Army Still Plugging for FDA Approval of Irradiated Meat

During World War II, American GI's ate so much Spam that for some the very thought of it still has the power to stir revulsion.

After the war, inspired by a desire to improve fighting men's rations and by the new drive toward atoms for peace, the Army launched what has turned into a 25-year-long attempt to introduce meat preserved by irradiation into military fare. It seemed like a fine idea at the time, but that was before the postwar jungle of Food and Drug Administration (FDA) regulations had reached full maturity. Now, after the expenditure of $51 million in research—$4 million of it lost in a bungled research contract—the best the Army can hope for is to obtain permission in the early 1980's to irradiate chicken.

Irradiating meat involves exposing it to ionizing radiation. The ionized molecules form unstable secondary products that kill microorganisms, thus sterilizing the meat and giving it a shelf life equivalent to that of canned foods. Irradiated meats thus have the same advantages as those which have been thermally processed (canned), but they are supposed to be much more nutritious and palatable. Canned meats always have to be accompanied by some kind of water or gravy and are cooked at 240°F in the can, so they are always overcooked and have a metallic taste. Meats to be irradiated are put in a can or flexible vacuum pack, then heated at 160°F to deactivate enzymes. They are then frozen, irradiated, and thawed. In the early days of the program the meats were irradiated at room temperature, which resulted in meat that "tasted like a wet dog smells," according to an Army spokesman. But if meat is vacuum-packed and irradiated when frozen it is said to taste almost as good as fresh frozen meat.

Astronauts have been taking irradiated meats on their flights since 1975. The Army would very much like to have this fare approved for consumption on earth as well, to substitute for A rations (fresh food) where refrigeration is not available, and for the less appetizing B and C (canned) rations. But they always seem to be a few steps behind what is required by the FDA.

The Army began its research program, headquartered at its research laboratory in Natick, Massachusetts, in 1953. If it had found out how to make the rations palatable before 1958, irradiated foods would be in business. In 1958, however, the food additives amendment to the food and drug law was passed. This put the burden on manufacturers to prove safety of a new product before it could be approved. Irradiation was explicitly classified as an additive because it alters the character of food. The Delaney amendment, passed the same year, further complicated matters. The breakdown products from irradiation are very similar to those produced by cooking and, as we now know, that means minute amounts of carcinogens might be produced. "If cooking and canning had to go through FDA procedures today they would probably never manage to qualify," says an Army official.

At any rate, the Army in 1963 did manage to achieve FDA approval of irradiated bacon. But the approval was based on studies extending as far back as the 1920's, and in 1968 the FDA rescinded it just when the Army was on the point of applying for permission to irradiate ham. That petition was therefore withdrawn because it was founded in large part upon the questionable bacon data.

By 1970 the Army was pretty discouraged and was about to throw in the towel, but by then Congress had become interested, so a new, more stringent set of studies involving long-term animal testing was designed.

The Army and the FDA drew up a protocol requiring that meats be tested on each of three generations of mice, rats, and beagles; such long-term feeding studies, they said, would reveal the effects, if any, on birth defects, tumor formation, growth, and so forth. The first and biggest contract, on beef, was let out to Industrial Bio-Test Laboratories (IBT) of Northbrook, Illinois, in 1971. In 1976 the firm was also assigned the studies on irradiated pork and ham. A feeding study on chicken was given to Research 900, a division of Ralston Purina Co.

As is now widely known, IBT is not the place to get your tests done if you want government approval. Reports started filtering around about sloppy procedures there in 1975, and by early 1977 the company was under investigation by four federal agencies. Oddly enough, the Army, despite monthly site visits, did not realize there were any problems with the tests until mid-1977 when the company was unable to produce a final report on the beef studies. So just a year ago the Army canceled both studies, taking a loss of almost $4 million. It seems that IBT was suffering from missing records, numerous failures to follow test protocols, poor quality work, and incomplete disclosure of information, according to a General Accounting Office (GAO) report on the irradiation program issued last month.

So the Army is now left with nothing but the chicken study. If all goes smoothly for a change, FDA approval may be achieved by 1983.

There are varying degrees of enthusiasm about the ultimate potential value of irradiation as a way to preserve meats. Ari Brynjolfsson, chief of the food irradiation program at the Army's Natick laboratory, claims "irradiated foods can play a very big role for the Army, civilians and the world." Brynjolfsson says the process could virtually eliminate salmonella contamination, and would drastically reduce the need for nitrites to destroy botulinus toxin. He claims enormous energy savings would result from decreased need for refrigeration. (The GAO report says a Commerce Department study estimated that irradiation of meat could have saved the military $18 million in Vietnam in 1968.) Brynjolfsson also claims that since developing countries can't afford extensive refrigeration, "Their only hope is in irradiated foods."

Whatever irradiation's potential, commercial food manufacturers at present have no interest in the process. As a Swift & Co. official points out, the fact that irradiation is defined as an additive means it would have to appear on the label—a sure way to stay the hands of potential purchasers. "Radiation is another additive we don't need," he says.

There is, of course, no question of the meat being radioactive, and Brynjolfsson and others are convinced that chemically the process is completely safe. But unless a more pressing need for an alternative preservation technique develops, it is questionable whether the government will be willing to expend all the money—variously estimated at $28 to $47 million—to complete the chicken study and do the other feeding studies over again.—C.H.

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