Q:

Does irradiating food that contains pesticide residues or additives present any health hazards?

A:

No. There is no scientific evidence to indicate any health hazard associated with irradiation of food containing pesticide residues and additives.

Irradiation and Food Additives and Residues

In the United States, the Food and Drug Administration (FDA) has examined the irradiation of foods containing pesticide residues. It specifically calculated the amount of radiolytic products that would be expected to be formed if foods containing pesticide residues were irradiated at a dose of 1 kilogray. This dose is in the upper range of that expected to be used for fruits, vegetables, and grains for disinfestation purposes. If the pesticide residue level in the food is about 1 part per million (an average level) then the calculated total

ICGFI is an international group of experts designated by Governments to evaluate and advise on global activities of food irradiation. It was established under the aegis of the Food and Agriculture Organization of the United Nations, World Health Organization, and International Atomic Energy Agency.

yield of *all* radiolytic products from the pesticide residue would be about 0.000033 milligrams per kilogram of food, or 1 gram in 3000 tonnes of food. The FDA regards this amount as "virtually nil". It concludes that "the potential toxicity of each radiolytic product from a pesticide chemical residue in foods that are irradiated would be negligible" and that "such pesticide residues do not pose a hazard to health."

Studies have been done on food additives that assume the use of higher doses of radiation. A food additive is defined by the Codex Alimentarius Commission of the Food and Agriculture Organization and World Health Organization as a substance not normally used as a food ingredient but which is deliberately added to the food to produce a technological result. Colourants, man-made antioxidants, preservatives such as potassium sorbate, and polyphosphates are examples of food additives, forming 0.01 to 0.1% of the total food weight.

These studies indicate that at a radiation dose of 10 kilogray, which is the maximum dose allowed for food irradiation, yields of all radiolytic products from food additives range from 3 to 30 parts per billion. For a person with a total annual diet of 500 kilograms of food, these figures correspond to a negligible annual individual intake of radiolytic products — between 0.1 and 1 milligram — from an additive in a processed irradiated food that accounts for 5% of the total diet. The probability of harm occurring from radiolytic product formation from food additives is therefore considered to be extremely low indeed. ■

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Scientific and Technical Reference:

Irradiation in the Production, Processing and Handling of Food: Final Rule. Federal Register 51: 13376-99. U.S. Food & Drug Administration (18 April 1986)