

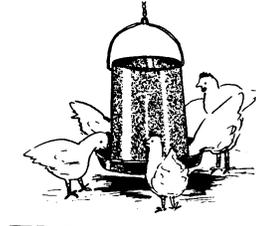


The University of Georgia

Cooperative Extension Service

College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356

MARCH 2003



BACKYARD FLOCK...

POULTRY IN THE NUCLEAR AGE

We live in uncertain times, when the threat of war and terrorism is a common concern. In times of war or peace, the lowly hen is a reliable producer of food. Why? Because the egg is one of the most bioavailable foods available to man, complete with its own special packaging.

We are exposed to nuclear radiation every day, some from natural sources and some from human activity. In the detonation of a nuclear warhead or a terrorist's "dirty bomb", nuclear "fallout" is produced. This fallout is the melted or vaporized earth, contaminated by the radioactive residue of the explosion, that is drawn up into the atmosphere and later falls back to earth. Fission products, the radioactive residue of fallout, are minerals that have become highly energized and unstable. These products include Strontium 90, Cesium 134 & 137, Iodine 131, and Barium 137. These elements are all dangerous if retained in the body in large amounts for long periods of time, as they release radioactive energy that weakens, destroys, or otherwise harms plant and animal cells [1].

Within the fallout area from a nuclear blast, agricultural plants and animals can be contaminated with radioactive material. The amount of radioactive material incorporated into animals would depend mainly on the food eaten by the animal. Grazing animals that eat grass or forage contaminated by fallout products would be exposed to the greatest amount of radioactive material. As a result, chickens and eggs could be a particularly important food resource within a fallout zone as they are typically raised under cover that would provide shielding from most aerial contamination [2,3]. As a general rule, their feed is also likely to have been processed and stored prior to a nuclear event, or come from an area remote from the source of contamination. Preventing hens from foraging during the immediate days following fallout exposure also helps to prevent contamination. With these factors in place, chicken and egg products would be readily available as uncontaminated food sources following a nuclear event.

PUTTING KNOWLEDGE TO WORK

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Of all the major fallout fission elements, Iodine 131 is likely to have the greatest impact on livestock and poultry, being an important mineral required by the hen for body maintenance and egg production. Since the other fission elements are not particularly needed by chickens, they are not readily absorbed by the egg production process.

The hen, in the process of producing an egg, may 'filter' out a portion of the dangerous fission products [4]. If fission products enter the hen through the feed or water, they must pass through physiological filters such as the membrane wall of the digestive system and the blood capillary walls. The oviduct membrane wall surrounding the egg yolk may also function to some degree to filter fission material. The shell itself prevents fallout from entering the edible portion once an egg has been laid. With these processes in place, much of the dangerous fission materials will fail to reach the edible portion of the egg. Thus, the hen can produce an edible product even in the presence of fission fallout.

Researchers at the U.S. Department of Energy's Savannah River facility have found that concentrations of radioactive cesium clear rapidly in chicken products as a result of the high metabolism of poultry [5]. Energy Department scientists theorize that contaminated chickens could be fed small amounts of uncontaminated feed, allowing the birds to rid themselves of contamination and begin producing meat and eggs acceptable for human consumption in as little as 5 to 10 days.

Let us hope that nuclear attack in any form will never happen. Yet in the event of such conditions, we can look to the hen as a source of safe, nutritious food.

References

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