



# RURAL CIVIL DEFENSE

## TIP SHEET



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### FALLOUT, FOOD, AND CROPS

#### Radiation Effect on Food and Crops

If you've ever wondered if food in your home would be safe to eat after nuclear attack, the answer is "yes."

Fresh radioactive fallout contains gamma rays and beta particles. These are harmful to humans and livestock. But this radiation has no bad effects on nonliving materials and plants. It passes through foods and feeds. If radioactive dust particles don't actually contact food, it does not become radioactive and remains safe to eat.

It is necessary to decontaminate food and feeds if fallout dust directly contacts them. Beta particles, if not washed off, can burn your skin when you handle contaminated foods. More important damage results if people or animals eat food with radioactive dust. Therefore, keep food and feeds under cover during emergency. Any covering that keeps out dust gives adequate protection.

#### Decontamination of Food Supplies

If fallout particles get on food or feeds, there are several possible decontamination methods. You can usually remove fallout dust in the same ways as other dust: by washing, vacuum cleaning, or brushing. If uncovered supplies become contaminated usually only the top portion is affected. Uncontaminated portions remain usable.

Many food products can be stored long enough to allow radioactivity to diminish to a safe level. Cooking does not destroy radioactivity.

Contaminated potatoes and other root crops are safe to use after washing and

peeling. Peas and beans may be washed, shelled, and used. Apples, head lettuce, cabbage, cauliflower, sweet corn, etc., may be thoroughly washed and peeled or the outside otherwise removed.

When doing such work, be careful that hands or utensils do not contaminate parts to be eaten. Wear rubber gloves and wash your hands frequently, preferably with well water. Bury the refuse. Pour wash water into a pit where it may seep into the earth without contaminating surface soil.

You can safely use grain stored in a permanent bin as soon as you can get into the area. Feed in an open bin becomes contaminated if fallout dust particles fall on and mix with it. But remove only the top portion; the rest, if free of dust, is safe to use. Uncovered hay or produce contaminated with dust particles is also safe if the dusty outer portions are removed.

Meat presents a different situation. Meat or meat food products in home or commercial storage are most effectively protected in a refrigerator or freezer, or canned. It is difficult to remove the outer surface of contaminated meat without carrying contamination into other parts. But you may save contaminated meat by canning and storing it until radioactivity diminishes to a safe level.

#### Protect Milk after Nuclear Attack

Make advance plans to get dairy animals under cover as soon as you receive an attack warning. And store or cover feed and water supplies required in the early postattack period. Have an adequate shelter nearby for the man doing the milking.

## Radioactive Iodine in Milk

Iodine<sup>131</sup> would be the most critical factor during the first few weeks after attack. However, this element loses radioactivity rapidly. It has a half life of 8 days and would decay away in about 60 days. (Half life is the period of time in which an element loses half of its radioactivity.) Iodine<sup>131</sup> can contaminate almost all fresh foods. But only 5 to 10 percent of the radioactive iodine on forage crops consumed by animals probably would get into their milk.

Much of the iodine<sup>131</sup> consumed by humans is deposited in the thyroid gland. Children are more sensitive to its effects than adults. Families with children should keep an ample stock of dry or canned milk on hand. This should be rotated into current use and reserves replenished regularly.

You can largely avoid the iodine<sup>131</sup> hazard by confining lactating animals to reasonably dust-tight buildings before fallout arrives. Also provide feed and forage harvested prior to attack. Freshly cut contaminated forage could, if necessary, be fed to nonlactating stock.

If, despite precautions, fluid milk supplies become contaminated with radioiodine, several measures are possible:

- \* If contamination is localized, milk from other areas may be brought in for immediate consumption. Contaminated milk can be processed and stored for later use.

- \* If fallout is light, storage of fresh milk for 8 days might be adequate. For higher rates of contamination, storage for 30 to 60 days might be required.

- \* Freezing packaged milk in paper cartons is one way to handle the problem. Use dry or evaporated milk during the waiting period.

- \* Don't destroy milk contaminated with iodine<sup>131</sup>. It can be processed into butter, cheese and powdered or canned milk and then stored until radioactivity diminishes.

## Radioactive Strontium in Milk

A cow's biological system screens out over 90 percent of the strontium from entering her milk. Then man's biological system screens out still more strontium from entering his bones.

After the first 60 days following attack, the principal milk hazard would be strontium 89. This has a half life of 53 days. In 6 months to 1 year the hazard would be strontium 90. Strontium 90 would fall on the surface of plants and be consumed with foods and forage. Some of it would be washed into the soil, remaining indefinitely. (It has a half life of 28 years.) From here some would be taken up by plants along with calcium. Some radiostrontium would enter the milk and bones of dairy animals eating the plants.

The metabolic process of both man and animals reduces substantially the amount of strontium deposited in bones. More calcium than strontium is carried along as these minerals move from the soil to the plant and through the body. In milk this discrimination factor operates twice; first in the cow and then in man.

Milk should continue to be your outstanding source of calcium. Research on animals indicates that a body well nourished with calcium retains less strontium than the body deficient in calcium. This is also true for people; less strontium is absorbed if one's body is well supplied with calcium.

## Removal of Strontium 90 from Milk

The Atomic Energy Commission, the Public Health Service, and the U. S. Department of Agriculture cooperated in research to remove radioactivity from milk. Researchers have successfully removed up to 98 percent of the strontium by passing it over an ion exchange resin. The procedure is much like that accomplished in the water softeners found in many homes.