Pesticides and Our Health

What are pesticides?

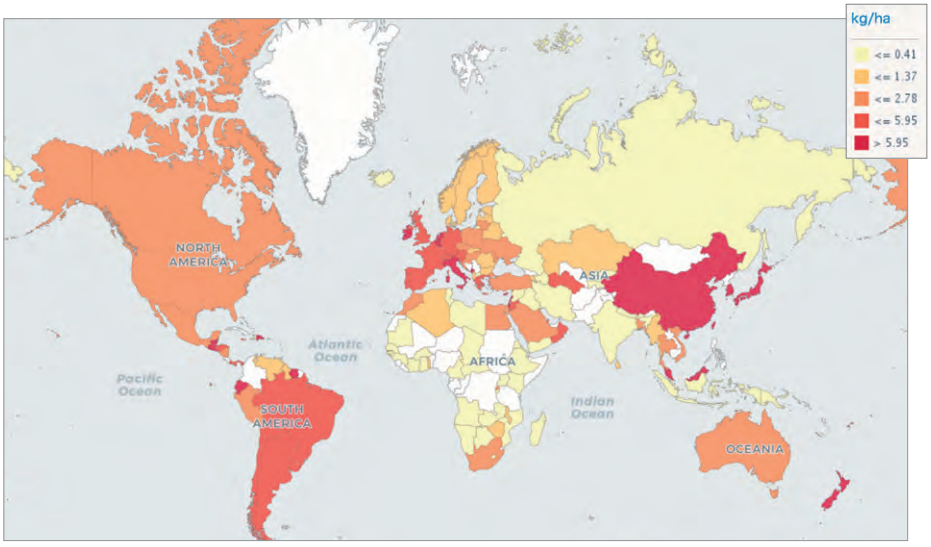
- Chemical compounds that are used to kill pests, including insects, rodents, fungi and weeds.
- Used in public health to kill vectors of disease, such as mosquitoes.
- Certain specialized chemical products are used to kill rodents.
- Potentially toxic to other organisms, including humans.

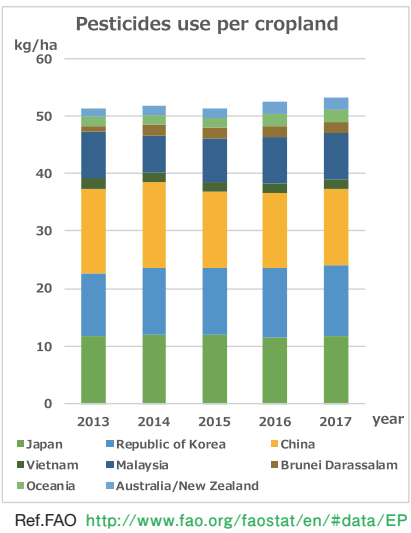
Class of pesticides

- Organochlorine pesticides, including aldrin, endrin, clordane, DDT, heptachlor, mirex, toxaphene and hexachlorobenzene are classified as persistent organic pollutants (POPs).
- They have been banned for agricultural or domestic uses in accordance with the Stockholm Convention.
- However, some organochlorine pesticides are still used – e.g. DDT is used to control malaria in some developing countries. Non-POPs such as organophosphate, carbamate pesticides and neonicotinoid also have been used.
- Herbicides are applied as pre-emergent and post-emergent.
- Synthetic fungicides are commonly used for protection and control over many types of fungi and are specialized in application.

Pesticide use in Western Pacific Region

- The average use of pesticide per area of cropland in Asia topped 3.67 kg/ha in 2017 (world average=2.63 kg/ha).
- China, Japan and Republic of Korea occupied over 70% of pesticides use in Western Pacific Region.



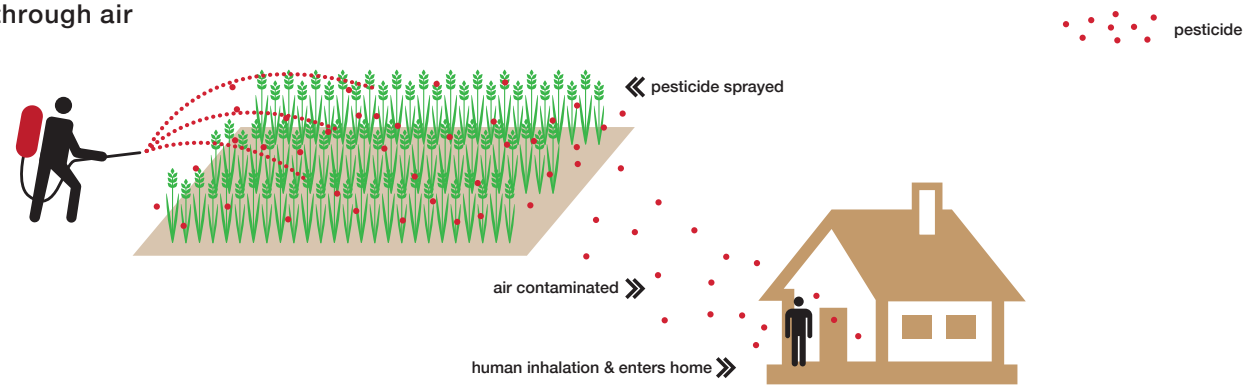


Ref.FAO http://www.fao.org/faostat/en/#data/EP

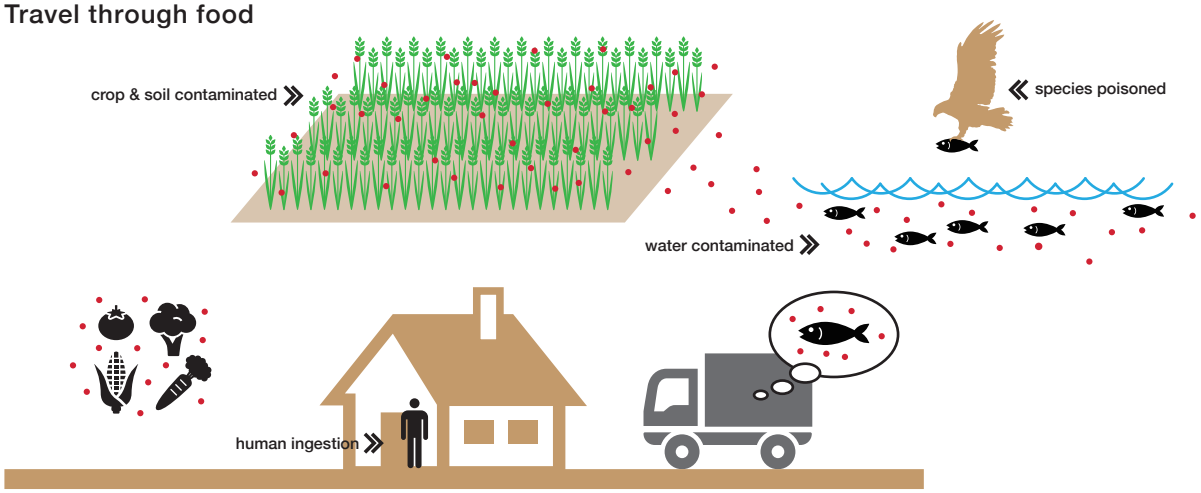
How the exposure occurs?

- The greatest exposure to highly hazardous pesticides is for agricultural and public health workers during handling, dilution, mixing and application.
- The general population may be exposed through consumption of residues of pesticides in food and, possibly, drinking water.
- General population may also be exposed as bystanders during spraying, entering treated areas after spraying, and through contact with contaminated containers if they are not disposed of correctly.

Travel through air



Travel through food



Exposure of children

- **Young children playing may be exposed to pesticide containers, to residues on surfaces, and through ingestion of contaminated soil.**
- **Exposure to organochlorine pesticides of children may also occur through their mothers via breastfeeding or in utero.**
- **Children are particularly at risk of exposure…**
  - ✓ **because of their behavior and may be more sensitive to effects associated with such exposures.**
  - ✓ **because of their potential for a greater intake on a body weight basis.**
  - ✓ **because exposure may occur during crucial periods of development.**

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Health Effects

- The acute hazard is highly variable depending on the pesticide and includes peripheral and central neurotoxicity and reduced blood clotting capacity.
- Short-term exposure can cause harmful effects on the liver, kidneys, blood, lungs, nervous system, immune system and gastrointestinal tract.
- Chronic exposure can result in effects on the skin, eyes, nervous system, cardiovascular system, gastrointestinal tract, liver, kidneys, reproductive system, endocrine system, immune system and blood.
- Some may cause cancer, including childhood cancer.

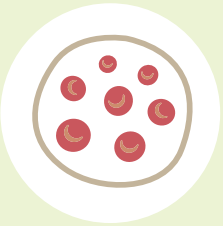
Because pesticides end up virtually everywhere instead of staying where they're supposed to, their existence in our environment has been liked to the following health problems:

Skin, eye, and lung irritation

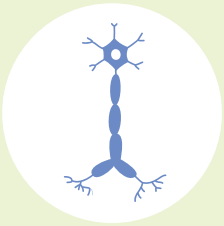
Hormone disruption

Brain and nervous system toxicity

Cancer

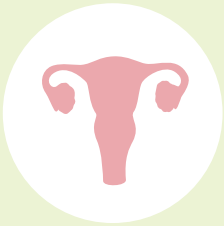


Blood disorders*



Nerve disorders*

Birth defects/ toxicity to fetus*



Reproduction effects*

*Categorized as a possible chronic effect from repeated exposure to pesticides.

Handling, storage, use and disposal

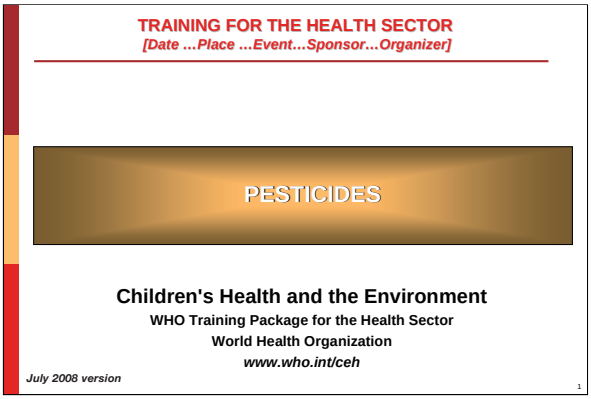
- Obtain and use information provided by manufacturers.
- Ensure use of appropriate, comfortable and affordable personal protective equipment and ensure that protective clothing is regularly and safely washed.
- Provide training for appropriate use of personal protective equipment.
- Train pesticide applicators in the appropriate use of pesticides.
- Ensure proper storage of containers to prevent access by the general public and children.

Elimination and replacement of pesticide use

- **Eliminate inappropriate use and inappropriate disposal of pesticides.**
- **Consider opportunities for and promote integrated pest and vector management rather than relying primarily or solely on pesticides.**
- **Switch to low-risk alternatives.**
- **Limit intake of pesticide residues by peeling or washing fruit and vegetables.**

Education and Materials

- Educate general population as well as pesticide users on **the proper handling of pesticides**.
- **Raise awareness and understanding** among general population as well as pesticide users about the importance and ways of protecting health and the environment from the possible adverse effects of pesticides and the existence of less hazardous alternatives.
- WHO training modules for childhood pesticide exposure and health is available.



click! https://www.who.int/ceh/capacity/Pesticides.pdf?ua=1

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