

Food Safety Hazard: Pesticide Residues



Characteristics/description

Chemicals used to control pests include herbicides, insecticides, fungicides, nematocides and rodenticides (vertebrate poisons).

Source

Pesticides used in agriculture to protect crops against insects, fungi, weeds and other pests. Typically, human exposure to pesticides used in agriculture is highest among farm workers, pesticide applicators, and those who live adjacent to heavily treated agricultural land. Farm workers and pesticide applicators are likely to be exposed to large doses by multiple routes in high frequency. Misuse of highly-toxic pesticides, lack of safety precautions, poor spraying techniques and inadequate personal protection during pesticide application contribute to the high incidence of pesticide intoxication. Pesticide exposure also occurs through ingestion of treated crops or contaminated water. The re-use of pesticide containers for storing food and drink is another source of poisoning.

Effects on humans

Pesticides are potentially toxic to humans. Ingestion or exposure may cause acute health problems (nerve, skin, and eye irritation and damage; headaches; dizziness; nausea; fatigue; and systemic poisoning), chronic illnesses (cancer), and reproductive, endocrine, immune or neurological system deficits.

Incubation

The degree of harm is related to dosage, route and frequency of exposure.

Treatment for patients

The amount of pesticide absorbed is a critical factor in determining treatment. Estimation of dosage in many circumstances of pesticide exposure remains difficult. Symptomatic and supportive care is the mainstay of therapy, and, as feasible, in concert with decontamination.

Key links

World Health Organization (WHO): http://www.who.int/foodsafety/areas_work/chemical-risks/jmpr/en/

World Health Organization (WHO): "The WHO Recommended Classification of Pesticides by Hazard" publication, 2010, <http://www.who.int/foodsafety/publications/classification-pesticides/en/>

World Health Organization (WHO) International Agency for Research on Cancer website: <http://www.iarc.fr/>

Environmental Protection Agency, "Recognition and Management of Pesticide Poisonings," http://www2.epa.gov/sites/production/files/2015-01/documents/mpp_6thed_final_lowresopt.pdf

The Global Burden of Disease for Skin, Lung, and Bladder Cancer Caused By Arsenic in Food: <http://cebp.aacrjournals.org/content/23/7/1187.abstract>

Risk reduction strategies

- Prevention of pesticide poisoning remains a much surer path to safety and health than treatment after the fact. In addition to the inherent toxicity of pesticides, none of the medical procedures or drugs used in treating poisonings is risk free.