

Pesticide residues in food—2003

WHO/PCS/04.1

Toxicological evaluations

**Sponsored jointly by FAO and WHO
With the support of the International Programme
on Chemical Safety (IPCS)**

**Joint Meeting of the
FAO Panel of Experts on Pesticide Residues
in Food and the Environment
and the
WHO Core Assessment Group**

Geneva, Switzerland, 15–24 September 2003

The summaries and evaluations contained in this book are, in most cases, based on unpublished proprietary data submitted for the purpose of the JMPR assessment. 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 who submitted the data for 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.



**WORLD
HEALTH
ORGANIZATION**

WHO Library Cataloguing-in-Publication Data

Joint Meeting of the FAO Panel of Experts on Pesticides Residues in Food and the Environment and the WHO Core Assessment Group (2003: Geneva, Switzerland). Pesticide residues in food: 2003: toxicological evaluations/Joint Meeting of the FAO Panel of Experts on Pesticides Residues in Food and the Environment and the WHO Core Assessment Group, Geneva, 15–24 September 2003.

I. Pesticide residues—toxicity 2. Food contamination 3. No-observed-adverse-effect level I. FAO Panel of Experts on Pesticides Residues in Food and the Environment II. WHO Core Assessment Group on Pesticide Residues III. Title

ISBN 92 4 166519 X

(NLM classification: WA 240)

This report contains the collective views of two international groups of experts and does not necessarily represent the decisions nor the stated policy of the Food and Agriculture Organization of the United Nations or the World Health Organization.

The preparatory work for the toxicological evaluations of pesticide residues carried out by the WHO Expert Group on Pesticide Residues for consideration by the FAO/WHO Joint Meeting on Pesticide Residues in Food and the Environment is actively supported by the International Programme on Chemical Safety within the framework of the Inter-Organization Programme for the Sound Management of Chemicals.

The **International Programme on Chemical Safety** (IPCS), established in 1980, is a joint venture of the United Nations Environment Programme (UNEP), the International Labour Organisation (ILO), and the World Health Organization (WHO). The overall objectives of the IPCS are to establish the scientific basis for assessing the risk to human health and the environment to exposure from chemicals, through international peer-review processes as a prerequisite for the promotion of chemical safety, and to provide technical assistance in strengthening national capacities for the sound management of chemicals.

The Inter-Organization Programme for the Sound Management of Chemicals (IOMC) was established in 1995 by UNEP, the Food and Agriculture Organization of the United Nations, WHO, the United Nations Industrial Development Organization, and the Organisation for Economic Co-operation and Development (Participating Organizations), following recommendations made by the 1992 United Nations Conference on the Environment and Development to strengthen cooperation and increase coordination in the field of chemical safety. The purpose of the IOMC is to promote coordination of the policies and activities pursued by the Participating Organizations, jointly or separately, to achieve the sound management of chemicals in relation to human health and the environment.

© World Health Organization 2004

All rights reserved. Publications of the World Health Organization can be obtained from Marketing and Dissemination, World Health Organization, 20 Avenue Appia, 1211 Geneva 27 Switzerland (tel: +41 22 791 2476; fax: +41 22 791 4857; email: bookorders@who.int). Requests for permission to reproduce or translate WHO publications—whether for sale or for non-commercial distribution—should be addressed to Publications, at the above address (fax: +41 22 791 4806; email: permissions@who.int).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

The World Health Organization does not warrant that the information contained in this product is complete and correct and shall not be liable for any damages incurred as a result of its use.

Typeset in Hong Kong
Printed in Malta

TABLE OF CONTENTS

	Page
List of participants	v
Abbreviations	vii
Introduction.....	ix
Toxicological evaluations.....	1
Carbosulfan**	3
Cyprodinil*	33
Dimethoate.....	85
Famoxadone*	101
Malathion	151
Methoxyfenozide*	161
Paraquat**	203
Phosmet.....	267
Pyraclostrobin*	275
Pyrethrins	321
Tebufenozide.....	329
Terbufos**	333
Annex 1. 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 Expert Groups on Pesticide Residues	387

* First full evaluation

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

-

**2003 Joint Meeting of the FAO Panel of Experts on
Pesticide Residues in Food and the Environment
and the WHO Core Assessment Group**

Geneva, 15–24 September 2003

PARTICIPANTS

FAO Panel of Experts on Pesticide Residues in Food and the Environment

- Dr U. Banasiak, Federal Institute for Risk Assessment, Berlin, Germany
Dr E. Dutra Caldas, University of Brasilia, College of Health Sciences, Pharmaceutical Sciences Department, Brasilia/DF, Brazil (*FAO Rapporteur*)
Dr S. Funk, Health Effects Division, United States Environmental Protection Agency, Washington DC, USA (*Vice-Chairman*)
Mr D.J. Hamilton, Principal Scientific Officer, Animal & Plant Health Service, Department of Primary Industries, Brisbane, Australia
Dr B.C. Ossendorp, Centre for Substances and Integrated Risk Assessment, National Institute of Public Health and the Environment (RIVM), Bilthoven, Netherlands
Dr Y. Yamada, Research Planning and Coordination Division, National Food Research Institute, Tsukuba, Japan

WHO Toxicological Core Assessment Group

- Professor A.R. Boobis, Experimental Medicine and Toxicology, Division of Medicine, Faculty of Medicine, Imperial College London, England (*WHO Chairman*)
Dr L. Davies, Science Strategy—Pesticides, Office of Chemical Safety, Australian Department of Health and Ageing, Woden, Australia
Dr V.L. Dellarco, United States Environmental Protection Agency, Office of Pesticide Programs, Health Effects Division, Washington DC, USA (*WHO Rapporteur*)
Dr H. Håkansson, Institute of Environmental Medicine, Karolinska Institute, Unit of Environmental Health Risk Assessment, Stockholm, Sweden
Dr A. Moretto, Dipartimento Medicina Ambientale e Sanità Pubblica, Università di Padova, Padova, Italy
Dr R. Solecki, Pesticides and Biocides Division, Federal Institute for Risk Assessment Thielallee, Berlin
Dr M. Tasheva, Laboratory of Toxicology, National Centre of Hygiene, Medical Ecology and Nutrition, Sofia, Bulgaria

Secretariat

- Dr A. Ambrus, Head, Agrochemicals Unit, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, International Atomic Energy Agency, Vienna, Austria (*FAO Consultant*)
Dr A. Bartholomaeus, Therapeutic Goods Administration, Australian Department of Health and Ageing, Woden, Australia (*WHO Temporary Adviser*)
Mr B. Declercq, Ministère de l'Économie et des Finances, Laboratoire interrégional de la DGCCRF, Massy, France (*FAO Consultant*)

Dr I.C. Dewhurst, Pesticides Safety Directorate, King's Pool, York, England (*WHO Temporary Adviser*)

Dr S. Dogheim, Agriculture Research Centre, Ministry of Agriculture, Heliopolis, Cairo, Egypt (*FAO Consultant*)

Dr K. Hamernik, Office of Science Coordination and Policy, United States Environmental Protection Agency, Washington DC, USA (*WHO Temporary Adviser*)

Mr A.R.C. Hill, Department for Environment, Food and Rural Affairs, Central Science Laboratory, Sand Hutton, York, England (*FAO Consultant*)

Dr H. Jeuring, Chairman, Codex Committee on Pesticide Residues, Senior Public Health Officer Food, Food and Consumer Product Safety Authority, The Hague, Netherlands (*WHO Temporary Adviser*)

Mr D. Lunn, Programme Manager (Residues-Plants), Dairy and Plant Products Group, New Zealand Food Safety Authority, Wellington, New Zealand (*FAO Consultant*)

Dr D. MacLachlan, Australian Quarantine and Inspection Service, Australian Department of Agriculture, Fisheries and Forestry, Edmond Barton Building, Kingston, Australia (*FAO Consultant*)

Ms S. Malezieux, Ministère de l'agriculture, de la pêche, de l'alimentation et des affaires rurales, Direction Générale de l'Alimentation, Paris, France (*FAO Consultant*)

Dr T.C. Marrs, Food Standards Agency, London, England (*WHO Temporary Adviser*)

Dr J. Maskeliunas, Food Standards Officer, Joint FAO/WHO Food Standards Programme, Food and Nutrition Division, Food and Agriculture Organization of the United Nations, Rome, Italy (*FAO Staff Member*)

Dr D.B. McGregor, Lyon, France (*WHO Temporary Adviser*)

Dr G. Moy, Food Safety Programme, World Health Organization, Geneva, Switzerland (*WHO Staff Member*)

Dr S. Page, International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland (*WHO Staff Member*)

Dr R. Pfeil, Pesticides and Biocides Division, Federal Institute for Risk Assessment, Berlin, Germany (*WHO Temporary Adviser*)

Dr P.V. Shah, US Environmental Protection Agency, Washington DC, USA (*WHO Temporary Adviser*)

Dr A. Takagi, Division of Toxicology, National Institute of Health Sciences, 1-18-1 Kamiyoga, Setaga-ku, Tokyo, Japan (*WHO Temporary Adviser*)

Dr A. Tejada, FAO Joint Secretary to JMPR Pesticide Management Group, Plant Protection Service, Plant Production and Protection Division, Food and Agriculture Organization of the United Nations, Rome, Italy (*FAO Joint Secretary*)

Dr A. Tritscher, International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland (*WHO Joint Secretary*)

Dr G. Vaagt, Senior Officer, Pesticide Management Group, Food and Agriculture Organization of the United Nations, Rome, Italy (*FAO Staff Member*)

Dr Gerrit Wolterink, Centre for Substances and Risk Assessment, National Institute of Public Health and the Environment (RIVM), Bilthoven, Netherlands (*WHO Temporary Adviser*)

Abbreviations used

ADI	acceptable daily intake
ai	active ingredient
AUC	area under the curve for concentration–time
bw	body weight
CCN	Codex classification number (for compounds or commodities)
CCPR	Codex Committee on Pesticide Residues
CYP	cytochrome P450
CXL	Codex level
DMSO	dimethyl sulfoxide
ECD	electron capture detection
F ₀	parental generation
F ₁	first filial generation
F ₂	second filial generation
FAO	Food and Agricultural Organization of the United Nations
FOB	functional observational battery
GC	gas chromatography
GCP	good clinical practice
GLC	gas–liquid chromatography
GLP	good laboratory practice
GPC	gel-permeation chromatography
GEMS/Food	Global Environment Monitoring System–Food Contamination Monitoring and Assessment Programme
GSH	glutathione
HPLC	high-performance liquid chromatography
IARC	International Agency for Research on Cancer
IEDI	international estimated daily intake
IESTI	international estimate of short-term dietary intake
ISO	International Standards Organization
JECFA	Joint Expert Committee on Food Additives
JMPR	Joint Meeting on Pesticide Residues
LC	liquid chromatography
LC ₅₀	median lethal concentration
LD ₅₀	median lethal dose
LOAEL	lowest-observed-adverse-effect level
LOAEC	lowest-observed-adverse-effect concentration
LOD	limit of detection

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_30111

