

INTERNATIONAL APPROACHES TO THE EVALUATION OF RESIDUES IN FOOD

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Abstract: The Joint Meeting on Pesticide Residues (JMPR) [1] is the group responsible for evaluating toxicology, residues and related data in order to recommend toxicological end points such as Acceptable Daily Intakes (ADIs), Acute Reference Doses (ARfDs), Maximum Residues Levels (MRLs) and residues definitions. Two panels (WHO for toxicology and FAO for MRLs/consumer exposure) are formed from international experts who attend the meeting in a personal capacity to evaluate the data provided by the agrochemical industry, governments and other interested parties. During the meeting, the two panels will complete their evaluations of scheduled pesticides to create a standalone monograph which is made publicly available. Submissions should be made in accordance with the FAO Manual which is updated on an annual basis taking account of the current state of knowledge. The evaluations are of new active substances and older pesticides which are reviewed periodically at 10-15 year intervals. In addition to recommending end points for risk assessment, the panels also publish evaluations on topics relevant to human exposure to pesticide residues.

The toxicological submissions should contain all data relevant to human (consumer exposure) including acute, sub-acute and chronic toxicology. Data relevant to operator exposure or formulation toxicity are not included. The residues submissions contain far more information than just residues data; they should include the physical and chemical properties of the active substance environmental data relevant to residue in food such as hydrolysis rate, methods of analysis, storage stability of residues prior to analysis, metabolism in plants and residues data including processed products and products of animal origin. This should be supported by information on Good Agricultural Practice (GAP) and translated labels to support this. [2]

MRLs are proposed based on the data sets and statistical models are now used to confirm the levels recommended [3, 4].

A key element is the provision on a consumer exposure assessment. This is prepared using the 13 WHO cluster diets for chronic exposure and a range of general population and consumers less than 7 years old acute diets. The intakes are compared to the ADI or the ARfD, respectively [5].

The recommendations are passed for the JMPR who act as the risk assessors to the Codex Committee of Pesticide Residues (CCPR) as the risk managers.

There are many benefits to a system such as JMPR in that it provides an independent evaluation of data to recommend toxicological end points, MRLs and residue definitions whilst taking account of the worldwide uses of the pesticide products. The Codex MRLs are not legally binding but are used as arbitration standards under the SPS Agreement and therefore provide a harmonized standard to try to prevent trade barriers.

References:

- [1] AGP – The Joint FAO/WHO Meeting on Pesticide Residues.
<http://www.fao.org/agriculture/crops/core-themes/theme/pests/pm/jmpr/en/>
- [2] The FAO Manual, FAO, Rome.
<http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPP/Pesticid/JMPR/Download/fao2002.doc>
- [3]. Commission of the European Communities (2007) . Appendix I: Calculation of Maximum Residue levels and Safety Intervals. <http://ec.europa.eu/food/plant/protection/resources/app-i.pdf>
- [4] NAFTA Method for Calculating Pesticide MRLs and NAFTA MRLs Calculator http://www.hc-sc.gc.ca/cps-spc/pest/part/int/_nafta-alena/stat-eng.php
- [5] WHO GEMS Food Consumption Cluster Diets.

<http://www.who.int/foodsafety/chem/gems/en/index1.html>