

MOEZ SANAA PRES

STANDARDS AND SCIENTIFIC ADVISE ON FOOD AND NUTRITION

We provide countries and institutions with a comprehensive range of scientific advisory services and tools to support evidence-based decision-making in food safety and nutrition. Our science-based approaches to standard setting and risk assessment have consistently demonstrated their effectiveness in improving public health outcomes.



World Health
Organization

Nutrition & Food Safety Department

The Nutrition and Food Safety (NFS) Department is addressing the burden of disease from physical, chemical and microbial hazards in food and unhealthy diets, maternal and child malnutrition, overweight and obesity.

MOEZ SANAA, DVM, MSc, PhD



“SCIENCE IN ACTION: WHO’S ROLE IN SUPPORTING FOOD AND NUTRITION STANDARDS.”

SUPPORT CODEX ALIMENTARIUS AND MEMBER STATES



Food and Agriculture
Organization of the
United Nations



World Health
Organization

7 June 2025



World Food Safety Day

Food safety
science in action



World Health
Organization

OUR HISTORY FROM THE BEGINNING

The Joint FAO/WHO
Expert Committee on
Food Additives

JECFA

1956

1963

JMPR

Joint FAO/ WHO
Meeting on Pesticides
Residues

The Joint FAO/WHO
Expert Meeting on
Microbiological Risk
Assessment

JEMRA

2000

2009

JEMNU

The Joint FAO/WHO
Expert Meetings on
Nutrition



World Food Safety Day 7 June 2025

The Joint FAO/WHO Scientific Advice Programme

FAO and WHO bring together the world's most eminent independent scientists to carefully evaluate possible food safety hazards. They provide unbiased, evidence-based advice to policymakers, food businesses and consumers, most notably to the Codex Alimentarius Commission (Codex). Codex elaborates international standards, guidelines and codes of practice on food safety and quality based on the scientific advice provided by this joint FAO/WHO programme. The joint FAO/WHO Scientific Advice Programme consists of several established and ad hoc bodies, which include:

JECFA

The Joint FAO/WHO Expert Committee on Food Additives was established in 1956 and will hold its 100th meeting this year.

The Committee evaluates the risks associated with food additives and residues of veterinary drugs, contaminants and natural toxins in food and feed.

See more on JECFA here:
JECFA at [FAO](#) | JECFA at [WHO](#)

JEMRA

The Joint FAO/WHO Expert Meeting on Microbiological Risk Assessment was established in the year 2000.

JEMRA assesses risks associated with bacterial pathogens, viruses and parasites in food, ranks those risks and evaluates risk management options. Amongst other work, JEMRA has provided the scientific advice necessary for the development of key guidance on hygiene practices.

See more on JEMRA here:
JEMRA at [FAO](#) | JEMRA at [WHO](#)

JMPR

The Joint FAO/WHO Meeting on Pesticides Residues was established in 1963 and is charged with assessing the risk to human health of pesticide use.


Experts review data and studies on residues of pesticides in food and animal feed, which are used to determine what levels can be found in foods and what levels are safe for consumption.

See more on JMPR here:
JMPR at [FAO](#) | JMPR at [WHO](#)



RISK ASSESSMENT

EVIDENCE-BASED APPROACH.

 Evaluations of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)

This searchable database contains the summaries of all the evaluations of flavours, food additives, contaminants, toxicants and veterinary drugs JECFA has performed. Each summary contains basic chemical information, ADIs/TDIs, links to the most recent reports and monographs as well as to the specification database, and a history of JECFA evaluations. The database is searchable by partial name or CAS number, by first character (letter or symbol), or by functional class.

Includes all updates up to the 99th JECFA meeting (June 2024).

Aspartam

aspartam


ASPARTAME

ASPARTAME-ACESULFAME salt

FEMA or JECFA number

Functional Class



 Evaluations of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)

Overview

CHEMICAL NAMES

N-L-alpha-Aspartyl-L-phenylalanine-1-methyl ester; 3-Amino-n-(alpha-carbomethoxy-phenethyl)-succinamic acid

SYNONYMS

Aspartyl phenylalanine methyl ester

CAS NUMBER

22389-47-0

INS

951

FUNCTIONAL CLASS

Food Additives

SWEETENER

INS MATCHES

951

Evaluations

Evaluation year: 2023

ADI: 0–40 mg/kg bw

Comments: Overall, JECFA concluded that there was no convincing evidence from experimental animal or human data that aspartame has adverse effects after ingestion. This conclusion is underpinned by the information that aspartame is fully hydrolysed in the gastrointestinal tract into metabolites that are identical to those absorbed after consumption of common foods, and that no aspartame enters the systemic circulation. JECFA concluded that the data evaluated at the present meeting indicated no reason to change the previously established ADI of 0–40 mg/kg bw for aspartame. JECFA therefore reaffirmed the ADI of 0–40 mg/kg bw for aspartame at the present meeting.

Intake: JECFA determined that dietary exposure estimates to aspartame at the mean of up to 10 mg/kg bw per day for children and 5 mg/kg bw per day for adults, and for high dietary exposures up to 20 mg/kg bw per day for children and 12 mg/kg bw per day for adults, were appropriate for the present assessment. JECFA noted that these dietary exposure estimates do not exceed the ADI. JECFA therefore concluded that dietary exposure to aspartame does not pose a health concern.

Meeting: 96

Specs Code: R

Report: [TRS 1050-JECFA 96/3](#)

Tox Monograph: [FAS 87-JECFA 96/1](#)

Specification: [FAO Combined Compendium of Food Additive Specifications](#)

Evaluation year: 2016

ADI: 0-40 mg/kg bw

Comments: Considered for specifications only

Meeting: 82

Specs Code: R,T

Report: [*>TRS 1000-JECFA 82/81](#)

Specification: [*>FAO JECFA Monographs 19/5](#)

Evaluation year: 1981

ADI: 0-40 mg/kg bw

Comments: Aspartame has been considered by JECFA at its 19th, 20th, 21st, 23rd and 24th meeting. The 24th JECFA meeting allocated and ADI for aspartame of 0-40 mg/kg bw. At its 25th meeting JECFA considered the result of an additional long-term study on aspartame and the diketopiperazine impurity in rats and further biochemical studies of aspartame in humans. The ADI allocated at the 24th JECFA meeting was confirmed.

Meeting: 25

Specs Code: R

Report: [TRS 669-JECFA 25/27](#)

Tox Monograph: [FAS 16-JECFA 25/28](#)

Specification: [FAO Combined Compendium of Food Additive Specifications](#)

Previous Years: 1981, FNP 19-JECFA 25/23. R; COMPENDIUM/161 1980, TRS 653-JECFA 24/20, FNP 17-JECFA 24/10, FAS 15-JEC...



FOOD ADDITIVES

RISK ASSESSMENT

This searchable database contains the summaries of all the evaluations of flavours, food additives, contaminants, toxicants and veterinary drugs JECFA has performed. Each summary contains basic chemical information, ADIs/TDIs, links to the most recent reports and monographs as well as to the specification database, and a history of JECFA evaluations. The database is searchable by partial name or CAS number, by first character (letter or symbol), or by functional class.

Includes all updates up to the 99th JECFA meeting (June 2024).

zila

zip

ZILPATEROL HYDROCHLORIDE

FEMA or JECFA number

First Character

Functional Class



ZILPATEROL HYDROCHLORIDE

AddThis Sharing Buttons

Share to Print

Overview

CAS NUMBER

119520-06-8

FUNCTIONAL CLASS

Veterinary Drug

VETERINARY_DRUG

Evaluations

Evaluation year: 2015

ADI: 0–0.04 µg/kg bw
Comments: ARID of 0.04 µg/kg bw based on a LOAEL of 0.76 µg/kg bw for acute pharmacological effects observed in the single-dose human study.
MRL Comment: The recommended MRLs for cattle are 3.3 µg/kg in kidney, 3.5 µg/kg in liver and 0.5 µg/kg in muscle.
Report: [TRS 997-JECFA 81/73](#)
Residues: [FAO JECFA Monographs 18](#)

Evaluation year: 2013

ADI: 0–0.04 µg/kg b.w.
Comments: The Committee established an ADI of 0–0.04 µg/kg body weight on the basis of a LOAEL of 0.76 µg/kg body weight for tremor in humans. An uncertainty factor of 20 was applied, comprising a default uncertainty factor of 10 for human individual variability and an additional uncertainty factor of 2 to account for the use of a LOAEL for a slight effect instead of a NOAEL. The Committee noted that the ADI is based on an acute effect. The Committee also noted that the upper bound of the ADI provides a margin of safety of at least 1250 with respect to the NOAEL of 50 µg/kg body weight per day for the formation of leiomyomas in rats.
MRL Comment: The Committee concluded that it was not possible to recommend MRLs for zilpaterol. The following data are needed to establish MRLs: • results from studies investigating marker residue in liver and kidney; • results from studies determining marker residue to total residue ratio in liver and kidney; • results from depletion studies to enable the derivation of MRLs compatible with the ADI. All such studies should use sufficiently sensitive validated analytical methods capable of measuring zilpaterol and its major metabolites in edible tissues of cattle.
Meeting: 78
Report: [TRS 988-JECFA 78/](#)
Tox Monograph: [Zilpaterol hydrochloride.pdf](#)
Residues: [FAO Monograph](#)



VET DRUGS

J E C F A

RISK ASSESSMENT

Evaluations of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)

This searchable database contains the summaries of all the evaluations of flavours, food additives, contaminants, toxicants and veterinary drugs JECFA has performed. Each summary contains basic chemical information, ADIs/TDIs, links to the most recent reports and monographs as well as to the specification database, and a history of JECFA evaluations. The database is searchable by partial name or CAS number, by first character (letter or symbol), or by functional class.

Includes all updates up to the 99th JECFA meeting (June 2024).

mercu

mercu

MERCURY

METHYLMERCURY

FEMA or JECFA number

Functional Class



Evaluations of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)

METHYLMERCURY

AddThis Sharing Buttons

Share to Print

Overview

CAS NUMBER

593-74-8

FUNCTIONAL CLASS

Food Contaminant

METALS

Evaluations

Evaluation year: 2007

Comments:

The Committee confirmed that the previous PTWI of 3.3 µg/kg bw had been withdrawn in 2003. The Committee confirmed the existing PTWI of 1.6 µg/kg bw, based on the most sensitive toxicological end-point (developmental neurotoxicity) in the most susceptible species (humans). For adults, the Committee considered that intakes of up to two times higher than the existing PTWI would not pose any risk of neurotoxicity, although in the case of women of childbearing age, intake should not exceed the PTWI in order to protect the embryo and fetus. Concerning infants and children up to 17 years, no firm conclusions may be drawn regarding their sensitivity compared to that of adults. While they are clearly not more sensitive than the embryo or fetus, they may be more sensitive than adults due to continuing neurodevelopment in infancy and childhood. Therefore, the Committee could not identify a level of intake higher than the existing PTWI that would not pose a risk of developmental neurotoxicity. The Committee has previously noted that fish makes an important contribution to nutrition, especially in certain regional and ethnic diets and recommends that the known benefits of fish consumption be taken into consideration in any advice aimed at different subpopulations. The Committee concluded that the setting of guideline levels for methylmercury in fish may not be an effective way of reducing exposure for the general population. The Committee noted that advice targeted at population subgroups that may be at risk from methyl mercury exposure may be effective in lowering the number of individuals with exposures greater than the PTWI.

Tolerable Intake:

PTWI 1.6 µg/kg bw

Meeting:

67

Report:

TRS 940-JECFA 67/57

Tox Monograph:

67th_2007_methyl mercury.pdf

Toxicological study

Pivotal Study:

Epidemiology studies conducted in children from the Faroe Islands & the Seychelles (Budtz-Jorgensen et al. (1999a, 2000, 2001); United States National Research Council (2000); Rice et al. (2003), Agency for Toxic Substances and Disease Registry (1999)); Children 5.5-7 years old were assessed for neurodevelopmental endpoints, and maternal hair Hg levels were measured. An average BMDL/NOEL of 14mg/kg (14 µg/g) was derived for concentrations of mercury in maternal hair in the studies of neurodevelopmental effects, which was calculated to arise from a daily Hg intake of 1.5 µg/kg bw. The PTWI was derived by dividing this intake by a total uncertainty factor of 6.4 to give a value of 1.6 µg/kgbw.

Animal Species:

Human

Effect:

Neurotoxicity

NOAEL:

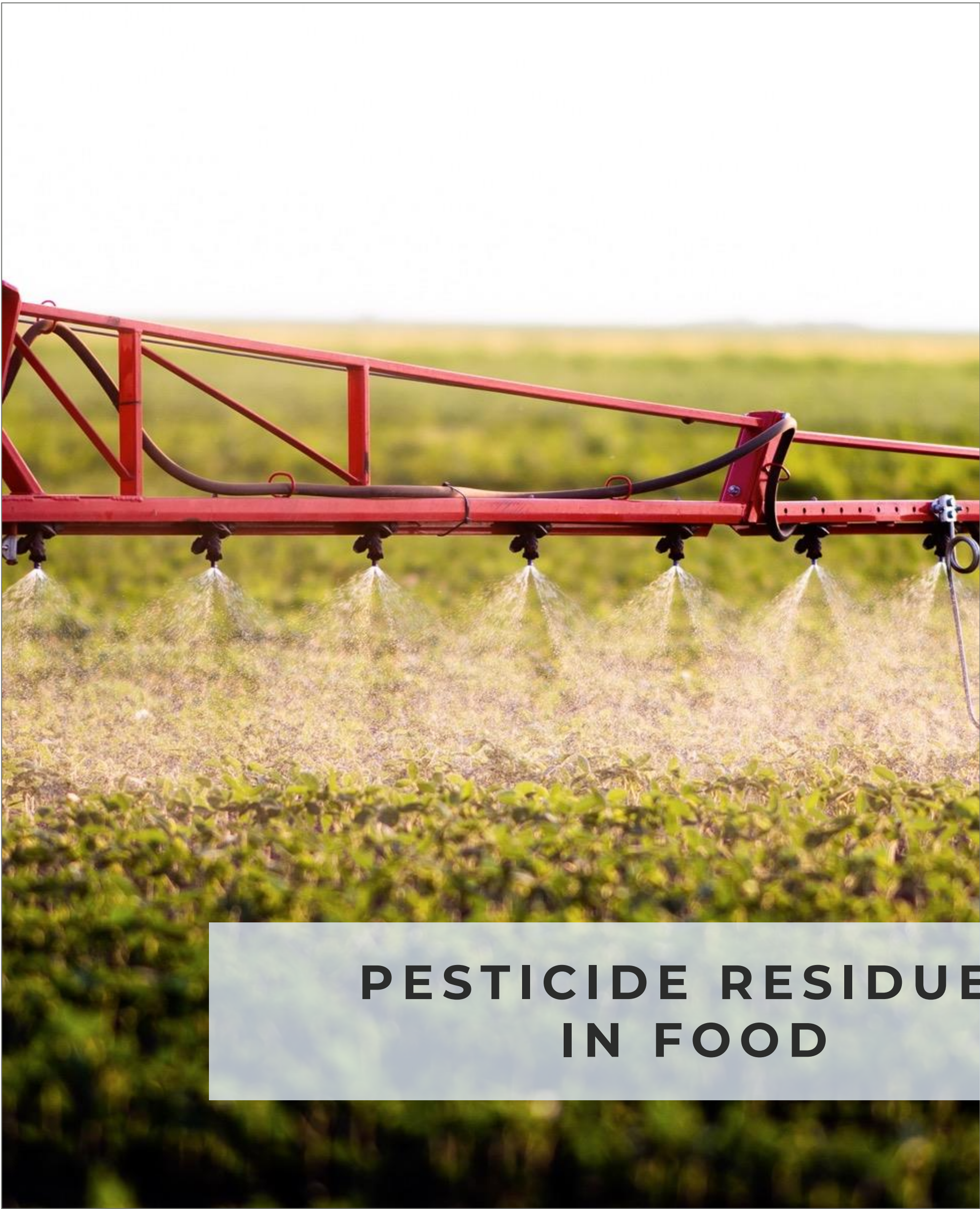
1.5 µg/kg

PTWI:

1.6 µg/kg bw



CONTAMINANTS



PESTICIDE RESIDUES IN FOOD

J M P R

RISK ASSESSMENT EVIDENCE-BASED APPROACH.

**Inventory of evaluations performed by the Joint Meeting on Pesticide Residues (JMPR)**

This inventory summarizes evaluations of pesticides that have been performed by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR). It does not include the maximum residue levels (MRLs) that have been recommended by JMPR.


Maximum residue limits adopted by Codex Alimentarius Commission are available on: <https://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/tr/>

The most up-to-date information concerning JMPR meetings, reports and toxicological monographs is available at: [Joint FAO/WHO Meeting on Pesticide Residues \(JMPR\)](#)

Categories:

[0-9](#) [A-C](#) [D-F](#) [G-I](#) [J-L](#) [M-O](#) [P-R](#) [S-U](#) [V-Z](#) [All](#)

Search

**Inventory of evaluations performed by the Joint Meeting on Pesticide Residues (JMPR)**

This inventory summarizes evaluations of pesticides that have been performed by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR). It does not include the maximum residue levels (MRLs) that have been recommended by JMPR.

Maximum residue limits adopted by Codex Alimentarius Commission are available on: <https://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/tr/>

The most up-to-date information concerning JMPR meetings, reports and toxicological monographs is available at: [Joint FAO/WHO Meeting on Pesticide Residues \(JMPR\)](#)

LINDANE

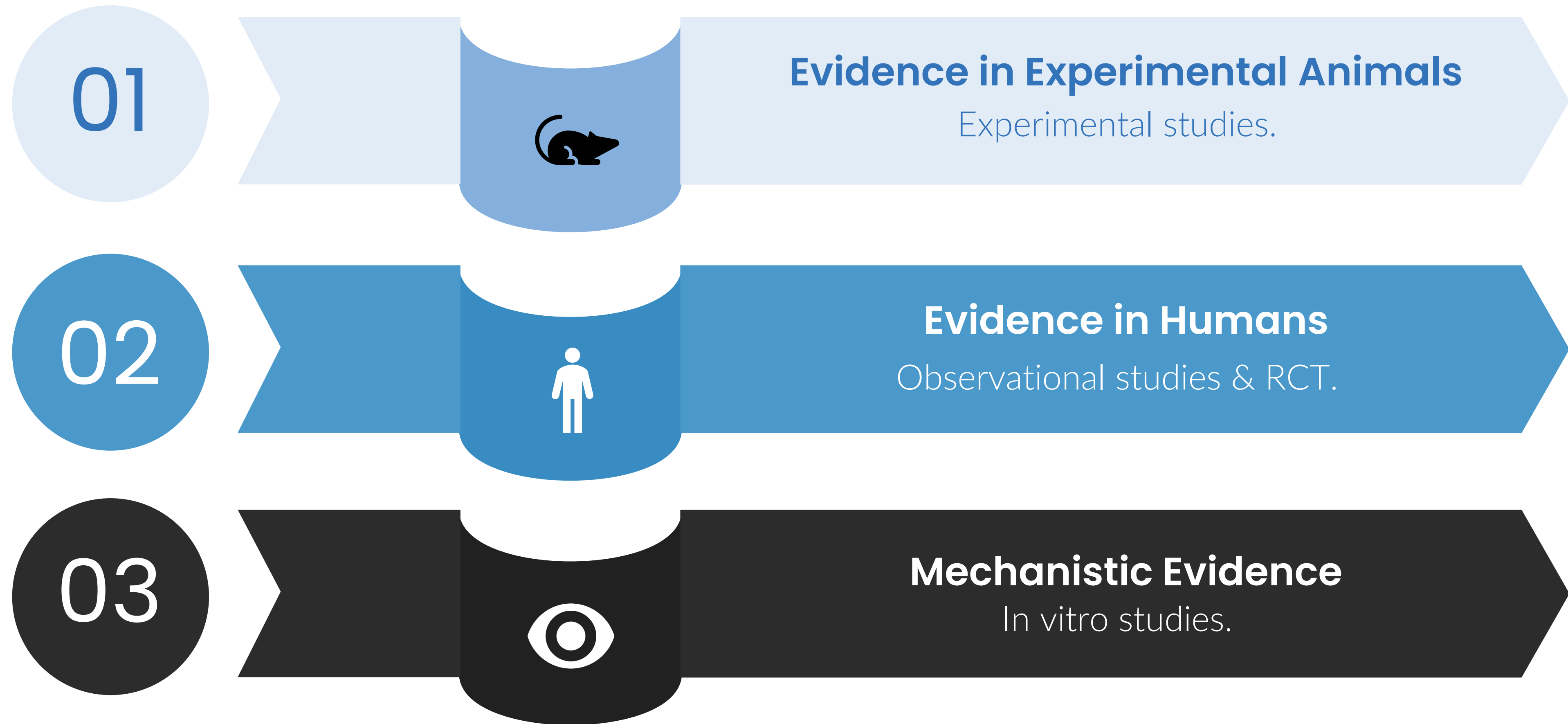
General Information

CAS number:	58-89-9
Chemical Class:	organochlorine
Use:	insecticide
EHC:	124
HSG:	54
IARC:	5* 20* Suppl.7*
Specs:	*

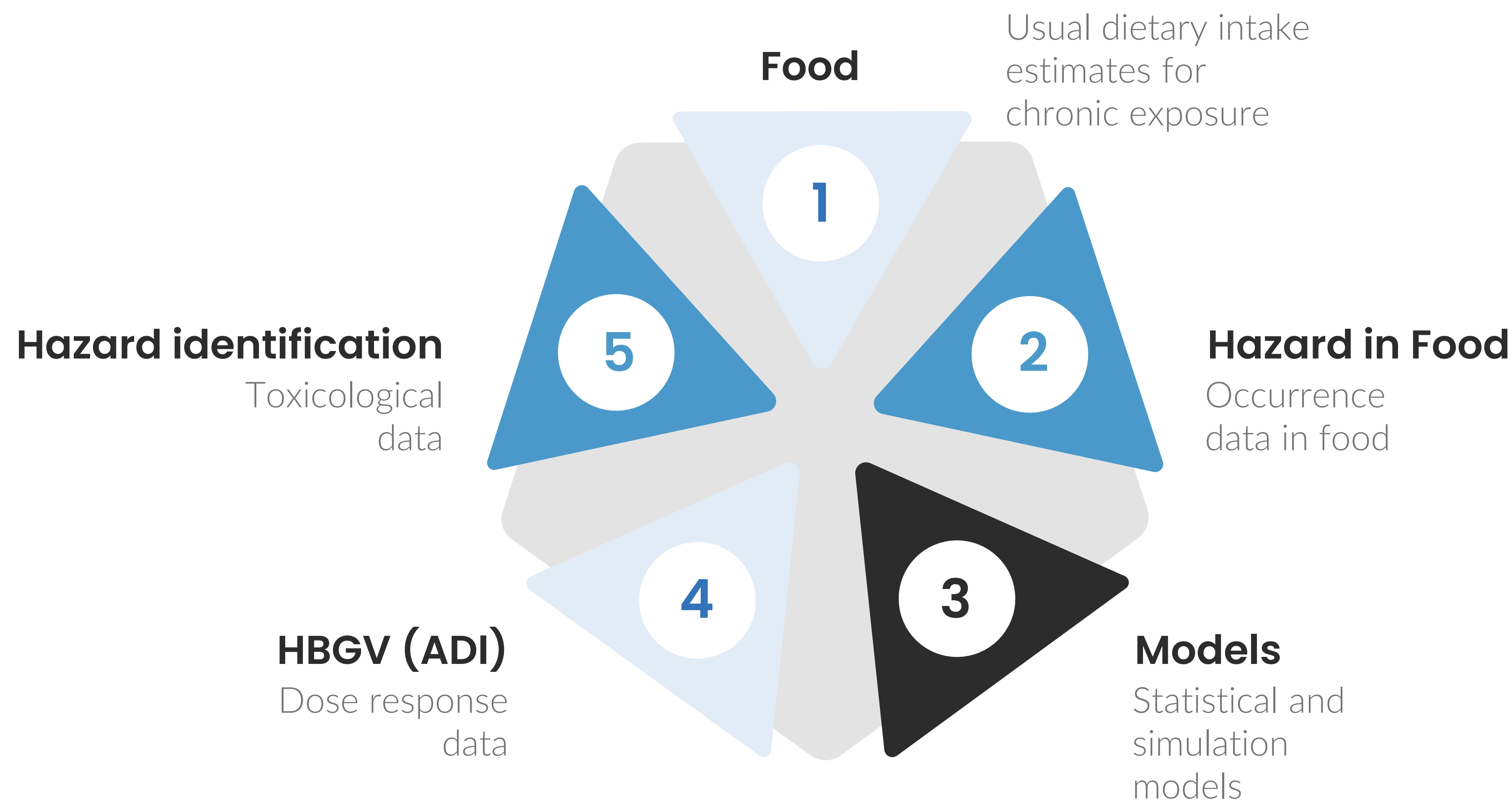


Evaluations				
Year	ADI (mg/kg bw)	ARfD (mg/kg bw)	Comments	Documents
2002	0-0.005	0.06		Report : FAO Plant Production and Protection Paper, 172, 2002 - Pesticide residues in food - 2002. Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Core Assessment Group Tox Monograph : LINDANE - JMPR 2002.pdf
1997	0-0.001 TEMPORARY			Report : FAO Plant Production and Protection Paper, 145, 1998 - Pesticide residues in food - 1997. 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 -

EVIDENCE-BASED APPROACH



EVIDENCE-BASED APPROACH





MICROBIOLOGICAL
HAZARDS

J E M R A

RISK ASSESSMENT

EVIDENCE-BASED APPROACH.

- About
- Microbiological Risk Assessment series
- Summary and conclusions

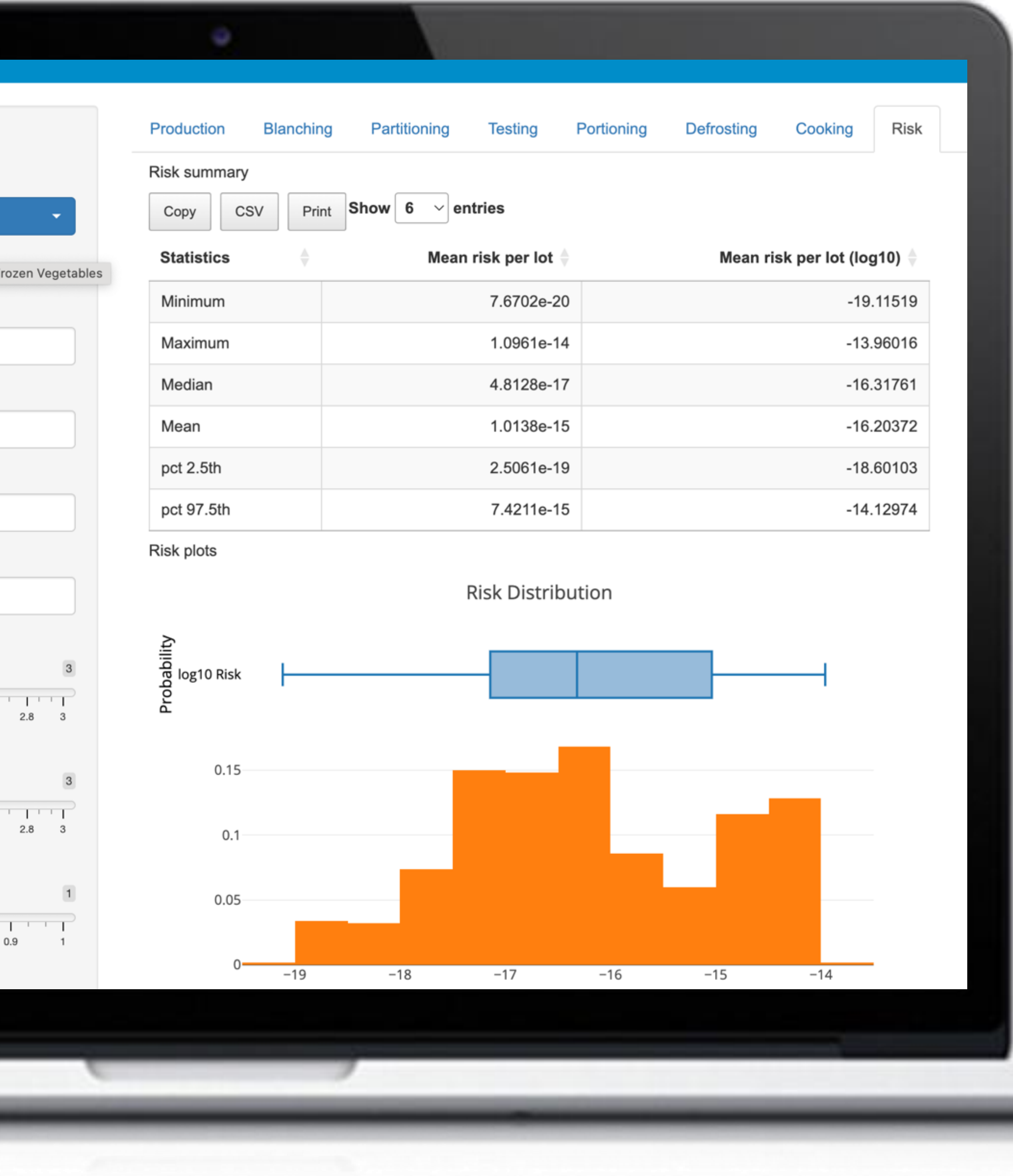


Viruses in food
Who and where are they?

9 April 2024
Viruses in food. Who and where are they?

Roster of experts

JEMRA is tasked with the evaluation of different aspects of microbiological hazards in the food supply. This roster consists of scientific experts who have submitted applications in response to public calls for experts on Risk Assessment of Microbiological Hazards related to food safety. The applications were reviewed by the FAO and WHO Secretariats and by an external referee, and selections made on the basis of the criteria outlined the call for experts. Scientists of the roster will be considered for future



Select Stage

Production

Select Parameters

Set a random seed

12345

nLots: Number of lots

500

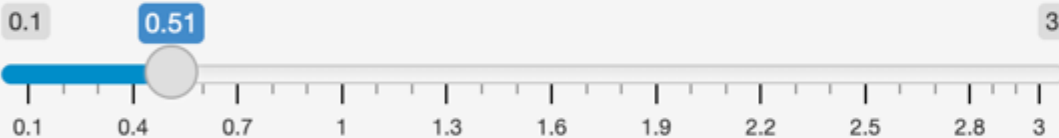
sizeLot: Number of units

500

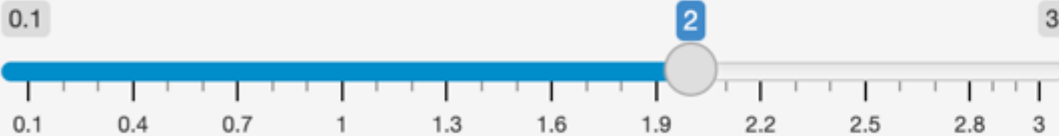
unitSize: Size of the units (g)

500

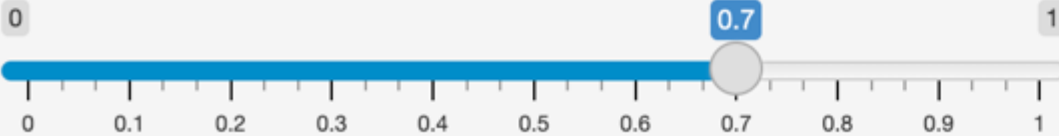
betaAlpha: Alpha parameter of the Beta distribution



betaBeta: Beta parameter of the Beta distribution



propVarInter: Prop. of between-lot variance (%)



C0MeanLog: Mean of Counts (log10 CFU/g)



Update Results

Production

Blanching

Partitioning

Testing

Portioning

Defrosting

Cooking

Risk



Risk summary

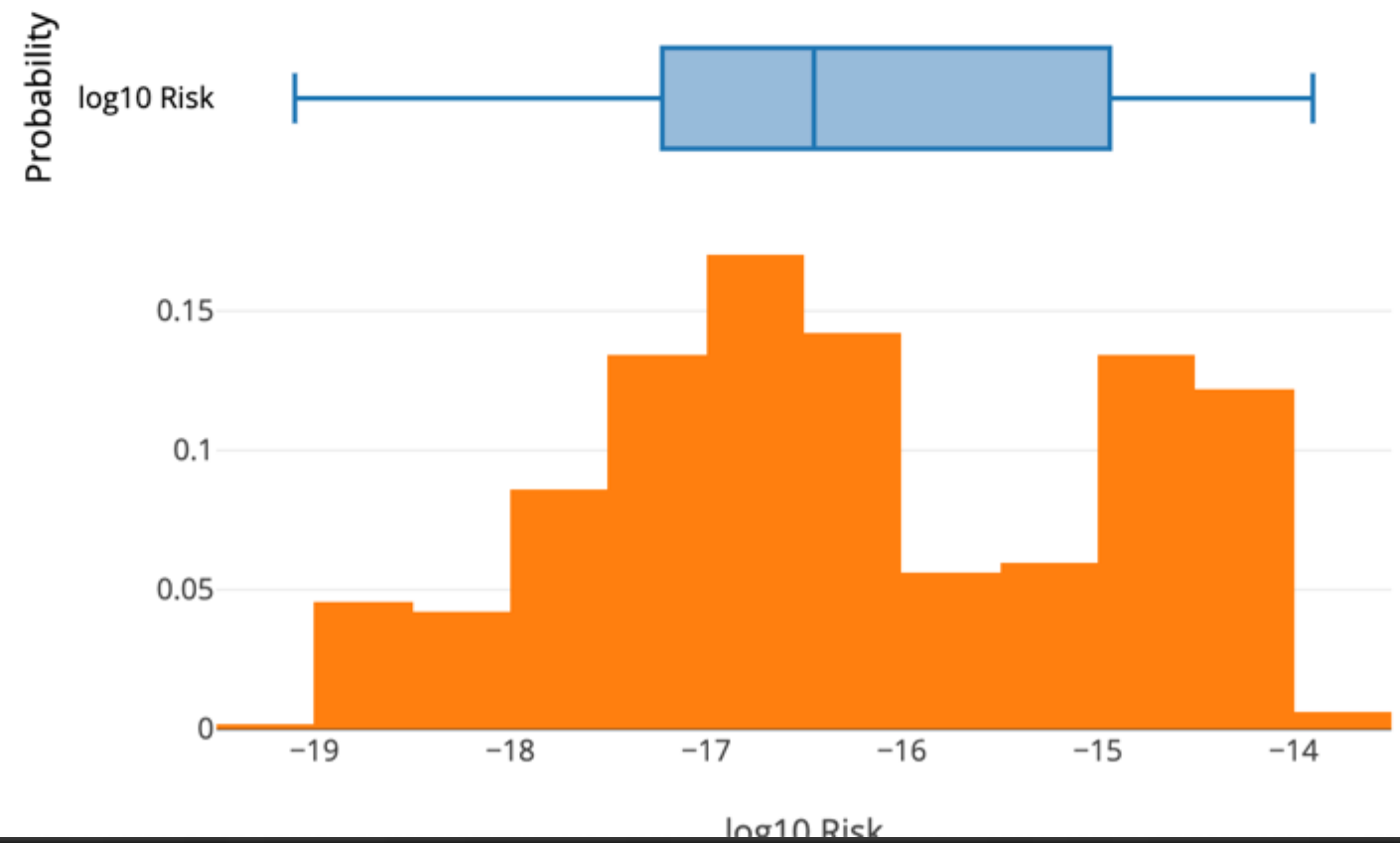
Copy CSV Print Show 6 entries

Statistics	Mean risk per lot	Mean risk per lot (log10)
Minimum	7.9404e-20	-19.10016
Maximum	1.2549e-14	-13.90138
Median	3.5559e-17	-16.44907
Mean	1.0398e-15	-16.26227
pct 2.5th	2.3106e-19	-18.63652
pct 97.5th	7.1064e-15	-14.14835



Risk plots

Risk Distribution





**BEYOND FOOD SAFETY:
HEALTH, NUTRITION, AND
TRUST**



NUTRITION

WHO GUIDELINES

EVIDENCE-BASED APPROACH.



[Home](#) [Health Topics](#) [Countries](#) [Newsroom](#) [Emergencies](#) [Data](#) [About WHO](#)

[Home](#) / [Publications](#) / [Overview](#) / What are healthy diets? Joint statement by the Food and Agriculture Organization of the United Nations and the World Health Organization

What are healthy diets? Joint statement by the Food and Agriculture Organization of the United Nations and the World Health Organization

24 October 2024 | Publication

What are healthy diets?

Joint statement by the Food and Agriculture Organization of the United Nations and the World Health Organization



[Download \(1.2 MB\)](#)

Overview

Healthy diets promote health, growth and development, support active lifestyles, prevent nutrient deficiencies and excesses, communicable and noncommunicable diseases, foodborne diseases and promote wellbeing. The exact make-up of a diet will vary depending on individual characteristics, preferences and beliefs, cultural context, locally available foods and dietary customs. However, the basic principles of what constitutes healthy diets remain the same. In this document the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) have formulated principles of what constitute healthy diets, underpinned by guidelines and other normative elements developed by the two Organizations. The principles provide the basis for the design of policies aimed at improving diet and for the assessment of the healthiness of diets.

WHO TEAM

Nutrition and Food Safety (NFS)

EDITORS

World Health Organization & Food and Agriculture Organization of the United Nations

NUMBER OF PAGES

22

REFERENCE NUMBERS

ISBN: 978-92-4-010187-6

COPYRIGHT

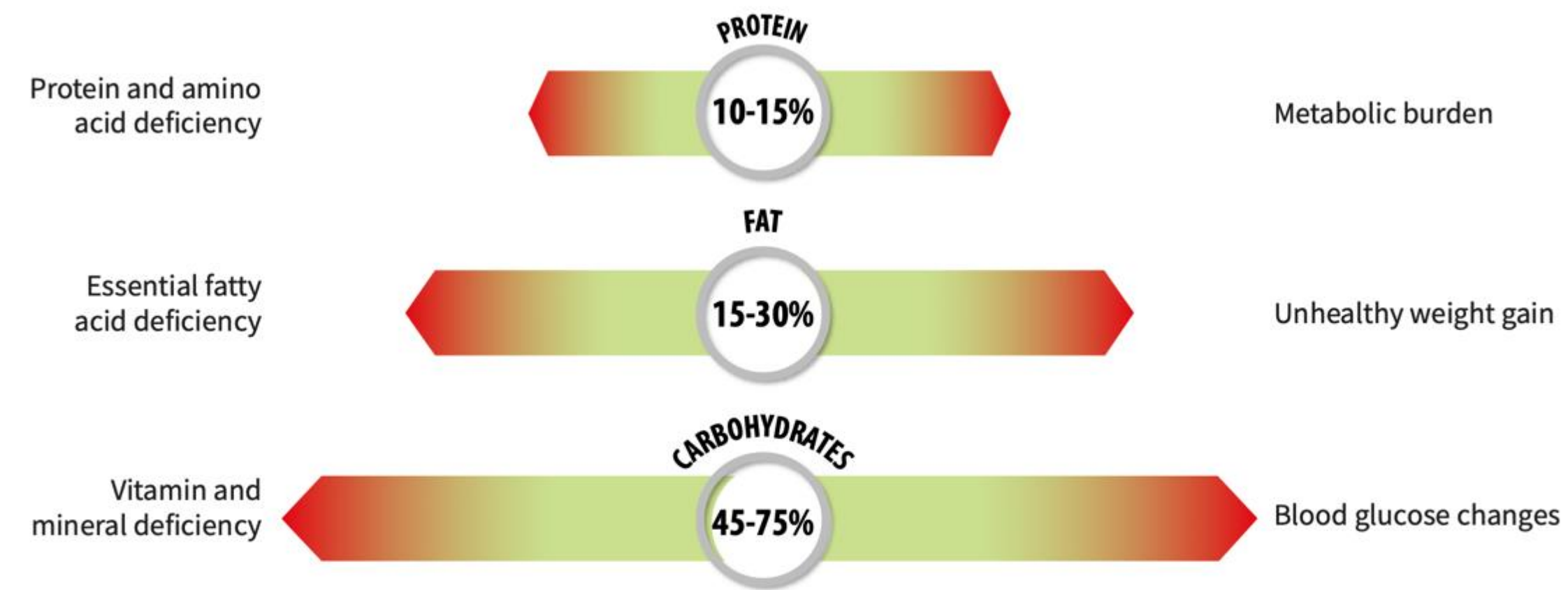


HEALTHY DIET





HEALTHY DIETS CORE PRINCIPLES.



Note: The values in the centre of this schematic represent optimal ranges of macronutrient intake for adults (as a percentage of total daily calories consumed). The conditions on either side may result from consuming diets that contain macronutrient intakes outside these ranges. For references, please see Table 1.

Adequate

Providing enough essential nutrients to prevent deficiencies and promote health, without excess.

Moderate

In consumption of foods, nutrients or other compounds associated with detrimental health effects.

Balanced

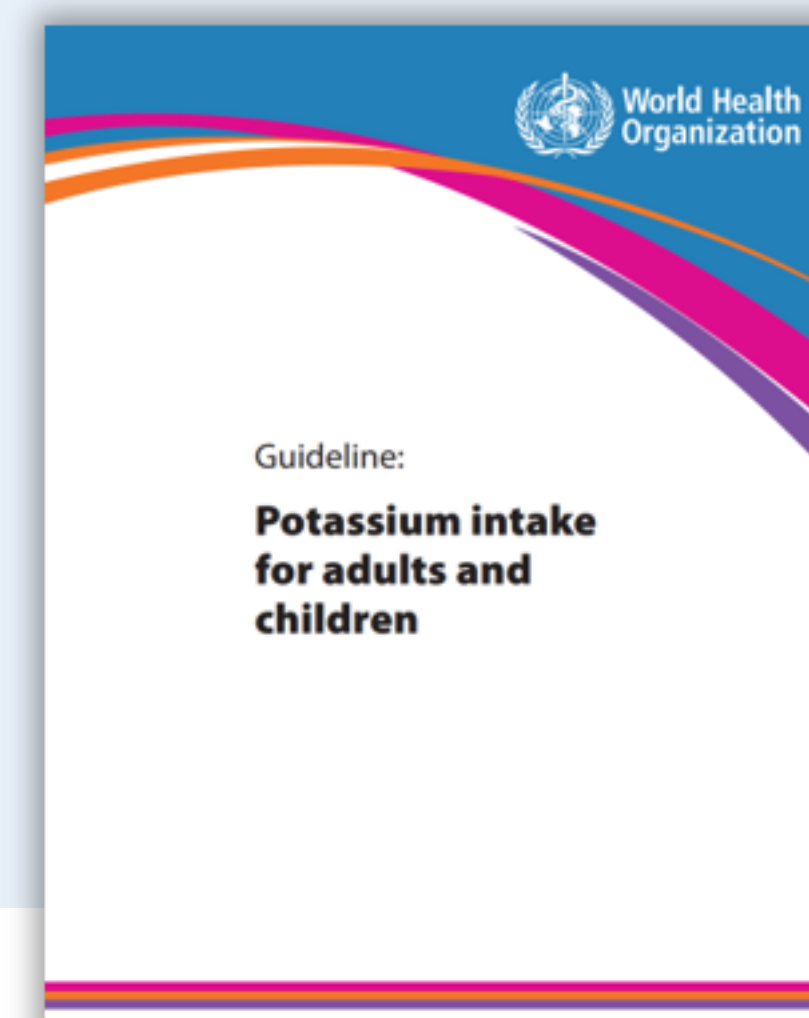
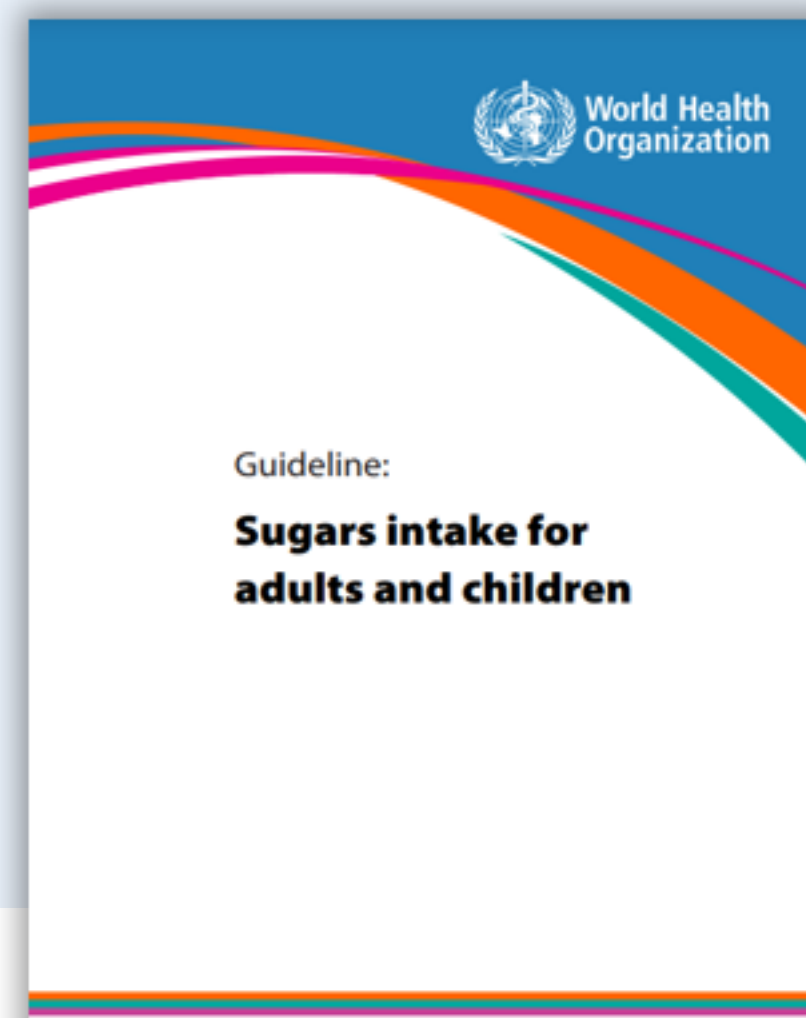
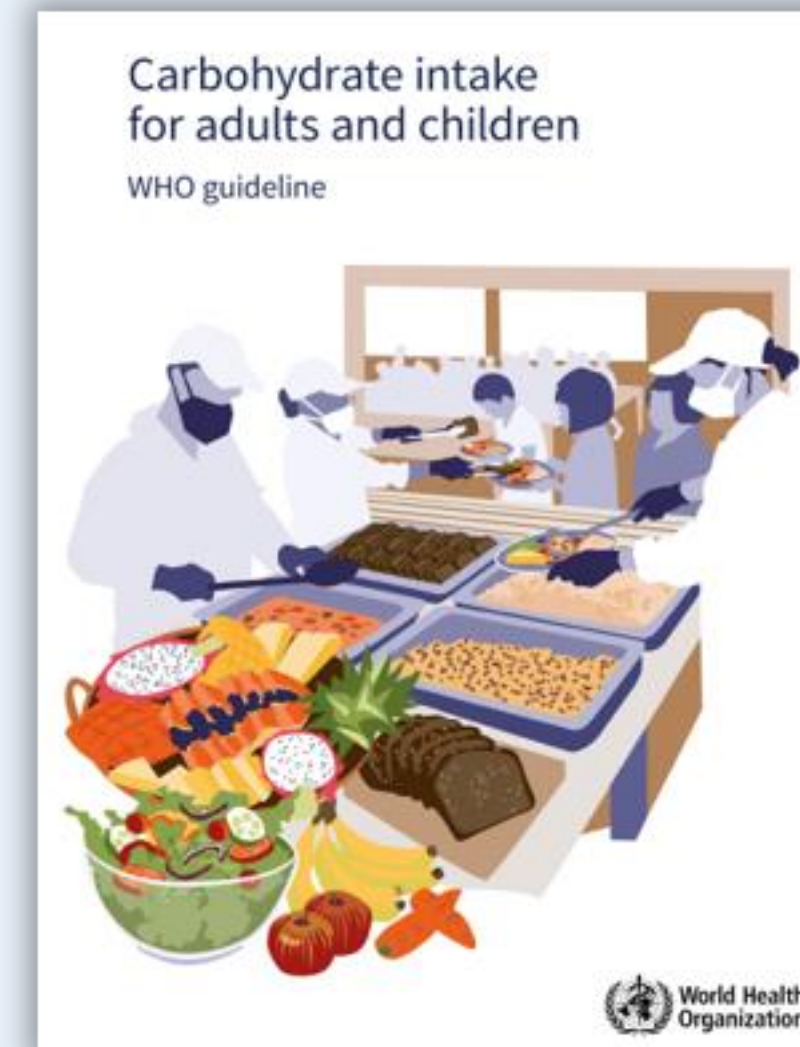
In energy intake, and energy sources (i.e., fats, carbohydrates and proteins) to promote healthy weight, growth and disease prevention.

Diverse

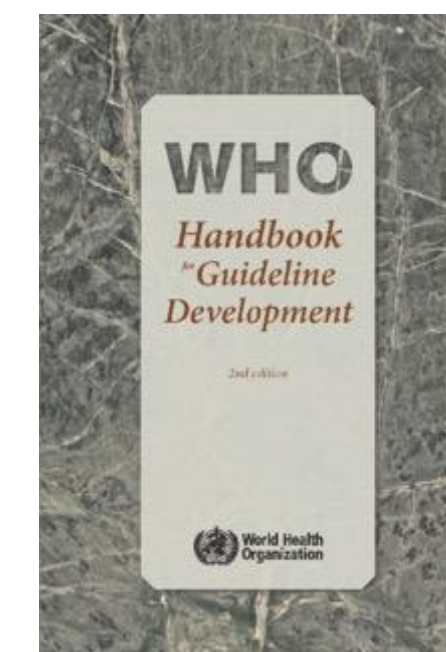
Including a wide variety of nutritious foods within and across food groups to favour nutrient adequacy and consumption of other health promoting substances.

GUIDELINES

WHO macronutrient, micronutrient and other guidelines.



WHO guideline development process





HEALTHY DIETS.

ONGOING WORK

ANIMAL SOURCE FOODS

The objective is to delineate optimal intake ranges for animal source foods — such as red meat, processed meat, dairy, fish, poultry and eggs— in relation to each other and relevant plant options, e.g. nuts/seeds, legumes, wholegrains and soy

I N N O V A T I O N

NEW RISK ASSESSMENT APPROACHES



INNOVATION

Developing innovative, AI-powered methods to assess risks in complex and evolving food systems—addressing emerging challenges from new food sources and technologies, while accelerating assessments through data-driven approaches.

INNOVATION

NEW RISK ASSESSMENT APPROACHES NAM's



World Health
Organization



NANYANG
TECHNOLOGICAL
UNIVERSITY
SINGAPORE



Government
of Canada

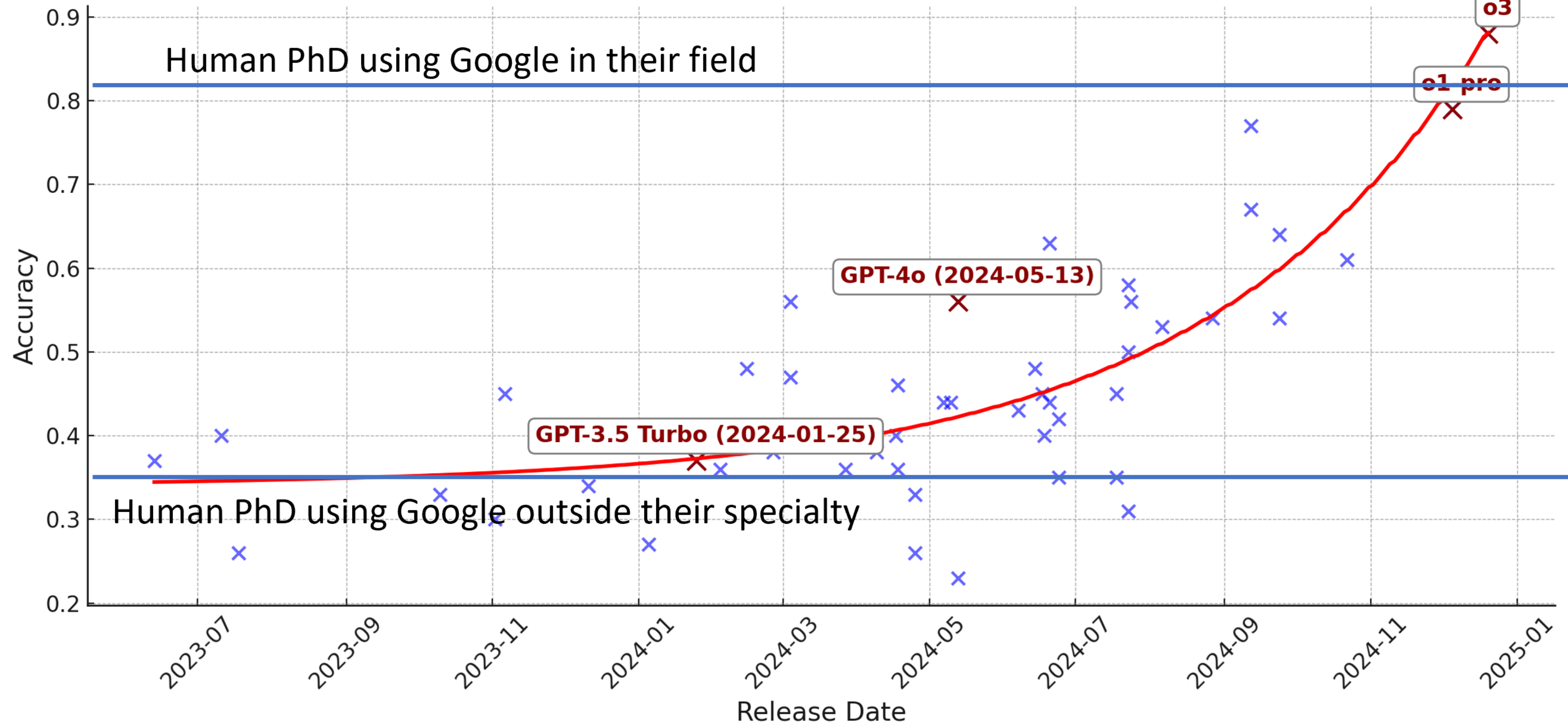


New Approach Methodologies (NAMs) in Future Food Safety Risk Assessment

Royal Plaza on Scotts, Singapore, 18 to 20 June 2025

nams@who.int

Performance on GPQA Diamond



I N N O V A T I O N

NEW RISK ASSESSMENT APPROACHES



AI WILL ONLY REPLACE RISK
ASSESSORS OR SCIENTISTS,
WHO DON'T USE IT.

WHO DOES IT BETTER?

nature

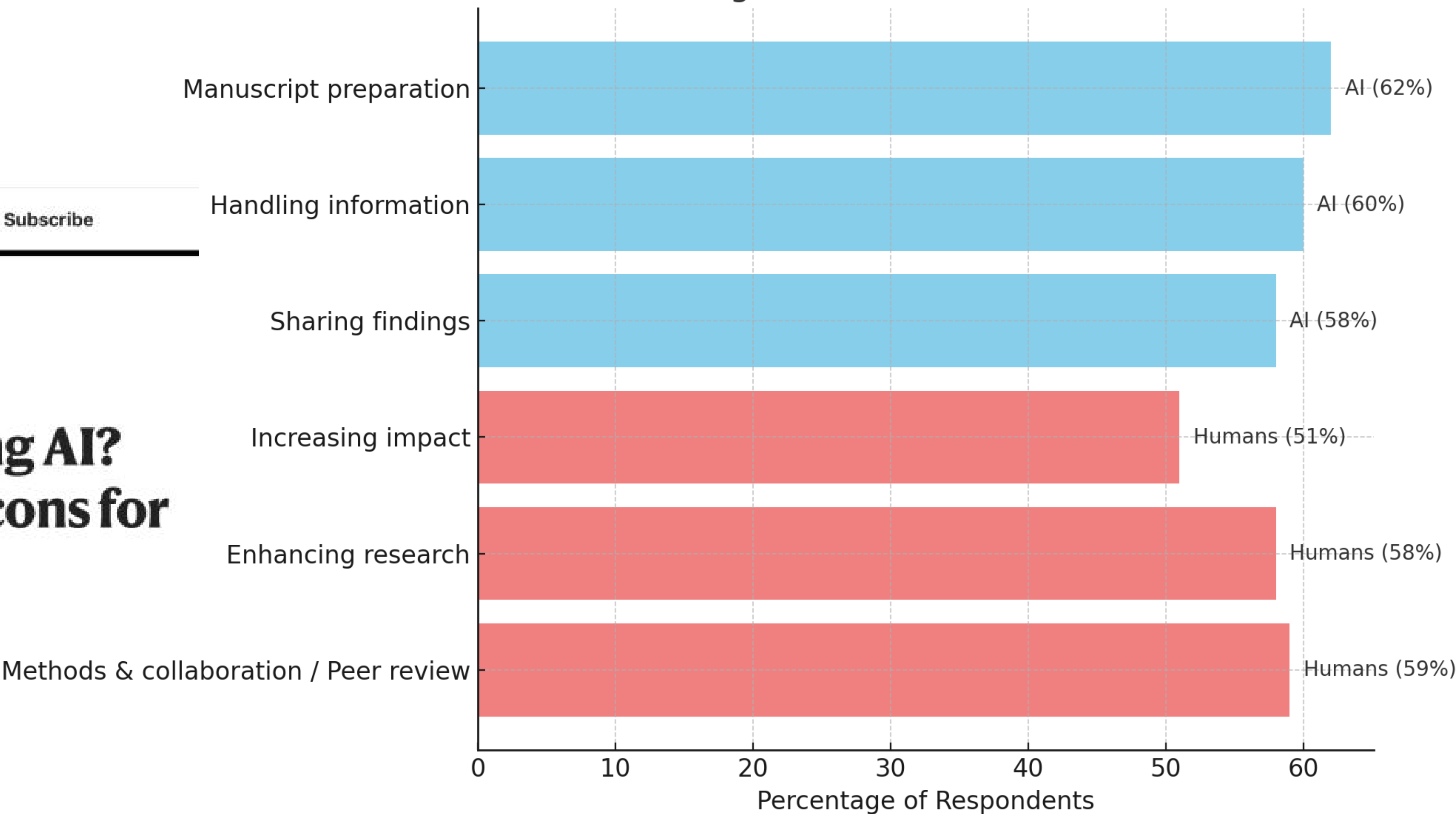
Explore content ▾ About the journal ▾ Publish with us ▾ Subscribe

[nature](#) > [news](#) > article

NEWS | 04 February 2025

How are researchers using AI? Survey reveals pros and cons for science

Perceived Strengths of AI vs Humans in Research Tasks



PROS AND CONS OF AI

PROS

- Productivity
- Information retrieval
- Evidence integration of Big Data
- Multi-modal
- Toward xAI

CONS

- Plagiarism?
- Bias
- Data gaps
- Black box
- Hallucination
- Autonomous AI



World Food Safety Day 7 June 2025

What can you do?

Science provides the basis for food safety guidance, but preventing foodborne illness depends on all of us taking the right actions.

Governments can:

- **Invest in research and support scientists.** When governments invest in sound science to guide policies, they create a solid foundation for good governance
- **Invest in data collection.** This can support regular review of scientific advice and promote data sharing both within and beyond their borders.
- **Develop science-based policies** to ensure food safety along the food supply chain, reassure consumers about the safety of their food, and address emerging risks.
- **Promote science education** to empower young people with the knowledge to stay safe and secure the future of food safety.



© Food and Nutritional Sciences Department, Macau University of Science and Technology



© WHO/Sue Price

Food businesses can:

- **Implement evidence-based programmes** to identify potential contamination risks and ensure safe handling, processing, distribution and storage of food.
- **Reinforce food safety practices** by continuously educating and retraining employees on the latest food safety practices and emerging risks. This ensures consistent high standards throughout the supply chain.
- **Support data collection efforts** to facilitate regular review of the scientific basis on which practices and risk management measures are established and monitor and oversee their implementation.



MOEZ SANAAPRES

THANK YOU