R), 1977 (R), 1980 (T)
Chloropicrin	1965 (T,R)
Chloropropylate	1968 (T,R), 1972 (R)
Chlorothalonil (081)	1974 (T,R), 1977 (T,R), 1978 (R), 1979 (T,R), 1981 (T,R), 1983 (T,R), 1984 (corr. to 1983 report and T evaluation), 1985 (T,R), 1987 (T), 1988 (R), 1990 (T,R), 1991 (corr. to 1990 evaluation), 1992 (T), 1993 (R), 1997 (R), 2009 (T), 2010 (R), 2012 (R), 2015 (R)
Chlorpropham (201)	1965 (T), 2000 (T), 2001 (R), 2005 (T), 2008 (R)
Chlorpyrifos (017)	1972 (T,R), 1974 (R), 1975 (R), 1977 (T,R), 1981 (R), 1982 (T,R), 1983 (R), 1989 (R), 1995 (R), 1999 (T), 2000 (R), 2004 (R), 2006 (R)
Chlorpyrifos-methyl (090)	1975 (T,R), 1976 (R, Annex I only), 1979 (R), 1990 (R), 1991 (T,R), 1992 (T and corr. to 1991 report), 1993 (R), 1994 (R), 2001 (T), 2009 (R)
Chlorthion	1965 (T)
Clethodim (187)	1994 (T,R), 1997 (R), 1999 (R), 2002 (R)
Clofentezine (156)	1986 (T,R), 1987 (R), 1989 (R), 1990 (R), 1992 (R), 2005 (T), 2007 (R)
Clothianidin (238)	2010 (T,R), 2011 (R), 2014 (R)
Coumaphos (018)	1968 (T,R), 1972 (R), 1975 (R), 1978 (R), 1980 (T,R), 1983 (R), 1987 (T), 1990 (T,R)
Crufomate (019)	1968 (T,R), 1972 (R)
Cyanophenfos (091)	1975 (T,R), 1978 (T: ADI extended, but no evaluation), 1980 (T), 1982 (R), 1983 (T)
Cyantraniliprole (263)	2013 (T,R), 2015 (R)
Cyazofamid (281)	2015 (T, R)
Cycloxydim (179)	1992 (T,R), 1993 (R), 2009 (T), 2012 (R)
Cyflumetofen (273)	2014 (T,R)
Cyfluthrin (157)	1986 (R), 1987 (T and corr. to 1986 report), 1989 (R), 1990 (R), 1992 (R), 2006 (T), 2007 (R)
Cyhalothrin (146)	1984 (T,R), 1986 (R), 1988 (R), 2007 (T), 2008 (R), 2015 (R)
Cyhexatin (067)	1970 (T,R), 1973 (T,R), 1974 (R), 1975 (R), 1977 (T), 1978 (T,R), 1980 (T), 1981 (T), 1982 (R), 1983 (R), 1985 (R), 1988 (T), 1989 (T), 1991 (T,R), 1992 (R), 1994 (T), 2005 (T,R)
Cypermethrin (118)	1979 (T,R), 1981 (T,R), 1982 (R), 1983 (R), 1984 (R), 1985 (R), 1986 (R), 1987 (corr. to 1986

	evaluation), 1988 (R), 1990 (R), 2006 (T), 2008 (R), 2009 (R), 2011 (R)
Cyproconazole (239)	2010 (T,R), 2013 (R)
Cyprodinil (207)	2003 (T,R), 2004 (corr. to 2003 report), 2013 (R), 2015 (R)
Cyromazine (169)	1990 (T,R), 1991 (corr. to 1990 R evaluation), 1992 (R), 2006 (T), 2007 (R), 2012 (R)
2,4-D (020)	1970 (T,R), 1971 (T,R), 1974 (T,R), 1975 (T,R), 1980 (R), 1985 (R), 1986 (R), 1987 (corr. to 1986 report, Annex I), 1996 (T), 1997 (E), 1998 (R), 2001 (R)
Daminozide (104)	1977 (T,R), 1983 (T), 1989 (T,R), 1991 (T)
DDT (021)	1965 (T), 1966 (T,R), 1967 (T,R), 1968 (T,R), 1969 (T,R), 1978 (R), 1979 (T), 1980 (T), 1983 (T), 1984 (T), 1993 (R), 1994 (R), 1996 (R)
Deltamethrin (135)	1980 (T,R), 1981 (T,R), 1982 (T,R), 1984 (R), 1985 (R), 1986 (R), 1987 (R), 1988 (R), 1990 (R), 1992 (R), 2000 (T), 2002 (R), 2016 (R)
Demeton (092)	1965 (T), 1967 (R), 1975 (R), 1982 (T)
Demeton-S-methyl (073)	1973 (T,R), 1979 (R), 1982 (T), 1984 (T,R), 1989 (T,R), 1992 (R), 1998 (R)
Demeton-S-methylsulfon (164)	1973 (T,R), 1982 (T), 1984 (T,R), 1989 (T,R), 1992 (R)
Dialifos (098)	1976 (T,R), 1982 (T), 1985 (R)
Diazinon (022)	1965 (T), 1966 (T), 1967 (R), 1968 (T,R), 1970 (T,R), 1975 (R), 1979 (R), 1993 (T,R), 1994 (R), 1996 (R), 1999 (R), 2001 (T), 2006 (T,R), 2016 (T)
1,2-Dibromoethane (023)	1965 (T,R), 1966 (T,R), 1967 (R), 1968 (R), 1971 (R), 1979 (R), 1985 (R)
Dicamba (240)	2010 (T,R), 2011 (R), 2012 (R), 2013 (R)
Dichlobenil (274)	2014 (T,R)
Dicloran (083)	2003 (R)
Dichlorfluanid (082)	1969 (T,R), 1974 (T,R), 1977 (T,R), 1979 (T,R), 1981 (R), 1982 (R), 1983 (T,R), 1985 (R)
1,2-Dichloroethane (024)	1965 (T,R), 1967 (R), 1971 (R), 1979 (R), 1985 (R)
Dichlorvos (025)	1965 (T,R), 1966 (T,R), 1967 (T,R), 1969 (R), 1970 (T,R), 1974 (R), 1977 (T), 1993 (T,R), 2011 (T), 2012 (R)
Dicloran (083)	1974 (T,R), 1977 (T,R), 1998 (T,R)
Dicofol (026)	1968 (T,R), 1970 (R), 1974 (R), 1992 (T,R), 1994 (R), 2011 (T), 2012 (R)

Dieldrin (001)	1965 (T), 1966 (T,R), 1967 (T,R), 1968 (R), 1969 (R), 1970 (T,R), 1974 (R), 1975 (R), 1977 (T), 1990 (R), 1992 (R)
Difenoconazole (224)	2007 (T,R), 2010 (R), 2013 (R), 2015 (R)
Diflubenzuron (130)	1981 (T,R), 1983 (R), 1984 (T,R), 1985 (T,R), 1988 (R), 2001 (T), 2002 (R), 2011 (R)
Dimethenamid-P (214)	2005 (T,R)
Dimethipin (151)	1985 (T,R), 1987 (T,R), 1988 (T,R), 1999 (T), 2001 (R), 2004 (T)
Dimethoate (027)	1965 (T), 1966 (T), 1967 (T,R), 1970 (R), 1973 (R in evaluation of formothion), 1977 (R), 1978 (R), 1983 (R) 1984 (T,R), 1986 (R), 1987 (T,R), 1988 (R), 1990 (R), 1991 (corr. to 1990 evaluation), 1994 (R), 1996 (T), 1998 (R), 2003 (T,R), 2004 (corr. to 2003 report), 2006 (R), 2008 (R)
Dimethomorph (225)	2007 (T,R), 2014 (R), 2016 (R)
Dimethrin	1965 (T)
Dinocap (087)	1969 (T,R), 1974 (T,R), 1989 (T,R), 1992 (R), 1998 (R), 1999 (R), 2000 (T), 2001 (R)
Dinotefuran (255)	2012 (T,R)
Dioxathion (028)	1968 (T,R), 1972 (R)
Diphenyl (029)	1966 (T,R), 1967 (T)
Diphenylamine (030)	1969 (T,R), 1976 (T,R), 1979 (R), 1982 (T), 1984 (T,R), 1998 (T), 2001 (R), 2003 (R), 2008 (R)
Diquat (031)	1970 (T,R), 1972 (T,R), 1976 (R), 1977 (T,R), 1978 (R), 1994 (R), 2013 (T,R)
Disulfoton (074)	1973 (T,R), 1975 (T,R), 1979 (R), 1981 (R), 1984 (R), 1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1996 (T), 1998 (R), 2006 (R)
Dithianon (180)	1992 (T,R), 1995 (R), 1996 (corr. to 1995 report), 2010 (T), 2013 (T,R)
Dithiocarbamates (105)	1965 (T), 1967 (T,R), 1970 (T,R), 1983 (R propineb, thiram), 1984 (R propineb), 1985 (R), 1987 (T thiram), 1988 (R thiram), 1990 (R), 1991 (corr. to 1990 evaluation), 1992 (T thiram), 1993 (T,R), 1995 (R), 1996 (T,R ferbam, ziram; R thiram), 2004 (R), 2012 (R), 2014 (R)
4,6-Dinitro-*ortho*-cresol (DNOC)	1965 (T)
Dodine (084)	1974 (T,R), 1976 (T,R), 1977 (R), 2000 (T), 2003 (R), 2004 (corr. to 2003 report)
Edifenphos (099)	1976 (T,R), 1979 (T,R), 1981 (T,R)
Emamectin benzoate (247)	2011 (T,R), 2014 (R)

Endosulfan (032)	1965 (T), 1967 (T,R), 1968 (T,R), 1971 (R), 1974 (R), 1975 (R), 1982 (T), 1985 (T,R), 1989 (T,R), 1993 (R), 1998 (T), 2006 (R), 2010 (R)
Endrin (033)	1965 (T), 1970 (T,R), 1974 (R), 1975 (R), 1990 (R), 1992 (R)
Esfenvalerate (204)	2002 (T,R)
Ethephon (106)	1977 (T,R), 1978 (T,R), 1983 (R), 1985 (R), 1993 (T), 1994 (R), 1995 (T), 1997 (T), 2002 (T), 2015 (T, R)
Ethiofencarb (107)	1977 (T,R), 1978 (R), 1981 (R), 1982 (T,R), 1983 (R)
Ethion (034)	1968 (T,R), 1969 (R), 1970 (R), 1972 (T,R), 1975 (R), 1982 (T), 1983 (R), 1985 (T), 1986 (T), 1989 (T), 1990 (T), 1994 (R)
Ethoprophos (149)	1983 (T), 1984 (R), 1987 (T), 1999 (T), 2004 (R)
Ethoxyquin (035)	1969 (T,R), 1998 (T), 1999 (R), 2005 (T), 2008 (R)
Ethylene dibromide	See 1,2-Dibromoethane
Ethylene dichloride	See 1,2-Dichloroethane
Ethylene oxide	1965 (T,R), 1968 (T,R), 1971 (R)
Ethylenethiourea (ETU) (108)	1974 (R), 1977 (T,R), 1986 (T,R), 1987 (R), 1988 (T,R), 1990 (R), 1993 (T,R)
Etofenprox (184)	1993 (T,R), 2011 (T,R)
Etoxazole (241)	2010 (T,R), 2011 (R)
Etrimfos (123)	1980 (T,R), 1982 (T,R), 1986 (T,R), 1987 (R), 1988 (R), 1989 (R), 1990 (R)
Famoxadone (208)	2003 (T,R)
Fenamidone (264)	2013 (T), 2014 (T,R)
Fenamiphos (085)	1974 (T,R), 1977 (R), 1978 (R), 1980 (R), 1985 (T), 1987 (T), 1997 (T), 1999 (R), 2002 (T), 2006 (R)
Fenarimol (192)	1995 (T,R,E), 1996 (R and corr. to 1995 report)
Fenbuconazole (197)	1997 (T,R), 2009 (R), 2012 (T), 2013 (R)
Fenbutatin oxide (109)	1977 (T,R), 1979 (R), 1992 (T), 1993 (R)
Fenchlorfos (036)	1968 (T,R), 1972 (R), 1983 (R)
Fenhexamid (215)	2005 (T,R)
Fenitrothion (037)	1969 (T,R), 1974 (T,R), 1976 (R), 1977 (T,R), 1979 (R), 1982 (T), 1983 (R), 1984 (T,R), 1986 (T,R), 1987 (R and corr. to 1986 R evaluation), 1988 (T), 1989 (R), 2000 (T), 2003 (R), 2004 (R, corr. to 2003 report), 2007 (T,R)
Fenpropathrin (185)	1993 (T,R), 2006 (R), 2012 (T), 2014 (R)
Fenpropimorph (188)	1994 (T), 1995 (R), 1999 (R), 2001 (T), 2004 (T), 2016 (T)

Fenpyroximate (193)	1995 (T,R), 1996 (corr. to 1995 report), 1999 (R), 2004 (T), 2007 (T), 2010 (R), 2013 (R)
Fensulfothion (038)	1972 (T,R), 1982 (T), 1983 (R)
Fenthion (039)	1971 (T,R), 1975 (T,R), 1977 (R), 1978 (T,R), 1979 (T), 1980 (T), 1983 (R), 1989 (R), 1995 (T,R,E), 1996 (corr. to 1995 report), 1997 (T), 2000 (R)
Fentin compounds (040)	1965 (T), 1970 (T,R), 1972 (R), 1986 (R), 1991 (T,R), 1993 (R), 1994 (R)
Fenvalerate (119)	1979 (T,R), 1981 (T,R), 1982 (T), 1984 (T,R), 1985 (R), 1986 (T,R), 1987 (R and corr. to 1986 report), 1988 (R), 1990 (R), 1991 (corr. to 1990 R evaluation), 2012 (T,R)
Ferbam	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1996 (T,R)
Fipronil (202)	1997 (T), 2000 (T), 2001 (R), 2016 (R)
Fipronil-desulfinyl	1997 (T)
Flonicamid (282)	2015 (T,R), 2016 (R)
Fluazifop-P-butyl	2016 (T,R)
Flubendiamide (242)	2010 (T,R)
Flucythrinate (152)	1985 (T,R), 1987 (R), 1988 (R), 1989 (R), 1990 (R), 1993 (R)
Fludioxonil (211)	2004 (T,R), 2006 (R), 2010 (R), 2012 (R), 2013 (R)
Fluensulfone (265)	2013 (T), 2014 (T,R), 2016 (T,R)
Flufenoxuron (275)	2014 (T,R)
Flumethrin (195)	1996 (T,R)
Fluopicolide (235)	2009 (T,R), 2014 (R)
Fluopyram (243)	2010 (T,R), 2012 (R), 2014 (R), 2015 (R)
Flupyradifurone (285)	2015 (T), 2016 (R)
Flusilazole (165)	1989 (T,R), 1990 (R), 1991 (R), 1993 (R), 1995 (T), 2007 (T,R)
Flutolanil (205)	2002 (T,R), 2013 (R)
Flutriafol (248)	2011 (T,R), 2015 (R)
Fluxapyroxad (256)	2012 (T,R), 2015 (R)
Folpet (041)	1969 (T,R), 1973 (T), 1974 (R), 1982 (T), 1984 (T,R), 1986 (T), 1987 (R), 1990 (T,R), 1991 (corr. to 1990 R evaluation), 1993 (T,R), 1994 (R), 1995 (T), 1997 (R), 1998 (R), 1999 (R) , 2002 (T), 2004 (T), 2007 (T)
Formothion (042)	1969 (T,R), 1972 (R), 1973 (T,R), 1978 (R), 1998 (R)

Glufosinate-ammonium (175)	1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1994 (R), 1998 (R), 1999 (T,R), 2012 (T,R), 2014 (R)
Glyphosate (158)	1986 (T,R), 1987 (R and corr. to 1986 report), 1988 (R), 1994 (R), 1997 (T,R), 2004 (T), 2005 (R), 2011 (T,R), 2013 (R), 2016 (T)
Guazatine (114)	1978 (T,R), 1980 (R), 1997 (T,R)
Haloxyfop (194)	1995 (T,R), 1996 (R and corr. to 1995 report), 2001 (R), 2006 (T), 2009 (R)
Heptachlor (043)	1965 (T), 1966 (T,R), 1967 (R), 1968 (R), 1969 (R), 1970 (T,R), 1974 (R), 1975 (R), 1977 (R), 1987 (R), 1991 (T,R), 1992 (corr. to 1991 report, Annex I), 1993 (R), 1994 (R)
Hexachlorobenzene (044)	1969 (T,R), 1973 (T,R), 1974 (T,R), 1978 (T), 1985 (R)
Hexaconazole (170)	1990 (T,R), 1991 (R and corr. to 1990 R evaluation), 1993 (R)
Hexythiazox (176)	1991 (T,R), 1994 (R), 1998 (R), 2008 (T), 2009 (R)
Hydrogen cyanide (045)	1965 (T,R)
Hydrogen phosphide (046)	1965 (T,R), 1966 (T,R), 1967 (R), 1969 (R), 1971 (R)
Imazalil (110)	1977 (T,R), 1980 (T,R), 1984 (T,R), 1985 (T,R), 1986 (T), 1988 (R), 1989 (R), 1991 (T), 1994 (R), 2000 (T), 2001 (T), 2005 (T)
Imazamox (276)	2014 (T,R)
Imazapic (266)	2013 (T,R), 2015 (R)
Imazapyr (267)	2013 (T,R), 2015 (R)
Imazethapyr (289)	2016 (T,R)
Imidacloprid (206)	2001 (T), 2002 (R), 2006 (R), 2008 (R), 2012 (R), 2015 (R)
Indoxacarb (216)	2005 (T,R), 2007 (R), 2009 (R), 2012 (R), 2013 (R)
Iprodione (111)	1977 (T,R), 1980 (R), 1992 (T), 1994 (R), 1995 (T), 2001 (R)
Isofenphos (131)	1981 (T,R), 1982 (T,R), 1984 (R), 1985 (R), 1986 (T,R), 1988 (R), 1992 (R)
Isofetamid (290)	2016 (T,R)
Isopyrazam (249)	2011 (T,R)
Isoxaflutole (268)	2013 (T,R)
Kresoxim-methyl (199)	1998 (T,R), 2001 (R)
Lead arsenate	1965 (T), 1968 (T,R)
Leptophos (088)	1974 (T,R), 1975 (T,R), 1978 (T,R)

Lindane (048)	1965 (T), 1966 (T,R), 1967 (R), 1968 (R), 1969 (R), 1970 (T,R, published as Annex VI to 1971 evaluations), 1973 (T,R), 1974 (R), 1975 (R), 1977 (T,R), 1978 (R), 1979 (R), 1989 (T,R), 1997 (T), 2002 (T), 2003 (R), 2004 (corr. to 2003 report), 2015 (R)
Lufenuron (286)	2015 (T, R)
Malathion (049)	1965 (T), 1966 (T,R), 1967 (corr. to 1966 R evaluation), 1968 (R), 1969 (R), 1970 (R), 1973 (R), 1975 (R), 1977 (R), 1984 (R), 1997 (T), 1999 (R), 2000 (R), 2003 (T), 2004 (R), 2005 (R), 2008 (R), 2013 (R), 2016 (T)
Maleic hydrazide (102)	1976 (T,R), 1977 (T,R), 1980 (T), 1984 (T,R), 1996 (T), 1998 (R)
Mancozeb (050)	1967 (T,R), 1970 (T,R), 1974 (R), 1977 (R), 1980 (T,R), 1993 (T,R)
Mandipropamid (231)	2008 (T,R), 2013 (R)
Maneb	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1987 (T), 1993 (T,R)
MCPA (257)	2012 (T,R)
Mecarbam (124)	1980 (T,R), 1983 (T,R), 1985 (T,R), 1986 (T,R), 1987 (R)
Meptyldinocap (244)	2010 (T,R)
Mesotrione (277)	2014 (T,R)
Metaflumizone (236)	2009 (T,R)
Metalaxyl (138)	1982 (T,R), 1984 (R), 1985 (R), 1986 (R), 1987 (R), 1989 (R), 1990 (R), 1992 (R), 1995 (R)
Metalaxyl –M (212)	2002 (T), 2004 (R)
Methacrifos (125)	1980 (T,R), 1982 (T), 1986 (T), 1988 (T), 1990 (T,R), 1992 (R)
Methamidophos (100)	1976 (T,R), 1979 (R), 1981 (R), 1982 (T,R), 1984 (R), 1985 (T), 1989 (R), 1990 (T,R), 1994 (R), 1996 (R), 1997 (R), 2002 (T), 2003 (R), 2004 (R, corr. to 2003 report)
Methidathion (051)	1972 (T,R), 1975 (T,R), 1979 (R), 1992 (T,R), 1994 (R), 1997 (T)
Methiocarb (132)	1981 (T,R), 1983 (T,R), 1984 (T), 1985 (T), 1986 (R), 1987 (T,R), 1988 (R), 1998 (T), 1999 (R), 2005 (R)
Methomyl (094)	1975 (R), 1976 (R), 1977 (R), 1978 (R), 1986 (T,R), 1987 (R), 1988 (R), 1989 (T,R), 1990 (R), 1991 (R), 2001 (T,R), 2004 (R), 2008 (R)
Methoprene (147)	1984 (T,R), 1986 (R), 1987 (T and corr. to 1986 report), 1988 (R), 1989 (R), 2001 (T), 2005 (R), 2016 (R)

Methoxychlor	1965 (T), 1977 (T)
Methoxyfenozide (209)	2003 (T,R), 2004 (corr. to 2003 report), 2006 (R), 2009 (R), 2012 (R)
Methyl bromide (052)	See Bromomethane
Metrafenone (278)	2014 (T,R), 2016 (R)
Metiram (186)	1993 (T), 1995 (R)
Mevinphos (053)	1965 (T), 1972 (T,R), 1996 (T), 1997 (E,R), 2000 (R)
MGK 264	1967 (T,R)
Monocrotophos (054)	1972 (T,R), 1975 (T,R), 1991 (T,R), 1993 (T), 1994 (R)
Myclobutanil (181)	1992 (T,R), 1997 (R), 1998 (R), (2001 (R)), 2014 (T,R)
Nabam	See Dithiocarbamates, 1965 (T), 1976 (T,R)
Nitrofen (140)	1983 (T,R)
Novaluron (217)	2005 (T,R), 2010 (R)
Omethoate (055)	1971 (T,R), 1975 (T,R), 1978 (T,R), 1979 (T), 1981 (T,R), 1984 (R), 1985 (T), 1986 (R), 1987 (R), 1988 (R), 1990 (R), 1998 (R)
Organomercury compounds	1965 (T), 1966 (T,R), 1967 (T,R)
Oxamyl (126)	1980 (T,R), 1983 (R), 1984 (T), 1985 (T,R), 1986 (R), 2002 (T,R)
Oxathiapiprolin (291)	2016 (T,R)
Oxydemeton-methyl (166)	1965 (T, as demeton-*S*-methyl sulfoxide), 1967 (T), 1968 (R), 1973 (T,R), 1982 (T), 1984 (T,R), 1989 (T,R), 1992 (R), 1998 (R), 1999 (corr. to 1992 report), 2002 (T), 2004 (R)
Oxythioquinox	See Chinomethionat
Paclobutrazol (161)	1988 (T,R), 1989 (R)
Paraquat (057)	1970 (T,R), 1972 (T,R), 1976 (T,R), 1978 (R), 1981 (R), 1982 (T), 1985 (T), 1986 (T), 2003 (T), 2004 (R), 2009 (R)
Parathion (058)	1965 (T), 1967 (T,R), 1969 (R), 1970 (R), 1984 (R), 1991 (R), 1995 (T,R), 1997 (R), 2000 (R)
Parathion-methyl (059)	1965 (T), 1968 (T,R), 1972 (R), 1975 (T,R), 1978 (T,R), 1979 (T), 1980 (T), 1982 (T), 1984 (T,R), 1991 (R), 1992 (R), 1994 (R), 1995 (T), 2000 (R), 2003 (R)
Penconazole (182)	1992 (T,R), 1995 (R), 2015 (T), 2016 (R)
Pendimethalin (292)	2016 (T,R)
Penthiopyrad (253)	2011 (T), 2012 (R), 2013 (R)
Permethrin (120)	1979 (T,R), 1980 (R), 1981 (T,R), 1982 (R), 1983 (R), 1984 (R), 1985 (R), 1986 (T,R), 1987 (T),

	1988 (R), 1989 (R), 1991 (R), 1992 (corr. to 1991 report), 1999 (T)
2-Phenylphenol (056)	1969 (T,R), 1975 (R), 1983 (T), 1985 (T,R), 1989 (T), 1990 (T,R), 1999 (T,R), 2002 (R)
Phenothrin (127)	1979 (R), 1980 (T,R), 1982 (T), 1984 (T), 1987 (R), 1988 (T,R)
Phenthoate (128)	1980 (T,R), 1981 (R), 1984 (T)
Phorate (112)	1977 (T,R), 1982 (T), 1983 (T), 1984 (R), 1985 (T), 1990 (R), 1991 (R), 1992 (R), 1993 (T), 1994 (T), 1996 (T), 2004 (T), 2005 (R), 2012 (R), 2014 (R)
Phosalone (060)	1972 (T,R), 1975 (R), 1976 (R), 1993 (T), 1994 (R), 1997 (T), 1999 (R), 2001 (T)
Phosmet (103)	1976 (R), 1977 (corr. to 1976 R evaluation), 1978 (T,R), 1979 (T,R), 1981 (R), 1984 (R), 1985 (R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1988 (R), 1994 (T), 1997 (R), 1998 (T), 2002 (R), 2003 (R), 2007 (R)
Phosphine	See Hydrogen phosphide
Phosphamidon (061)	1965 (T), 1966 (T), 1968 (T,R), 1969 (R), 1972 (R), 1974 (R), 1982 (T), 1985 (T), 1986 (T)
Phoxim (141)	1982 (T), 1983 (R), 1984 (T,R), 1986 (R), 1987 (R), 1988 (R)
Picoxystrobin (258)	2012 (T,R), 2013 (R), 2016 (R)
Pinoxaden (293)	2016 (T,R)
Piperonyl butoxide (062)	1965 (T,R), 1966 (T,R), 1967 (R), 1969 (R), 1972 (T,R), 1992 (T,R), 1995 (T), 2001 (R), 2002 (R)
Pirimicarb (101)	1976 (T,R), 1978 (T,R), 1979 (R), 1981 (T,R), 1982 (T), 1985 (R), 2004 (T), 2006 (R)
Pirimiphos-methyl (086)	1974 (T,R), 1976 (T,R), 1977 (R), 1979 (R), 1983 (R), 1985 (R), 1992 (T), 1994 (R), 2003 (R), 2004 (R, corr. to 2003 report), 2006 (T)
Prochloraz (142)	1983 (T,R), 1985 (R), 1987 (R), 1988 (R), 1989 (R), 1990 (R), 1991 (corr. to 1990 report, Annex I, and R evaluation), 1992 (R), 2001 (T), 2004 (R), 2009 (R)
Procymidone(136)	1981 (R), 1982 (T), 1989 (T,R), 1990 (R), 1991 (corr. to 1990 Annex I), 1993 (R), 1998 (R), 2007 (T)
Profenofos (171)	1990 (T,R), 1992 (R), 1994 (R), 1995 (R), 2007 (T), 2008 (R), 2011 (R)
Propamocarb (148)	1984 (T,R), 1986 (T,R), 1987 (R), 2005 (T), 2006 (R), 2014 (R)
Propargite (113)	1977 (T,R), 1978 (R), 1979 (R), 1980 (T,R), 1982 (T,R), 1999 (T), 2002 (R), 2006 (R)
Propham (183)	1965 (T), 1992 (T,R)

Propiconazole (160)	1987 (T,R), 1991 (R), 1994 (R), 2004 (T), 2006 (R), 2007 (R), 2013 (R), 2014 (R), 2015 (R)
Propineb	1977 (T,R), 1980 (T), 1983 (T), 1984 (R), 1985 (T,R), 1993 (T,R), 2004 (R)
Propoxur (075)	1973 (T,R), 1977 (R), 1981 (R), 1983 (R), 1989 (T), 1991 (R), 1996 (R)
Propylene oxide (250)	2011 (T,R)
Propylenethiourea (PTU, 150)	1993 (T,R), 1994 (R), 1999 (T)
Prothioconazole (232)	2008 (T,R), 2009 (R), 2014 (R)
Pymetrozine (279)	2014 (T,R)
Pyraclostrobin (210)	2003 (T), 2004 (R), 2006 (R), 2011 (R), 2012 (R), 2014 (R)
Pyrazophos (153)	1985 (T,R), 1987 (R), 1992 (T,R), 1993 (R)
Pyrethrins (063)	1965 (T), 1966 (T,R), 1967 (R), 1968 (R), 1969 (R), 1970 (T), 1972 (T,R), 1974 (R), 1999 (T), 2000 (R), 2003 (T,R), 2005 (R)
Pyrimethanil (226)	2007 (T,R), 2013 (R)
Pyriproxyfen (200)	1999 (R,T), 2000 (R), 2001 (T)
Quinclorac (287)	2015 (T, R)
Quinoxyfen (223)	2006 (T,R)
Quintozene (064)	1969 (T,R), 1973 (T,R), 1974 (R), 1975 (T,R), 1976 (Annex I, corr. to 1975 R evaluation), 1977 (T,R), 1995 (T,R), 1998 (R)
Saflufenacil (251)	2011 (T,R), 2016 (R)
Sedaxane (259)	2012 (T,R), 2014 (R)
Spices	2004 (R), 2005 (R), 2007 (R), 2010 (R), 2015 (R)
Spinetoram (233)	2008 (T,R), 2012 (R)
Spinosad (203)	2001 (T,R), 2004 (R), 2008 (R), 2011 (R)
Spirodiclofen (237)	2009 (T,R)
Spiromesifen (294)	2016 (T,R)
Spirotetramat (234)	2008 (T,R), 2011 (R), 2012 (R), 2013 (R), 2015 (R)
Sulfoxaflor (252)	2011 (T,R), 2013 (R), 2014 (R), 2016 (R)
Sulfuryl fluoride (218)	2005 (T,R)
2,4,5-T (121)	1970 (T,R), 1979 (T,R), 1981 (T)
Tebuconazole (189)	1994 (T,R), 1996 (corr. to Annex II of 1995 report), 1997 (R), 2008 (R), 2010 (T), 2011 (R), 2015 (R)
Tebufenozide (196)	1996 (T,R), 1997 (R), 1999 (R), 2001 (T,R), 2003 (T)
Tecnazine (115)	1974 (T,R), 1978 (T,R), 1981 (R), 1983 (T), 1987 (R), 1989 (R), 1994 (T,R)

Teflubenzuron (190)	1994 (T), 1996 (R), 2016 (T,R)
Temephos	2006 (T)
Terbufos (167)	1989 (T,R), 1990 (T,R), 2003 (T), 2005 (R)
Thiabendazole (065)	1970 (T,R), 1971 (R), 1972 (R), 1975 (R), 1977 (T,R), 1979 (R), 1981 (R), 1997 (R), 2000 (R), 2006 (T,R)
Thiacloprid (223)	2006 (T,R)
Thiamethoxam (245)	2010 (T,R), 2011 (R), 2012 (R), 2014 (R)
Thiodicarb (154)	1985 (T,R), 1986 (T), 1987 (R), 1988 (R), 2000 (T), 2001 (R)
Thiometon (076)	1969 (T,R), 1973 (T,R), 1976 (R), 1979 (T,R), 1988 (R)
Thiophanate-methyl (077)	1973 (T,R), 1975 (T,R), 1977 (T), 1978 (R), 1988 (R), 2002 (R), 1990 (R), 1994 (R), 1995 (T,E), 1998 (T,R), 2006 (T)
Thiram (105)	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1970 (T,R), 1974 (T), 1977 (T), 1983 (R), 1984 (R), 1985 (T,R), 1987 (T), 1988 (R), 1989 (R), 1992 (T), 1996 (R)
Tolclofos-methyl (191)	1994 (T,R), 1996 (corr. to Annex II of 1995 report)
Tolfenpyrad (269)	2013 (T), 2016 (R)
Tolylfluanid (162)	1988 (T,R), 1990 (R), 1991 (corr. to 1990 report), 2002 (T,R), 2003 (R)
Toxaphene	See Camphechlor
Triadimefon (133)	1979 (R), 1981 (T,R), 1983 (T,R), 1984 (R), 1985 (T,R), 1986 (R), 1987 (R and corr. to 1986 R evaluation), 1988 (R), 1989 (R), 1992 (R), 1995 (R), 2004 (T), 2007 (R)
Triadimenol (168)	1989 (T,R), 1992 (R), 1995 (R), 2004 (T), 2007 (R), 2014 (R)
Triazolylalanine	1989 (T,R)
Triazophos (143)	1982 (T), 1983 (R), 1984 (corr. to 1983 report, Annex I), 1986 (T,R), 1990 (R), 1991 (T and corr. to 1990 R evaluation), 1992 (R), 1993 (T,R), 2002 (T), 2007 (R), 2010 (R), 2013 (R)
Trichlorfon (066)	1971 (T,R), 1975 (T,R), 1978 (T,R), 1987 (R)
Trichloronat	1971 (T,R)
Trichloroethylene	1968 (R)
Tricyclohexyltin hydroxide	See Cyhexatin
Trifloxystrobin (213)	2004 (T,R), 2012 (R), 2015 (R)
Triflumizole (270)	2013 (T,R)
Triforine (116)	1977 (T), 1978 (T,R), 1997 (T), 2004 (R), 2014 (T,R)

Trinexapac-ethyl (271)	2013 (T,R)
Triphenyltin compounds	See Fentin compounds
Vamidothion (078)	1973 (T,R), 1982 (T), 1985 (T,R), 1987 (R), 1988 (T), 1990 (R), 1992 (R)
Vinclozolin (159)	1986 (T,R), 1987 (R and corr. to 1986 report and R evaluation), 1988 (T,R), 1989 (R), 1990 (R), 1992 (R), 1995 (T)
Zineb (105)	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1993 (T)
Ziram (105)	See Dithiocarbamates, 1965 (T), 1967 (T,R), 1996 (T,R)
Zoxamide (227)	2007 (T,R), 2009 (R)

ANNEX 3: INTERNATIONAL ESTIMATED DAILY INTAKES OF PESTICIDE RESIDUES

Annex 3 IEDI calculation can be found at http://www.fao.org/3/a-i6585e.pdf

ANNEX 4: INTERNATIONAL ESTIMATES OF SHORT-TERM DIETARY EXPOSURE OF PESTICIDE RESIDUES

Annex 4 IESTI calculations can be found at http://www.fao.org/3/a-i6585e.pdf

ANNEX 5: REPORTS AND OTHER DOCUMENTS RESULTING FROM PREVIOUS JOINT MEETINGS OF THE FAO PANEL OF EXPERTS ON PESTICIDE RESIDUES IN FOOD AND THE ENVIRONMENT AND THE WHO CORE ASSESSMENT GROUP ON PESTICIDE RESIDUES

1. Principles governing consumer safety in relation to pesticide residues. Report of a meeting of a WHO Expert Committee on Pesticide Residues held jointly with the FAO Panel of Experts on the Use of Pesticides in Agriculture. FAO Plant Production and Protection Division Report, No. PL/1961/11; WHO Technical Report Series, No. 240, 1962.

2. Evaluation of the toxicity of pesticide residues in food. Report of a Joint Meeting of the FAO Committee on Pesticides in Agriculture and the WHO Expert Committee on Pesticide Residues. FAO Meeting Report, No. PL/1963/13; WHO/Food Add./23, 1964.

3. Evaluation of the toxicity of pesticide residues in food. Report of the Second Joint Meeting of the FAO Committee on Pesticides in Agriculture and the WHO Expert Committee on Pesticide Residues. FAO Meeting Report, No. PL/1965/10; WHO/Food Add./26.65, 1965.

4. Evaluation of the toxicity of pesticide residues in food. FAO Meeting Report, No. PL/1965/10/1; WHO/Food Add./27.65, 1965.

5. Evaluation of the hazards to consumers resulting from the use of fumigants in the protection of food. FAO Meeting Report, No. PL/1965/10/2; WHO/Food Add./28.65, 1965.

6. Pesticide residues in food. Joint report of the FAO Working Party on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 73; WHO Technical Report Series, No. 370, 1967.

7. Evaluation of some pesticide residues in food. FAO/PL:CP/15; WHO/Food Add./67.32, 1967.

8. Pesticide residues. Report of the 1967 Joint Meeting of the FAO Working Party and the WHO Expert Committee. FAO Meeting Report, No. PL:1967/M/11; WHO Technical Report Series, No. 391, 1968.

9. 1967 Evaluations of some pesticide residues in food. FAO/PL:1967/M/11/1; WHO/Food Add./68.30, 1968.

10. Pesticide residues in food. Report of the 1968 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 78; WHO Technical Report Series, No. 417, 1968.

11. 1968 Evaluations of some pesticide residues in food. FAO/PL:1968/M/9/1; WHO/Food Add./69.35, 1969.

12. Pesticide residues in food. Report of the 1969 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Group on Pesticide Residues. FAO Agricultural Studies, No. 84; WHO Technical Report Series, No. 458, 1970.

13. 1969 Evaluations of some pesticide residues in food. FAO/PL:1969/M/17/1; WHO/Food Add./70.38, 1970.

14. Pesticide residues in food. Report of the 1970 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 87; WHO Technical Report Series, No. 4574, 1971.

15. 1970 Evaluations of some pesticide residues in food. AGP:1970/M/12/1; WHO/Food Add./71.42, 1971.

16. Pesticide residues in food. Report of the 1971 Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues. FAO Agricultural Studies, No. 88; WHO Technical Report Series, No. 502, 1972.

17. 1971 Evaluations of some pesticide residues in food. AGP:1971/M/9/1; WHO Pesticide Residue Series, No. 1, 1972.

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ANNEX 6: LIVESTOCK DIETARY BURDEN

Annex 6 Livestock Dietary Burden can be found at http://www.fao.org/3/a-i6585e.pdf

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The annual Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group on Pesticide Residues was held in Rome, Italy, from 13 to 22 September 2016. The FAO Panel of Experts had met in preparatory sessions from 08 to 12 September 2016. The Meeting was held in pursuance of recommendations made by previous Meetings and accepted by the governing bodies of FAO and WHO that studies should be undertaken jointly by experts to evaluate possible hazards to humans arising from the occurrence of pesticide residues in foods. During the meeting the FAO Panel of Experts was responsible for reviewing pesticide use patterns (use of good agricultural practices), data on the chemistry and composition of the pesticides and methods of analysis for pesticide residues and for estimating the maximum residue levels that might occur as a result of the use of the pesticides according to good agricultural use practices. The WHO Core Assessment Group was responsible for reviewing toxicological and related data and for estimating, where possible and appropriate, acceptable daily intakes (ADIs) and acute reference doses (ARfDs) of the pesticides for humans. This report contains information on ADIs, ARfDs, maximum residue levels, and general principles for the evaluation of pesticides. The recommendations of the Joint Meeting, including further research and information, are proposed for use by Member governments of the respective agencies and other interested parties.

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