



Beef Logic

by Bob Long

Imagine a Completely Safe Beef Product

A problem confronting the beef industry in its battle for the consumer dollar is contamination by disease-producing bacteria. Fortunately, much is being done to improve sanitation and progress is being made with technology such as irradiation.

In early 1993 a serious *E. coli 0-157H:7* outbreak was traced to the consumption of undercooked hamburgers served by a chain of fast food restaurants on the West Coast. More than 500 people in the states of Washington, California, Idaho and Nevada became seriously ill and four deaths occurred. This event was widely publicized and no doubt has had a negative effect upon beef consumption.

The *E. coli* organism, of which there are many different strains, can be found almost anywhere. Several of these types can cause relatively mild digestive upsets, but *E. coli 0-157H:7* is truly life threatening. It has been isolated from ground beef, pork, lamb, chicken, turkey and venison.

Unfortunately, *E. coli* is sometimes found in the intestinal tract of live cattle and, if so, is plentiful in their droppings. Therefore, a beef carcass can be contaminated during the slaughter process. Fecal material from the hide or the digestive tract can accidentally be smeared along the flanks or belly of a carcass. And if not completely washed or trimmed away, it can end up in ground beef.

To avoid the possibility of infection one has only to cook hamburger to 160 degrees F., which destroys the organism. This temperature is reached when meat is cooked to medium doneness or until there is no pink color to either the meat or its juices.

Fortunately, other parts of the carcass offer no concern since in the process of boning and wrapping for boxing the outer surface of the carcass is trimmed away. Of course, this does not eliminate the possibility of contamination later should the cuts come in contact with pathogenic organisms through unsanitary procedures in the meat plant, the retail store, the kitchen or the dinner table.

E. coli 0-157H:7 is not the only organism to be feared in our food supply. During the past year there have been reports of at least three other strains of *E. coli* identified as killers. Outbreaks by these new strains have been reported from sausage in Australia, milk in Montana and seafood in Spain. These occurrences, plus other foodborne bacteria such as *C. botulinum*, *C. perfringes* and the various *Salmonellas*, are widespread.

But don't blame beef alone. The Center for Disease Control and Prevention (CDC) and the National Center for Infectious Diseases (NCID) reported only 1,420 infections from *E. coli 0-157H:7* (only a few of those from beef), while 43,323 *Salmonella* infections from poultry and other foods were reported in 1995.

Don't allow these statistics to scare you. Scientists acknowledge that these organisms have been with us always and that improved bacteriological techniques and the many laboratories capable of their use simply identify and record occurrences previously unnoticed.

Nevertheless, these statistics give the administrators of the entire food industry and the USDA Food Safety and Inspection Service great concern. This concern has spawned the development and wide acceptance of a food safety program titled the Hazard Analysis and Critical Control Point System (known as HACCP and pronounced hass-ip in the trade).

The HACCP system is primarily aimed at improving sanitation and thereby the prevention of contamination of meat and meat products. Initiation of this program in a packing plant includes every production step and requires the commitment and accountability of every employee — from the line workers to the CEO. It requires attention to raw material, general cleanliness, personal hygiene of workers and careful handling of final product.

When first suggested, the packing industry expressed concerns about increased costs, but HACCP pioneers discovered that the installation of this step-

by-step plan resulted in fewer line interruptions, increased efficiency and reduced costs from defective product. Further, it would appear that the industry has realized that the contamination of beef by disease-causing agents simply must be controlled.

Another possibility for solving bacteriological contamination of meat is irradiation. In this process, the meat is passed through rays emitted by radioactive material and the *E. coli*, as well as other bacteria, molds and parasites, are destroyed.

This irradiation results in completely safe, sterile meat which contains no radioactive residue. Also, if this irradiated meat (or other food product) is properly packaged in foil or plastic, it remains wholesome at room temperature for years with little change in texture, odor, flavor or color.

Imagine . . . a completely safe, tasty package of meat on the pantry shelf for weeks without refrigeration!

The preservation and sterilization of meat and other foods by irradiation has been available to the food industry since the early 1970s. Amazingly, the stigma of the words "irradiation" and "radioactivity" is so great that USDA and the meat industry have been reluctant to risk developmental capital for fear of consumer rejection.

Surely an educational program could convince the American consumer of the advantages of irradiation and its complete safety.

If an informed media would give the advantages of irradiation the same coverage it gave the 1993 *E. coli* infections on the West Coast and last summer's *E. coli* infections in Japan, the public would accept it.

