World Health Organization

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

World Health Organization

World Health Organization

Food and Agriculture Organization of the United Nations

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 Health Organization

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.

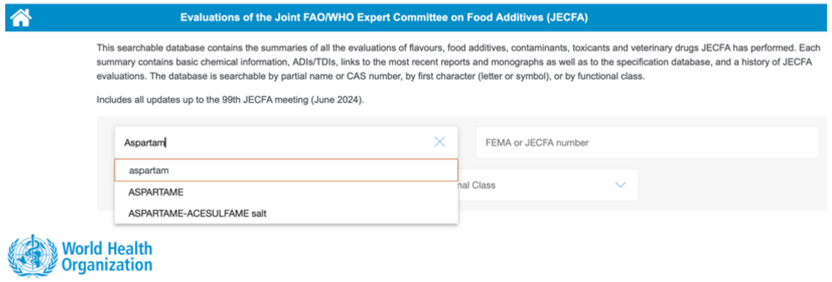
Experts review data and studies on residues of pesticides in food and animal feed, which are used to determine what levels can be found in foods and what levels are safe for consumption.

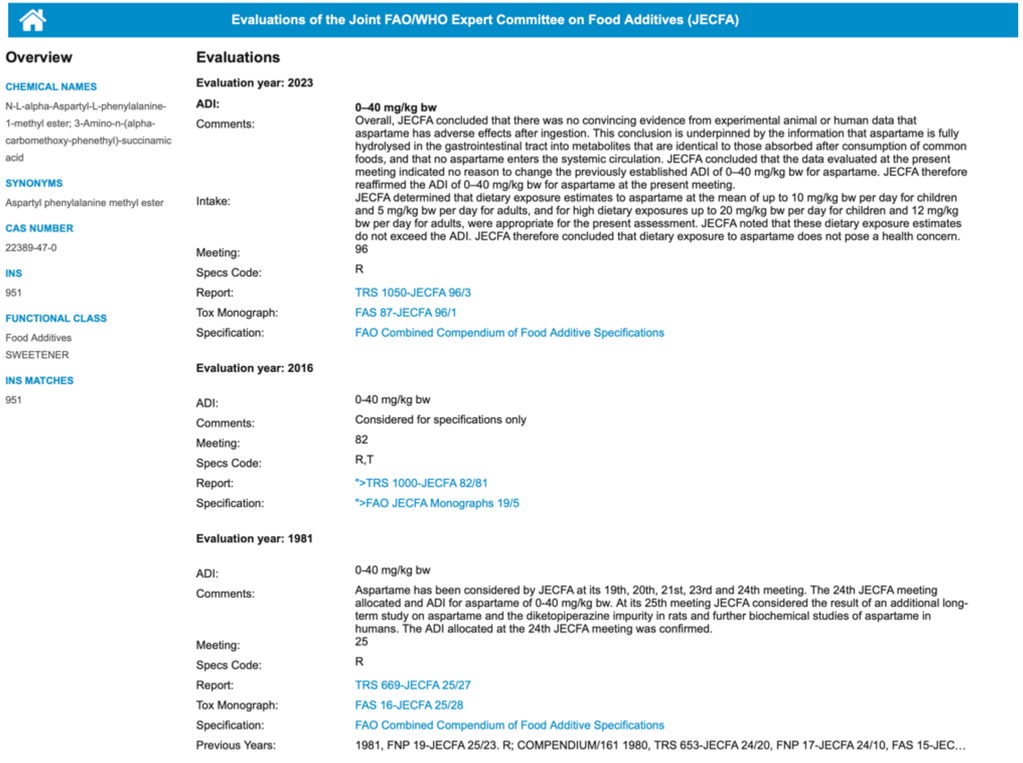
See more on JMPR here:
JMPR at FAO | JMPR at WHO

J E C F A

RISK ASSESSMENT

EVIDENCE-BASED APPROACH.



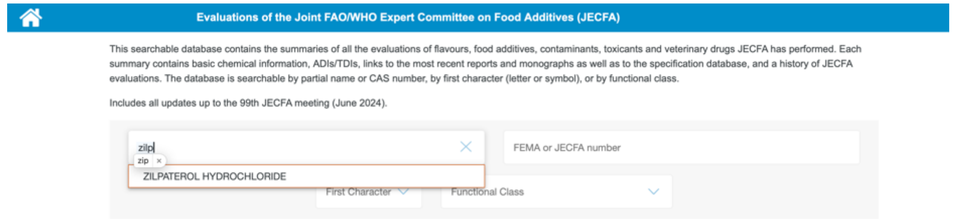


FOOD ADDITIVES

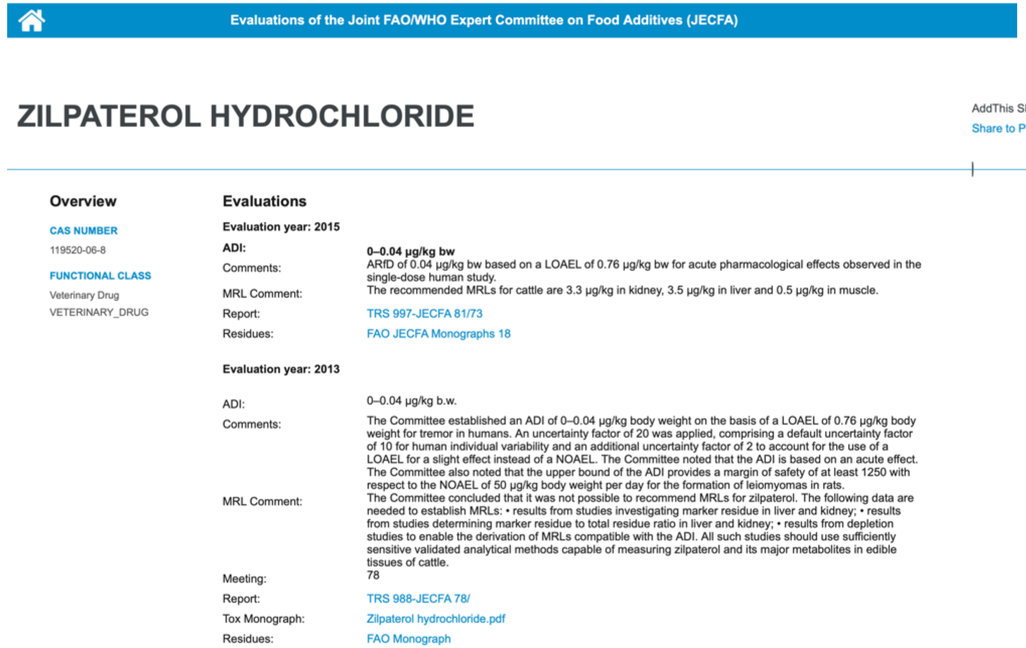
World Health Organization

J E C F A

RISK ASSESSMENT



World Health Organization

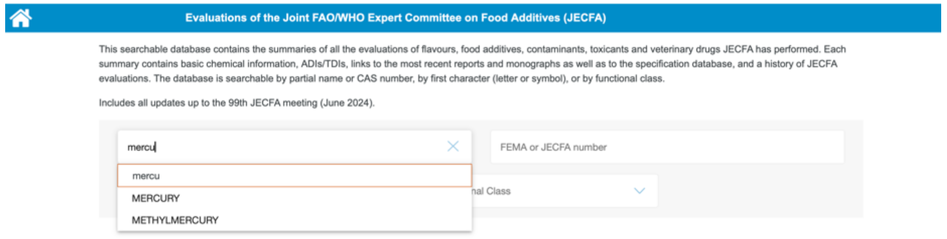


VET DRUGS

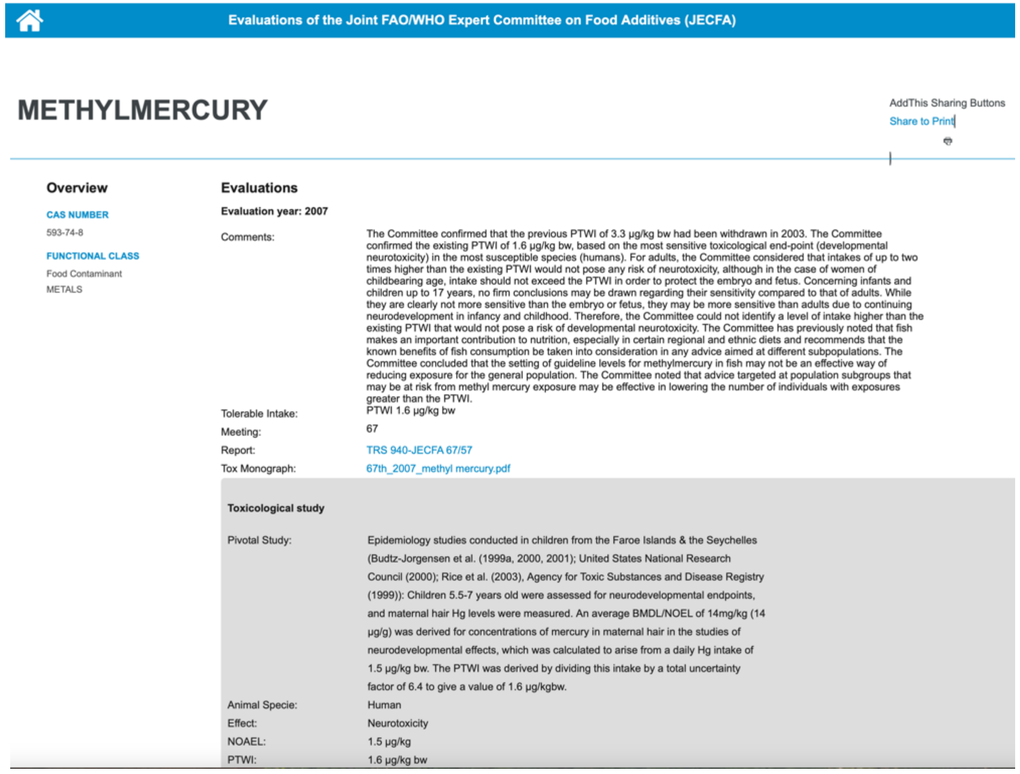
World Health Organization

J E C F A

RISK ASSESSMENT



World Health Organization



CONTAMINANTS

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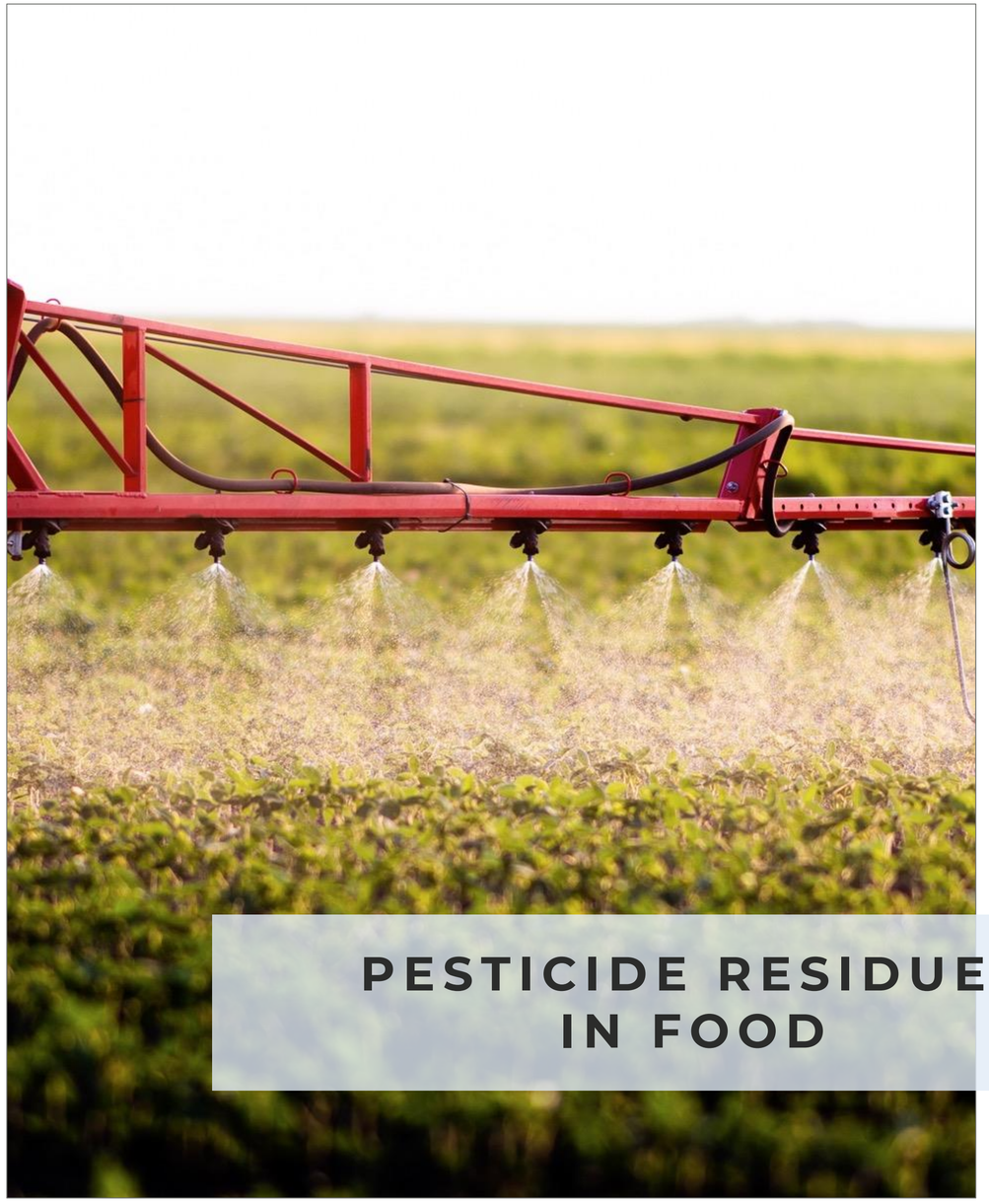
J M P R

RISK ASSESSMENT

EVIDENCE-BASED APPROACH.



PESTICIDE RESIDUES IN FOOD

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)

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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 -

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EVIDENCE-BASED APPROACH

01

Evidence in Experimental Animals

Experimental studies.

02

Evidence in Humans

Observational studies & RCT.

03

Mechanistic Evidence

In vitro studies.

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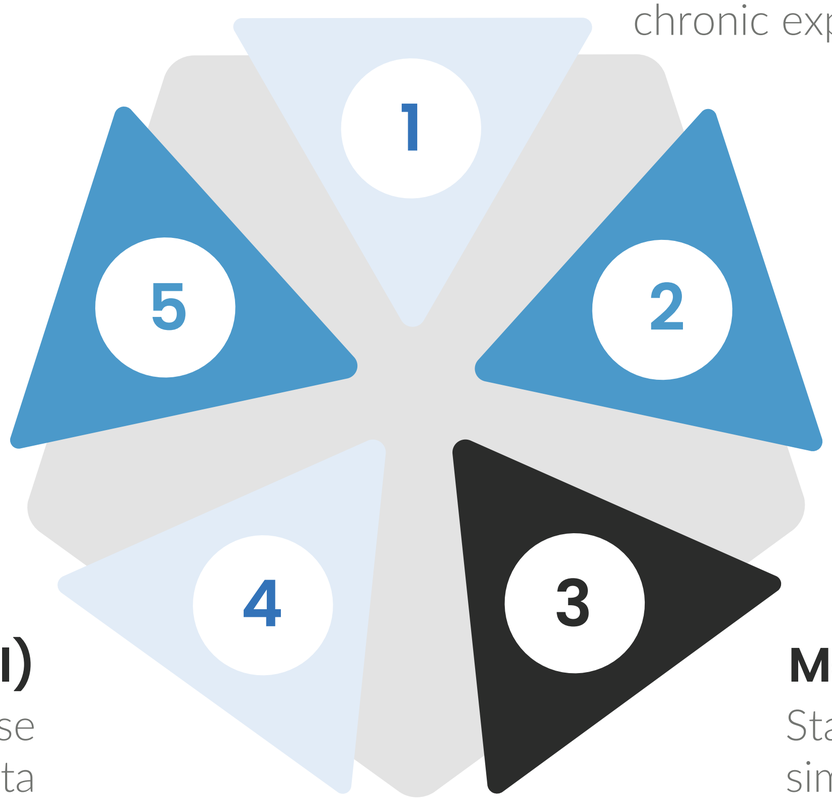
EVIDENCE-BASED APPROACH

Food

Usual dietary intake estimates for chronic exposure



Hazard identification

Toxicological data

Hazard in Food

Occurrence data in food

HBGV (ADI)

Dose response data

Models

Statistical and simulation models

World Health Organization

MICROBIOLOGI
HAZARDS

JEMRA

RISK ASSESSMENT

EVIDENCE-BASED APPROACH.

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About >

- About
- Microbiological Risk Assessment series
- Summary and conclusions

Roster of experts

JEMRA is tasked with the evaluation of different aspects of microbiologica 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

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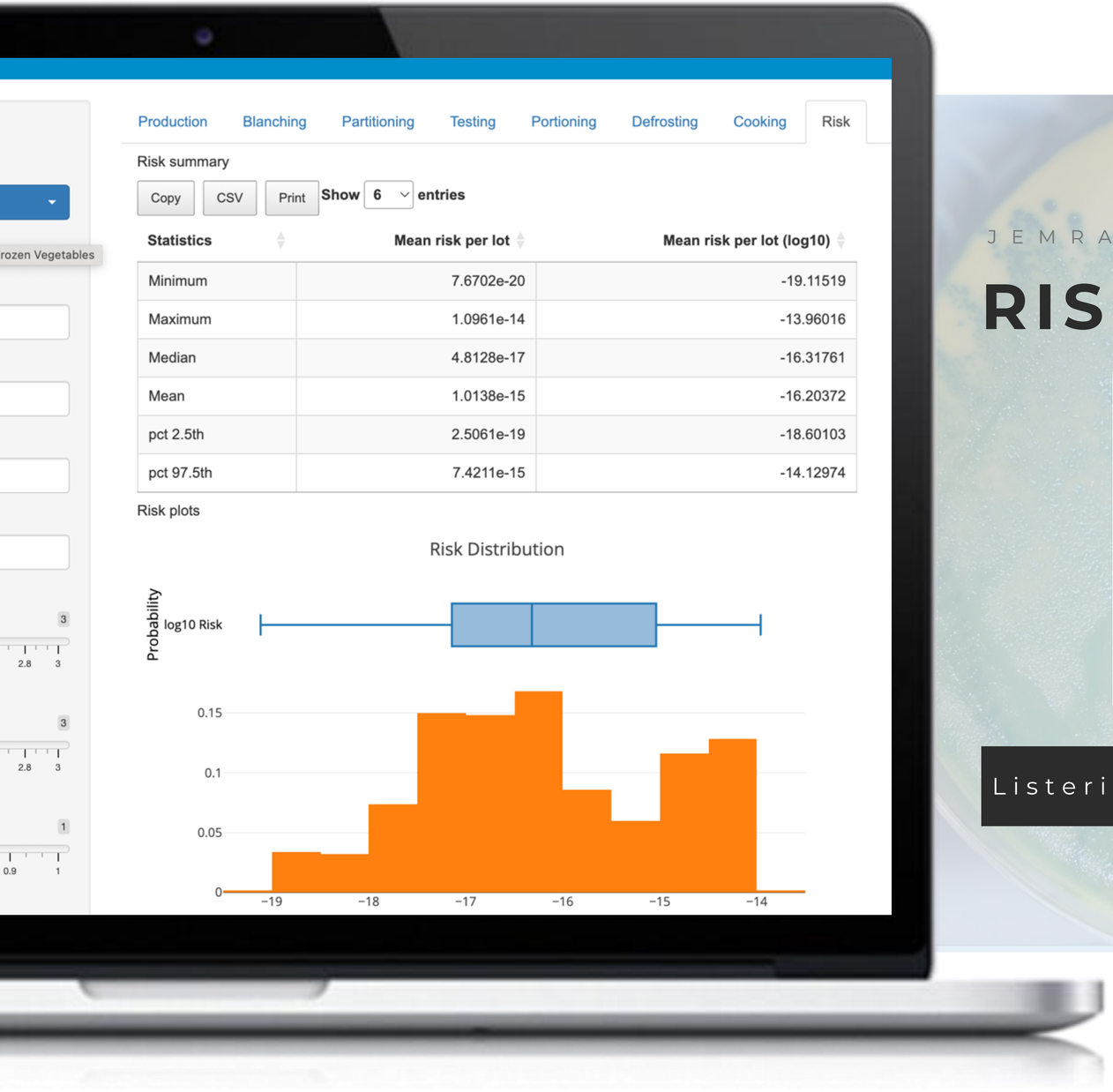


J E M R A

RISK ASSESSMENT TOOLS

Listeria monocytogenes

World Health Organization

About | Frozen Vegetables | Smoked Fish | RTE Cantaloupe

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

0.1 | 0.51 | 3

0.1 0.4 0.7 1 1.3 1.6 1.9 2.2 2.5 2.8 3

betaBeta: Beta parameter of the Beta distribution

0.1 | 2 | 3

0.1 0.4 0.7 1 1.3 1.6 1.9 2.2 2.5 2.8 3

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

0 | 0.7 | 1

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

C0MeanLog: Mean of Counts (log10 CFU/g)

-3 | 1.02 | 3

-3 -2.4 -1.8 -1.2 -0.6 0 0.6 1.2 1.8 2.4 3

Update Results

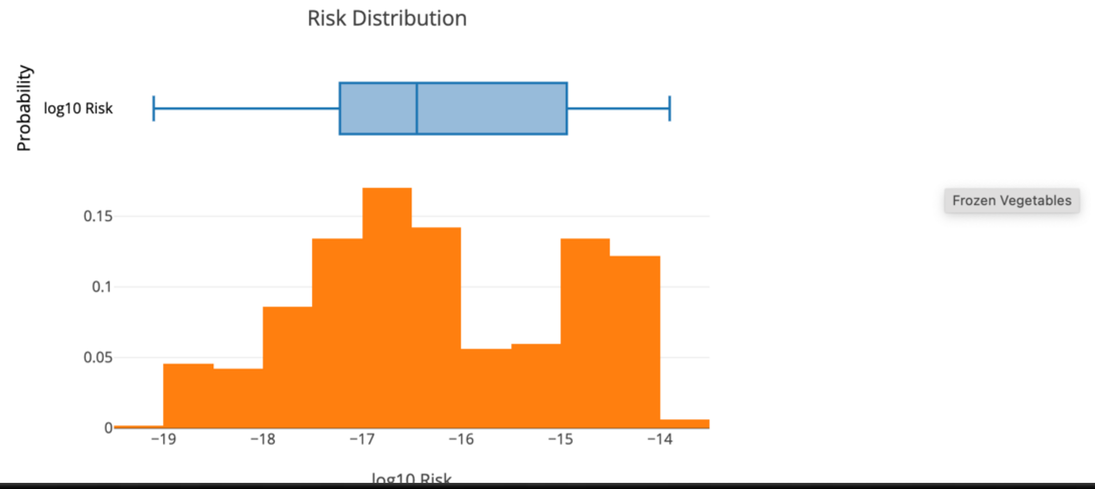
Production | Blanching | Partitioning | Testing | Portioning | Defrosting | Cooking | Risk

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



BEYOND FOOD SAFETY: HEALTH, NUTRITION, AND TRUST

NUTRITION

WHO GUIDELINES

EVIDENCE-BASED APPROACH.

World Health Organization

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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

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 Agricu
Organization of the United Nations

NUMBER OF PAGES
22

REFERENCE NUMBERS
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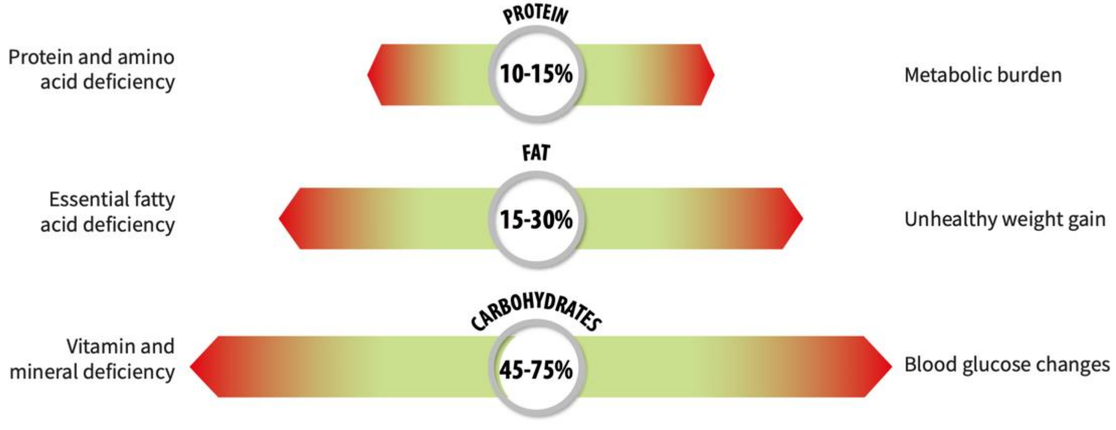
HEALTHY DIET

World Health Organization

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.

Balanced

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

Moderate

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

Diverse

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

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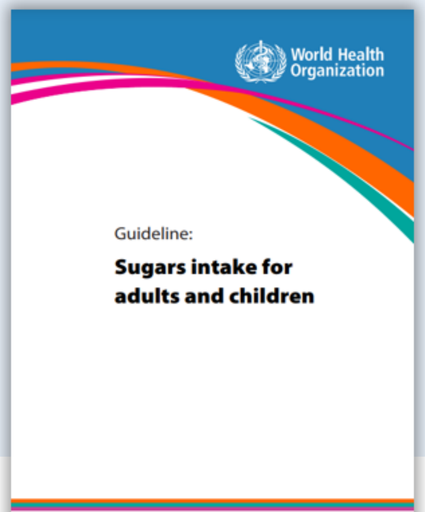
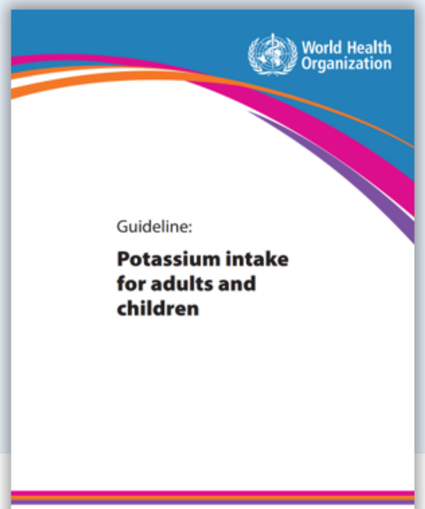
GUIDELINES

WHO macronutrient, micronutrient and other guidelines.





WHO guideline development process

Formation of the steering group, GDG

DOI management

GRC review

Public consultation

Establish scope (PICO questions)

Scoping review

Evidence retrieval and synthesis

Systematic reviews, certainty in the evidence (GRADE)

Evidence-to-decision work

Values and preferences
Feasibility
Acceptability
Resource implications
Health equity and human rights

Formulation of recommendations

GRC review

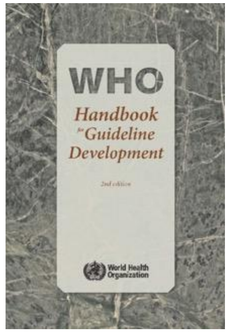
Public consultation

External review group

Draft guideline

Clearance and publication

Dissemination
Adaptation/implementation
Monitoring & evaluation



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

World Health Organization

INNOVATION

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.

World Health Organization

INNOVATION

NEW RISK ASSESSMENT APPROACHES NAM's

World Health Organization

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

CFSA

efsa

GFRSS Global Food Regulatory Science Society

Singapore Food Agency

FAO FIAT PANIS

BfR Bundesinstitut für Risikobewertung

FOOD STANDARDS Australia • New Zealand Te Mana Kounga Kai – Ahitereiria me Aotearoa

OECD

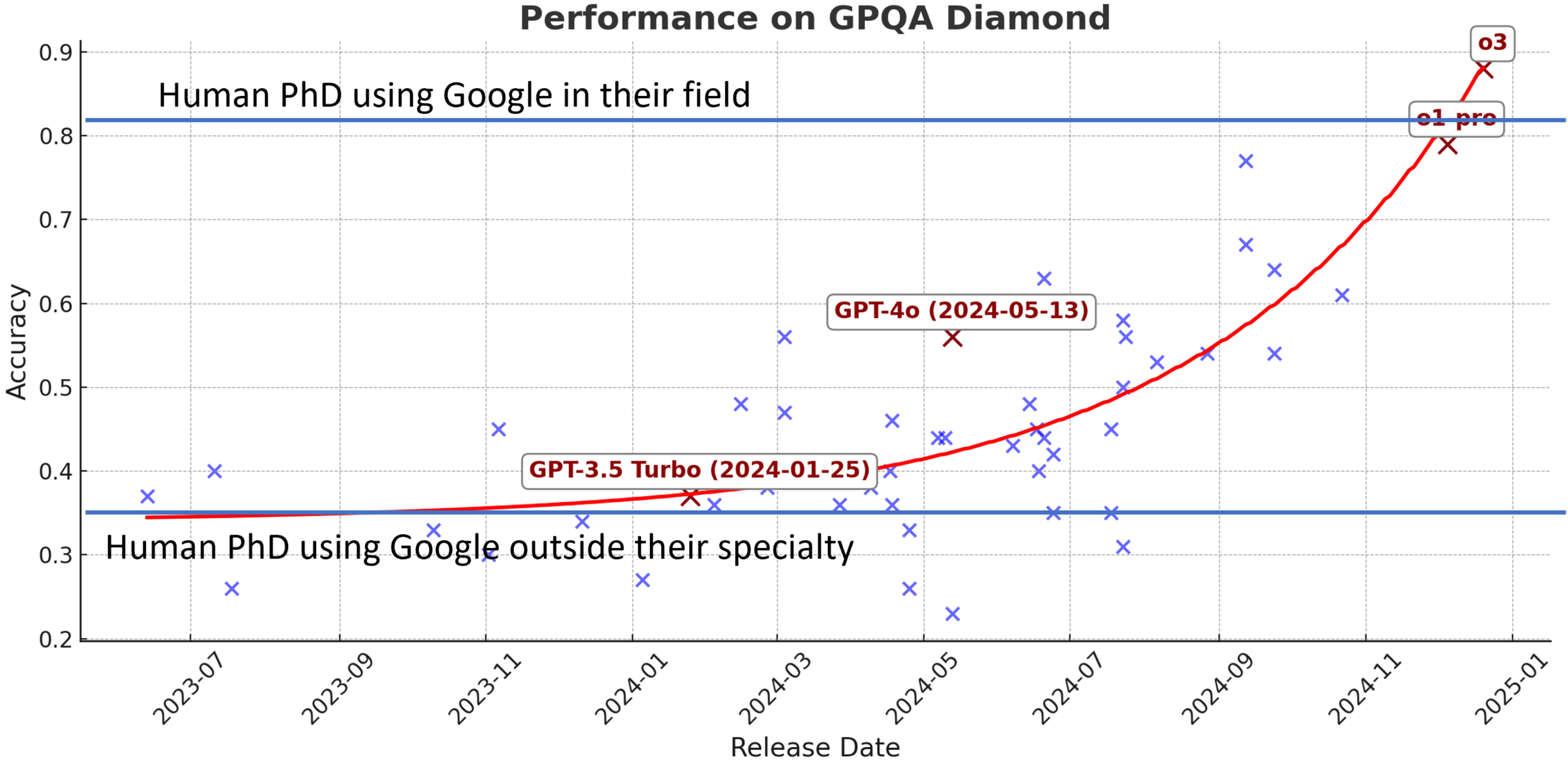
Government of Canada

gfi Good Food Institute

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
Human PhD using Google in their field
Human PhD using Google outside their specialty
GPT-3.5 Turbo (2024-01-25)
GPT-4o (2024-05-13)
o1 pro
o3
Accuracy
Release Date
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
2023-07
2023-09
2023-11
2024-01
2024-03
2024-05
2024-07
2024-09
2024-11
2025-01

INNOVATION

NEW RISK ASSESSMENT APPROACHES

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

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A I

WHO DOES IT BETTER?

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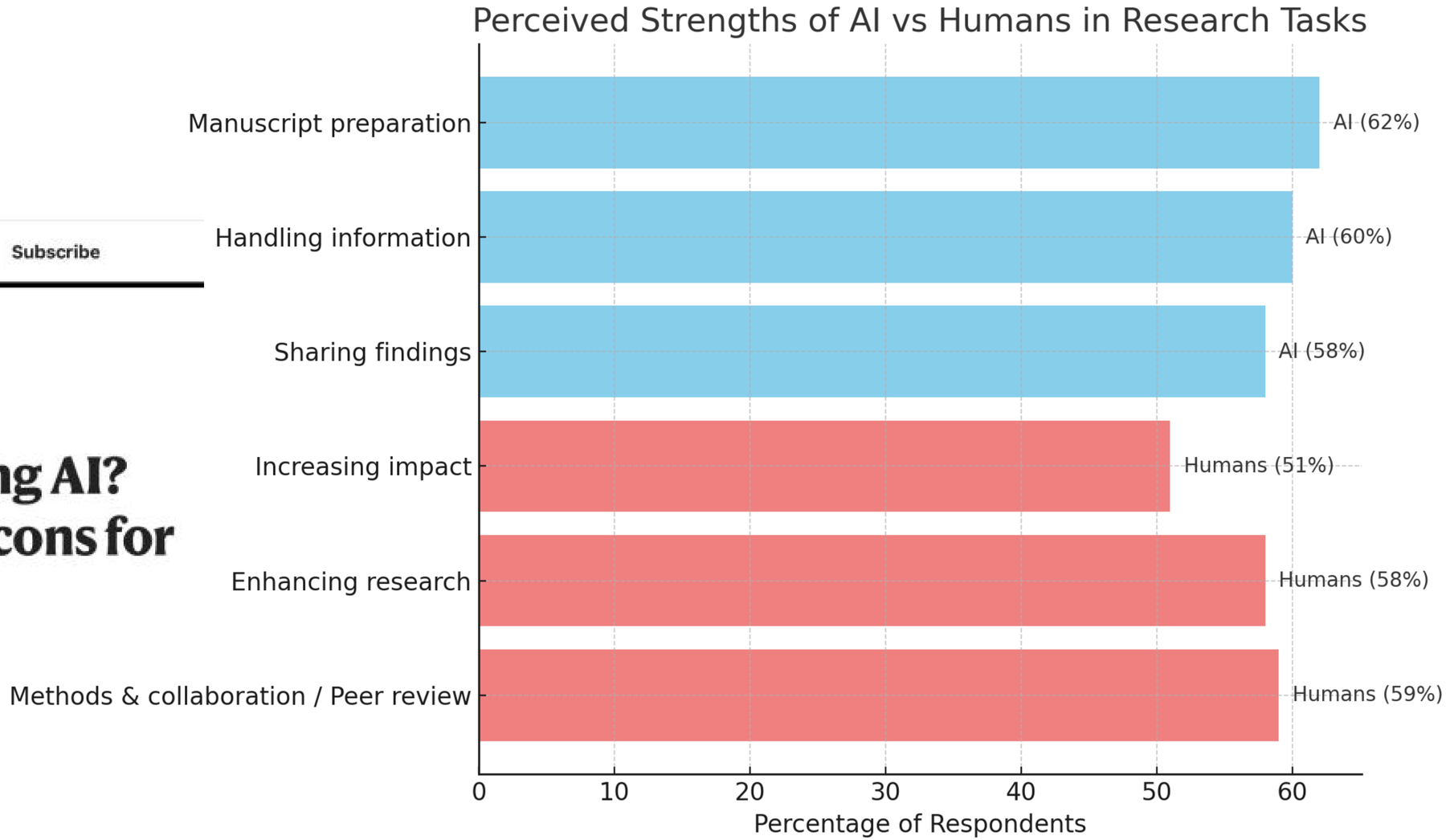
NEWS | 04 February 2025

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



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.

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

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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 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.


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THANK YOU