

**1st MEETING OF THE  
OECD/FAO  
ZONING STEERING GROUP  
(ZSG1)**

**MEETING REPORT**

**Geneva, Switzerland  
12 - 13 September 2000**

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## LIST OF ABBREVIATIONS

CCPR	Codex Committee on Pesticide Residues
EU	European Union
FAO	Food and Agriculture Organisation
GAP	Good Agricultural Practice
GCPF	Global Crop Protection Federation
GIS	Geographic Information Systems
JMPR	Joint Meeting on Pesticide Residues (FAO/WHO)
MRL	Maximum Residue Limit
OECD	Organisation for Economic Co-operation and Development
PSD	Pesticides Safety Directorate (UK MAFF)
WGP	Working Party on Pesticides (OECD)
ZSG	Zoning Steering Group (FAO/OECD)

## SUMMARY

The OECD Pesticides Forum, at a recent meeting, set up a small expert Steering Group to develop a global zoning scheme to define areas in the world where pesticide residue behaviour could be considered comparable, and therefore where residue trials data could be used within each zone for MRL-setting purposes, irrespective of national boundaries.

The initial proposal for this zoning scheme arose out of an earlier EU/OECD workshop (York, 1999), where it was realised that the national practices in accepting data from other areas or countries differed significantly between Europe and North America, and that there was room for some harmonisation in this area.

The Author, having been involved in the initial workshop in York, was invited to join this Steering Group, and attendance at the first meeting of the group was supported by MAF Food's ACVM Group, together with the NZ Vegetable & Produce Growers and the NZ FruitGrowers Federations.

The Steering Group confirmed that it was technically feasible to define geographic zones for the purposes of extrapolating residue behaviour and confirmed that once validated, the acceptance of this Zoning Scheme would:

- Promote the mutual acceptance of residue trial data between countries; thus reduce the total number of global trials likely to be needed to support an MRL.
- reduce the need for multiple residue trials at the national level to support MRLs for minor crops
- Facilitate the acceptance of Codex MRLs, by providing greater confidence in the validity of the supporting residue trials.

After taking into account the views of the OECD Working Group on Pesticides (that any such zoning scheme should be simple and practical), and recognising the resource implications associated with the development of a complex scheme that would cover all possible pesticides and their methods of use, the Group agreed:

- To focus on a zoning scheme that was appropriate for pesticides applied as foliar sprays and to construct a tentative 'Residue Zones' map, based on Koppen's climate classification, to define about 5-7 different 'Residue Zones', where residue behaviour could be expected to be similar. (This task was allocated to Mr Don Griffin UK PSD)
- To collect as much residue data as possible from recent JMPR Evaluations and compile this in such a way that it could be used to validate the tentative Zones or adjust their boundaries. (It was agreed this work would be shared between the Author and Mr Dugald MacLachlan from the Australian National Registration Authority).
- To convene a further meeting of the Group in April 2001 (to coincide with the next meeting of the Codex Committee on Pesticide Residues), where the tentative zones and the collated residue data would be considered and the validation process confirmed.

## **ACTIONS**

### **1. De-briefing**

National Manager (Plants Residues) to arrange a debriefing for members of the MAF Food Residues Co-ordination Committee and for interested officials from the NZ Vegetable Growers Federation, to advise them of the Steering Group decisions, the proposed WorkPlan and possible future activities of the Group.

### **2. Review of Existing Residue Data**

National Manager (Plant Residues) to obtain approval from The Director (ACVMG) to participate in the work of collating the existing residue data for consideration at the next meeting of the Steering Group.

### **3. Briefing for the Next OECD Pesticides Forum**

National Manager (Plant Residues) to ensure the NZ representative at the next OECD Working Group on pesticides is adequately briefed on the proposed ZSG WorkPlan.

# REPORT ON THE 1st ZONING WORKING GROUP MEETING

## 1 INTRODUCTION

In March 1998, the UK Pesticide Safety Directorate (PSD) was awarded a contract by the European Commission to develop guidance for establishing guidelines on the minimum or core data requirements for establishing MRLs, including import tolerances.

In September 1999, the PSD organised a joint EU/OECD Workshop to identify what data components were already harmonised and to propose measures to improve the acceptance of common data packages within the EU and other OECD countries. Experts from New Zealand and Australia participated at the Workshop, together with pesticide regulatory officials from the EC, North America and from the JMPR.

One of the recommendations from that Workshop was the proposal to initiate a joint OECD/FAO residue 'zoning' project to develop the concept of sharing residue data between countries within regions or areas where pesticide residue behaviour could be expected to be the same.

The York workshop recommendation was forwarded to the February 2000 meeting of the OECD Working Group on Pesticides (WGP), who agreed to initiate the project, suggesting that a steering group be established to develop this project.

Having been involved in the initial Workshop in York (as Chairman of the 'Zoning Concept' discussion group) New Zealand was invited to participate in this Steering Group, and the Author's attendance was jointly supported by MAF Food's ACVM Group and by the NZ Vegetable Growers Federation.

The first meeting of this Zoning Steering Group (ZSG) took place in Geneva, on 12-13 September 2000. Representatives from 5 OECD countries, 5 other FAO countries, the Global Crop Protection Federation (GCPF), OECD and FAO Secretariats attended it (the list of participants is included in *Annex 1*).

## 2 OBJECTIVE

The Steering Group was given the objective of establishing a WorkPlan to define world-wide geographic zones for conducting pesticide residue field trials, where within each zone, pesticide residue behaviour would be expected to be comparable and therefore where residue trial data would be considered equivalent (for the purposes of setting MRLs).

### **3 DISCUSSION**

The meeting first reviewed the previous work of the York Workshop and then discussed existing world-wide experiences with the zoning concept, particularly the differing use of this concept in North America and Europe as well as the approaches being developed in New Zealand and Australia. This provided the meeting with a general background on the factors currently used to decide the 'transportability' of residue trials between regions and/or countries and on what barriers might exist to dissuade national authorities from adopting a more global approach to zoning for residue assessment purposes.

As a result of this review, the meeting identified a clear difference between the European approach (of dividing Europe into two zones, with 4-8 residue trials being required from each zone) and the North American system (of requiring a varying number of trials from up to 13 zones). Other country requirements were identified as being less prescriptive, with acceptance of trials from similar climatic areas in other countries being accepted on a case-by-case basis.

After further discussion on whether a global zoning scheme was technically feasible, practical and likely to be supported by OECD and FAO member countries, and on the benefits to developing countries, the meeting expressed broad support for the development of a global zoning scheme that would involve the establishment of geographic zones for conducting residue field trials for MRL-setting purposes.

#### **3.1 Use of the Global Zoning Scheme**

The meeting considered that such a global zoning scheme could be used:

- In national/regional registration procedures, where industry could submit pesticide residue data not necessarily generated in the country/region where the application is made, but generated anywhere in the same zone; and
- In regional or international work (e.g. JMPR) in interpreting residue data, where the use of zones should lead to more 'comparable' data, even though they are generated in different parts of the world.

#### **3.2 Benefits of the Zoning Scheme**

The Group agreed that the adoption of these geographic zones for the purposes of residue trial data assessment would allow the use of a more extensive database of trials to support the estimation of MRLs, and thus:

- Improve governments' and consumers' confidence in residue data and hence in food safety standards based on these data;

- Promote mutual acceptance of residue data outside national borders;
- Facilitate governments' assessment of data used to establish MRLs and import tolerances;
- Facilitate international trade by increasing the acceptance of Codex MRLs by countries (because of greater confidence in the supporting residue data);
- Develop more robust databases to support MRLs for minor crops;
- Reduce the duplication of data world-wide (the overall number of trials required should be lowered)

### **3.3 Resource Implications**

The meeting noted the suggestion from the OECD WPG that any global scheme should adopt a pragmatic approach, and in discussing the possible costs and resource implications associated with the development of a residue zoning scheme, agreed that:

- The use of GIS (geographic information system) that would require sophisticated computer techniques and knowledge, would not be cost-effective and was considered unnecessary (at least in the initial approach).
- The project should make use of existing data to the extent possible, with existing climatic maps and available residue data being used as much as possible. Additional residue trials to generate missing data could be envisaged at a later stage but the associated costs would need to be evaluated.
- When using existing data (either climatic or residue data), it was stressed that the issue of data ownership should be examined.

## 4 TENTATIVE ZONING MODEL

The Steering Group then discussed in more detail the preliminary approach suggested at the York workshop, and confirmed:

- That the approach to be taken in developing the Zoning Model should be pragmatic, so that it leads to a simple and workable/practicable zoning system, with the total number of zones being kept to a minimum.
- That the key factor associated with the scheme should be that different zones should reflect actual differences in pesticide residue behaviour.
- That the tentative model would need to be validated (with the limitation that a full statistical validation will not be feasible) and should take into account political realities (e.g., where possible, zone boundaries should be adjusted to align with adjacent country administrative boundaries).

### 4.1 Scope of the Project

The meeting agreed that the initial focus on the zoning project should be on foliar/spray treatments (insecticide, fungicide and herbicide). Soil applications may be considered at a later stage. This choice reflects the most common usage and application of pesticides associated with the presence of residues world-wide and is also consistent with the use of climatic data only (see next below).

In supporting the York workshop recommendations, the meeting agreed that the following activities are not compatible with the use of a zoning system:

- Greenhouse/protected crops. The meeting supported the view that residue behaviour of pesticides used in protected crops, particularly foliar treatments, should not differ significantly between countries, and in line with the approach taken in Europe, a single zone would be appropriate;
- Very close-to-harvest treatments. The meeting also considered that a single zone could be proposed for pesticides used close to harvest, as residue decay would not be influenced much by climate in the relatively short time between application and harvest. While this term 'very close to harvest' was not quantified, the general feeling was that this would be where pre-harvest intervals of up to 2 days were involved.

While not within the scope of the proposed scheme (i.e. not involving foliar applications), the meeting also confirmed the earlier opinion from the York Meeting, that residue trials for post-harvest treatments and non-systemic seed treatments could also be considered as being from a single global zone, as again, significant differences in residue behaviour would not be expected from treatments in different countries.

## **4.2 Development of the Zoning Model**

The Group agreed that the approach used to develop the Zoning Scheme should involve a four-step process:

### **4.2.1 Zone Mapping Based on Climate**

The meeting agreed that a first approach should use existing climatic maps, based on temperature and rainfall (considered to be the two main factors influencing residue behaviour for foliar/spray treatments). It was also agreed that sunshine could be taken into account later on, if there was a need to refine the approach and that because the initial focus of the project was on foliar/spray treatments, soil characteristics need not be considered.

Several climatic maps and classifications were identified (e.g. Köppen, Troll & Paffen, Neef) and the meeting considered that they all seemed to offer the same range of major climatic zones, i.e. 5 - 7.

The meeting agreed to adopt the Köppen classification of climates, which divides the world into 6 major climate regions on the basis of monthly mean temperatures and rainfall, with each of these major regions being broadly sub-divided according to seasons into a total of 24 sub-categories. The Köppen classification can be seen at: <http://www.britannica.com/bcom/art/00076/81.gif>

The meeting invited Don Griffin (from the UK PSD) to develop an initial zone map by overlaying the Köppen climate map and a political map of country boundaries to produce an 'adjusted' map of potential residue zones for circulation to other members of the steering group for comment, and for use in the validation phase (see below).

### **4.2.2 Collection of Existing Residue Data**

The meeting agreed that the next step in developing the Zoning Scheme would be the validation of the draft zones by collecting sufficient residue data and compiling this in way that it could be used to validate the draft zones.

It was agreed that the major source of data should be the more recent JMPR Monographs, as these provided the most representative and comprehensive data sets available from one source.

The group considered whether the data sets to be used should include all available residue data or whether the data for specific 'indicator' pesticide/crop combinations should be used.

After considerable discussion, the group agreed that the following ‘criteria’ should be taken into account when collecting the validation data:

- Residue results should be detectable (above the LoD);
- Good Agricultural Practice (GAP) information should be available;
- Geographic information on trial locations should be given;
- A minimum of 6 pesticide/crop combinations should be considered;
- A minimum of 5 residue data (per combination) should be available in at least one zone;
- Pesticide formulation differences should be considered with some flexibility and since the York workshop considered that in the case of foliar sprays, different formulation types are not likely to influence residue behaviour to any great extent, this approach could greatly increase the available data set.
- Crops with the potential of being grown in more than one zone should be given some preferences (e.g. citrus);
- There should be the least amount of variability in the crop management practices and application techniques.

The meeting invited the Author and Dugald MacLachlan (Australia) to share the work in collating the available data into a spreadsheet format that could be easily manipulated (and possibly evaluated using cluster analysis).

#### **4.2.3 Validation of the Zones**

The group started to discuss how the validation process could occur. However it became obvious that any clear indication on how to evaluate the data was not possible until the Group were able to look at the data itself, and it was agreed that it would be better to consider this matter further when the existing residue data had been collected

#### **4.2.4 Refinement of the Model**

The meeting recognised that the WorkPlan should include an option to assess whether the available data were sufficient (and whether additional trials may need to be commissioned) or whether the initial zone boundaries would need to be adjusted, merged (because of no significant differences in residue levels/MRLs between zones) or further subdivided.

## 5 AGREED WORKPLAN

After further discussion on some minor issues relating to timing, resources and the availability of additional information from national governments and from the manufacturers, the following WorkPlan was adopted.

The target dates for completion of the various phases were the completion of the work in collecting and collating the available data by the end of December 2000, the assessment of any additional data from sources other than the JMPR Monographs by the end of February 2001 and the consideration of the collated results at a further meeting of the Group in April 2001.

<b>Actions</b>	<b>Who?</b>	<b>Timing</b>
<b>1. Design 'tentative geographic zones</b>		
Design zones by overlaying climatic map ( Köppen) and political boundaries	Don Griffin (UK)	End of October 2000
<b>2. Validate the tentative zones with pesticide/commodity residue data</b>		
<b>2.1 Collect existing residue data</b>	Dave Lunn (NZ) and Dugald MacLachlan (Australia)	By end of 2000
2.1.1. Use JMPR reports (from early 1990s)		
2.1.2. Approach manufacturers (informally)		
2.1.3. Identify gaps and missing data		
2.1.4. Share database with ZSG members		
2.1.5. Find additional data to fill data gaps (where possible), through GCPF channels	Gabriele Timme, Richard Nielsson	January-February 2001
2.1.6. Identify final gaps	D. Lunn & D. MacLachlan	
2.1.7. Distribute final database to ZSG members	OECD/FAO Secretariats	By end of February 2001
<b>2nd ZSG meeting</b>	<b>ZSG members</b>	<b>29-30 March 2001 (The Hague)</b>
2.1.8. If necessary, approach national regulatory authorities for additional data	To be defined	To be defined
<b>2.2. Validate zones</b> Exact process to be confirmed by ZWG2	To be defined	To be defined
<b>3. Refine process and approach, if necessary</b>		By the end of 2002
Outcomes of steps 1 and 2 should indicate whether the approach taken is appropriate or whether refinement is needed (decide at the next ZSG meeting)	To be defined	To be defined
<b>4. Propose draft map of zones for residue field trials for use (with Guidance Notes)</b>		By the end of 2002

## **6 NEXT MEETING**

The next meeting has been scheduled for 2 - 7 April 2001 in The Haag (Netherlands), to coincide with the next meeting of the Codex Committee on Pesticide Residues, thus minimising the cost to those members of the Group that were likely to attend the 2001 CCPR.

<b>ANNEX 1</b>
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## **OECD/FAO Zoning Steering Group Meeting (12-13 Sep 2000)**

### **Participant List**

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**ANNEX 2**

**Revised List of Documents for ZSG meeting, 12-13 September 2000**

<b>Document number</b>	<b>Title of Document (<i>source, author</i>)</b>
	Draft agenda
<b>None</b>	6..1.1.1 Criteria and principles ( <i>thought-started paper prepared by Ian Reichstein, Australia</i> )
<b>ZSG1-1</b>	6..1.1.2 Extract from the report of the “EU/OECD Scientific Workshop on Minimum data requirements for establishing Maximum Residue Limits (MRLs) and import tolerances”, held at the Pesticides Safety Directorate, York, UK, on 6-8 September 1999 <i>Annex 4 - Report from the ‘geographic zoning working group’</i>
<b>ZSG1-2</b>	Methodology, Datasets and Criteria for Delineation of Canadian Crop Field Trial Zones (September 1997) ( <i>prepared by Canada PMRA</i> )
<b>ZSG1-3</b>	Two U.S. EPA documents on:
<b>ZSG1-3 part 1</b>	1) Crop Production Regions and Map, as accepted by U.S. EPA ( <i>provided by Steve Funk, U.S. EPA</i> )
<b>ZSG1-3 part 2</b>	2) Residue Chemistry Test Guideline on Crop Field Trials (#OPPTS 860.1500) ( <i>provided by Steve Funk, U. S. EPA</i> )
<b>ZSG1-4</b>	Climatic Zones and Residue Data Requirements – A New Zealand Approach ( <i>provided by David Lunn, NZ, Min. of Agriculture and Forestry</i> )
<b>ZSG1-5</b>	EUROPEAN UNION - Comparable climatic zones/weather influences ( <i>Extract from European Commission documentation</i> )
<b>ZSG1-6</b>	Regulatory use of the SEISMIC database ( <i>provided by Don Griffin, UK, PSD</i> )
<b>ZSG1-7</b>	<u>Information about the CIMMYT</u> (International Maize and Wheat Improvement Center), member of the FAO/CGIAR (Consultative Group for International Agricultural Research) Institutes, <u>and their use of the GIS</u> ( <i>from the CIMMYT Web pages</i> )
<b>ZSG1-8</b>	<u>Information about IRRI</u> (International Rice Research Institute), member of the FAO/CGIAR (Consultative Group for International Agricultural Research) Institutes, <u>and GIS DECO</u> (GIS for developing countries) ( <i>from the IRRI Web pages</i> )
<b>ZSG1-9</b>	World maps (climate, soil and desertification, vegetation) ( <i>provided by Karsten Hohgardt, Germany, BBA</i> )
<b>ZSG1-10</b>	Scoping Document - The development of Residue Zones at the Global Level ( <i>from the 1999 York workshop</i> )
<b>None</b>	Preliminary Notes on the Definition of World-wide Geographic Zones within which Pesticide Residue Behaviour Would be expected to be comparable ( <i>provided by Gabriele Timme, GCPF</i> )