

Agriculture & Pesticides Facts

PROTECTING THE SAFETY OF OUR FOOD SUPPLY

The use of pesticides in Canada is regulated through the Pest Control Products Act, which is administered by the Pest Management Regulatory Agency (PMRA), a division of Health Canada reporting to the federal Minister of Health. It is the mandate of PMRA to ensure that the use of pesticides does not adversely affect human health, the environment or the safety of the Canadian food supply. Thus, PMRA has the responsibility of assessing the acceptability of pesticides for use in Canada and determining acceptable levels for pesticide residues in food.



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In order to be registered for use in Canada, new pesticide products must undergo a thorough evaluation by PMRA. For this evaluation, the manufacturer of a pesticide must submit an extensive array of information about the pesticide to PMRA. Completion of the scientific studies required to assemble these data typically takes four to five years.

To evaluate the potential health effects of a pesticide, PMRA requires data related to:

- potential health effects (for acute and chronic exposures) of both the pesticide and the compounds into which it breaks down - particular attention is paid to the potential for reproductive effects and cancer
- physical and chemical properties of the pesticide
- the lowest rate at which it must be applied in order to provide effective pest control and the required application techniques
- how the pesticide is metabolized (i.e., broken down) in plants and animals, and its fate in the environment
- laboratory procedures for determining pesticide residue levels in foods and livestock feeds
- potential residue levels in food when the pesticide is applied at recommended levels
- toxicity to non-target organisms.

Studies of the potential health hazards of a pesticide are conducted using laboratory animals. These studies provide an indication of the nature of potential hazards (e.g., cancer, birth defects, organ damage, infertility, etc.) and of the risk that the pesticide could cause these effects in humans. These studies enable the PMRA to determine the 'no observable adverse effect' level (i.e., the maximum daily dosage that laboratory animals can consume over their entire lifetime without experiencing harmful effects). This level forms the basis for calculating the maximum allowable level of residue in foods.

The 'no observable adverse effect level' for laboratory animals is converted to a value for humans by dividing it by at least two uncertainty factors:

- a factor of 10, to adjust for the uncertainty in applying the results of animals studies to humans
- another factor of 10, to allow for natural variability existing within the human population
- an additional factor of 10 may be applied when necessary to ensure that the health of infants and children is adequately protected
- additional factors may also be applied when they appear advisable.

Once all of the appropriate factors have been applied, the result is established as the acceptable daily intake (ADI) for humans. The ADI is the amount of a pesticide that is considered safe for humans, of any age, to consume each day throughout their lives. As outlined above, the ADI is always at least 100 times less than the amount that could be consumed without adverse effects by laboratory animals.

To ensure that the total consumption of the pesticide by any age group does not exceed the ADI limit, PMRA then establishes the maximum amount of residue that can remain on foods at the point of sale. Three factors are taken into consideration to calculate the potential consumption of a pesticide by Canadians:

- the dietary habits of Canadians of various age groups (i.e., what foods do they eat and in what amounts)
- the foods that are likely to have been protected with the pesticide during their production
- the residues remaining in or on those foods at the point of sale, when the pesticide has been applied according to recommended practices.

A pesticide will not be registered unless it can be shown that no age group will consume more than the acceptable daily intake of the pesticide in their total daily intake from all foods.

The Canadian Food Inspection Agency (CFIA) is responsible for monitoring the Canadian food supply, both domestically produced and imported, to ensure that the maximum pesticide residue limits are not exceeded. CFIA tested 44,379 samples of fruits and vegetables between 1994 and 1998. Of these, more than 98 percent fell within the acceptable range. Pesticides residues were not detected at all in 80 percent of the samples.

INTERNET RESOURCES:

Fact Sheet on the Pest Management Regulatory Agency

http://www.hc-sc.gc.ca/pmra-arla/english/pdf/fact/fs_pmra-e.pdf

Fact Sheet on the Regulation of Pesticides in Canada (Pest Management Regulatory Agency)

http://www.hc-sc.gc.ca/pmra-arla/english/pdf/fact/fs_pestreg-e.pdf

Overview of the Pest Management Regulatory Agency

http://www.hc-sc.gc.ca/pmra-arla/english/pdf/pmra/pmra_overview-e.pdf