

Food Safety: Is It Time To Seriously Consider Routine Use Of Irradiation?



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In response to our previous columns – <http://agpolicy.org/articles11.html> – on the devastating E. coli O104:H4 outbreak in Germany, a reporter called and asked the obvious question: “Can this happen in the US?” While we are neither pathologists nor epidemiologists, everything that we have read indicates that the answer is “Yes.” We have nothing in place to prevent this type of outbreak.

That said, there is still a lot to be learned about the particular configuration of this version of E. coli. Specifically, researchers are searching for information that will allow us to understand why this particular version of the disease has been so deadly and has left so many others with hemolytic uremic syndrome (HUS), a kidney disease that will reshape the rest of their lives. As of Friday, June 17, 2011 the death toll from this outbreak had reached 39. In addition, 839 people out of at least 3,517 reported illnesses had come down with HUS.

In addition, while German scientists appear certain that bean sprouts were the vector for the disease, they have not identified the means by which the bean sprouts became contaminated with the E. coli. E. coli is an enteric bacteria and bean sprouts have no gut. Ultimately it had to come from the gut of a warm-blooded animal. To complicate the issue, the seeds that were used to produce the sprouts were sourced from Southern Europe, Asia, as well as Germany, making the tracking of the ultimate source exceedingly difficult.

The answers to all of these questions may identify policy needs beyond those we will discuss in this column.

Let's begin our analysis by looking at the person who prepares the food for consumption. We start here because in everything we have read there is a set of bloggers who argue that proper hand and product washing, cross-contamination prevention, and thorough cooking are the solution to preventing outbreaks of food-borne illnesses.

We certainly agree that each of these is an important last step in the prevention of food-borne illnesses though we are not sure how to vigorously scrub bean sprouts and lettuce for 20 seconds. And we are unlikely to use cooked lettuce in a salad. At the same time, it appears a worker in a commercial kitchen, who became infected from the bean sprouts and spread the disease to other workers, amplifying the German outbreak. There is no substitution for good personal and kitchen hygiene practices in the prevention of the spread of illness.

But personal and kitchen hygiene are not enough, although it is the last line of defense. What's critical is that the food that the ultimate preparer receives – here we are talking about food that has the potential to be contaminated with pathogens responsible for causing food-borne illnesses – has gone through a scientifically validated step to kill the bacteria that are responsible for food-borne illnesses.

This goes beyond testing. While sample-testing foods for these pathogens is important as may be designating them as adulterants, these steps alone will not eliminate them from entering the food system. The purpose of testing is to verify that the scientifically validated kill step is being properly implemented and identify when it is not. The purpose of designating various pathogens as adulterants is to make sure that once identified the affected product does not enter the food system.

What does that mean? It means that the

washes that are used to reduce bacterial contamination – while they are important and have reduced the incidence of disease – are simply not enough. Washing may remove pathogens and reduce their number but it does not kill them. And in the case of vegetables, some incidents have pointed to pathogens in the wash water as the source of the contamination.

The use of irradiation would provide such a kill step. The American Meat Institute has even called for it. The problem is the use of irradiation is deemed to be an additive and thus listed on the label. Some consumers are turned off by the radura symbol that is used to indicate that the food has been irradiated. The symbol is required even if the irradiation is produced by an x-ray beam.

Yet, there are other “kill-step” approaches that need not be identified on the label. For example, even though harsh chemicals may be used in carcass washes in slaughterhouses, these chemical washes are considered to be a process (not additives) and thus need not be listed.

Irradiation is already used on much of the spices we use because it is more effective than fumigation in the killing of small pests that are difficult to remove by any other means. In the case of spices and some other products, the use of the radura symbol is not required.

Some oppose the use of irradiation, or want to continue the display of the radura symbol associated with it, because they attribute the development and spread of food pathogens to “the overcrowded and unsanitary conditions on factory farms that make animals susceptible to disease, and to the filthy conditions in slaughterhouses that endanger the health of people who eat that meat.” They worry that routine use of irradiation “would detract attention from improving negative health-related conditions in the production and slaughter of meat animals.”

There is some concern that the beams used in the irradiation cause chemical changes in the product that is detrimental to human health. Also, because irradiation kills bacteria, it has the effect of extending shelf-life of food products. For some, this is an advantage, while others see it as a way for the “industrial food system” to extend its control over the food system at the expense of local producers for whom the use of such a process might be prohibitively expensive.

We have no problem with the development of regulations and market-driven changes – reflecting changes in consumer preferences and attitudes – that reduce the likelihood that animals are raised in overcrowded, unsanitary, and inhumane conditions. Regardless of impetus, farmers would have to take these concerns seriously and make adjustments in their production practices if they are to retain the confidence of their consumers.

Likewise we support the development of continued development of processes that reduce the incidence of fecal contamination in the slaughter process and ensure the proper handling and sanitation of carcasses that have been externally contaminated.

We also support the development of local food systems and farmer markets.

In the end the question for us comes down to ensuring the delivery of safe food to the person who prepares the food for final consumption, be that a restaurant, caterer, or household cook.

While we acknowledge that there may be some risk with irradiation, the decision comes down to the number of unnecessary illnesses and deaths that can be prevented by the institution of a proven technology that we already use for some food products.

If current estimates are anywhere close, the numbers of illnesses and deaths that could be prevented by the use of irradiation – in combination with sanitary healthy growing conditions, proper slaughter and food processing practices, and the use of safe food handling and preparation practices at the consumer/restaurant level – is staggering. △

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