

Pesticide Residues in Foods

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Entfact-009

The food supply of the U.S. is among the safest in the world. However, beginning even before birth, we are exposed to low levels of pesticide residues through our foods. Consumers are very concerned about pesticide residues on food. Recent surveys of consumers have indicated that more than 80 percent view pesticide residues as a "serious hazard." This far outranks concerns over drugs and hormones in meat, nitrates in foods, irradiated foods, additives, or artificial colors.

People are confronted with many cancer-causing and other health threats that they can do little to avoid including: second-hand tobacco smoke, exhaust emissions, lead poisoning, and occupational hazards at work. However, some feel that pesticide residues in food are unnecessary and preventable types of contamination. Are children or other groups at greater risk to pesticide residues? Consumers are confused as well as concerned. With this volatile issue, it is important to maintain the facts and concerns in a proper perspective.

To regulate the safety of foods, the Environmental Protection Agency (EPA) has set tolerance levels, or maximum legal limits for pesticide residues on food commodities for sale in the U.S. EPA tolerances are based on a very conservative set of assumptions including that each pesticide is applied at the maximum rate allowed by the label, the maximum number of applications are made, and only the minimum permissible interval is allowed between applications. Scientists find the safe daily intake level, "No Observable Effects Level (NOEL)," and build in a 100 fold or more margin of safety. This procedure sets a legal residue level. If the maximum possible exposure to a chemical is less than the legal residue level, the EPA grants a tolerance.

Tolerances represent the upper limit of pesticide residues and these levels rarely occur in ready-to-eat food commodities. In the most recent FDA studies, dietary levels of most pesticides were less than 1 percent of the Acceptable Daily Intake established

by the United Nations Food and Agriculture Organization and the World Health Organization. EPA applies a "negligible-risk" standard to pesticides to may cause cancer. In other words, the standard strives to achieve for any food-use pesticide is a theoretical cancer risk no greater than a risk in the range of one in one million over the average person's 70-year lifetime. This is not a "zero-risk" approach, rather it relies on toxicological studies which indicate that risk from exposure to a substance depends upon the dose of the substance and not simply its presence.

The FDA stresses that pesticides pose much less of a safety hazard than other food contaminants, such as food poisoning microorganisms that cause everything from diarrhea to deadly botulism. The FDA also emphasizes that cancer-causing compounds that occur naturally in the food supply are a much greater threat than are synthetic carcinogens. In some instances, the chemicals applied to agricultural commodities can in fact safeguard from naturally occurring health threats. Thus natural does not always mean better, and chemicals do not always mean bad.

Bruce Ames, Director of the Environmental Health Sciences Center at the University of California, has analyzed pesticides in detail. He concluded that more than 99 percent of the pesticides in the human diet are naturally occurring chemicals that plants and other organisms produce to defend themselves. The notion that a poison, by virtue of occurring naturally, is somehow better, safer, or gentler to the environment is hardly logical.

A National Academy of Science (NAS) report issued in 1989 on diet and cancer concluded that there is no evidence that pesticides or natural toxicants in food contribute significantly to cancer risk in the U.S. In the NAS recommended that people eat more fresh fruits and vegetables to avoid risks of cancer and other chronic diseases. Even though these foods contain low levels of pesticide residues, any

potential small increase in health risks would be greatly outweighed by the benefits to good health from greater consumption of fruits and vegetables.

It is important to note that farmers generally use pesticides very judiciously. Chemicals are one of the most expensive "inputs" that a farmer can use. Integrated Pest Management (IPM) and Sustainable Agriculture provide alternative technologies that allow farmers to reduce pesticide usage while maintaining productivity and profitability. IPM integrates all pest management techniques into one crop management strategy. Pesticides may be used to control a pest only when other the pest has reach a certain level and is threatening economic losses to the crop. IPM programs rely on biological control, scouting of crops, and other cultural practices as well as reduced chemical inputs.