



Risky Business

How scientific are science-based risk assessments? Part One.

Farmed salmon is safe but the media recently reported on a “scientific” study that said otherwise. Canadian cattle pose no additional threat of BSE to American cattle but the border is still closed. Eating Canadian beef poses no food safety risk for Europeans but exports are still banned. Millions of North Americans eat GM food every day without a single reported case of a tummy ache and yet every week we get another story about a “scientific” study that maintains these foods are a health risk. What’s going on here? In every case, a “science-based risk assessment” is presented to support a position. But how scientific are they and why are they having such an impact on the food industry?

While minimizing risk has always been the basis of food law, it has only been in the last 20 years that we have seen the major growth in the theory of risk analysis for hazards in food, recognizing three components:

- **Risk Assessment** – a process of systematic and objective evaluation of all available information pertaining to food-borne hazards.
- **Risk Management** – the process of weighing policy alternatives in the light of the results of risk assessment and, if required, selecting and implementing appropriate control options, including regulatory measures.
- **Risk Communication** – the interactive exchange of information and opinions concerning risks and risk management among risk assessors, risk managers, consumers and other interested parties.

Unfortunately, the theory doesn’t capture the complexity of the practice: risk assessment is more subjective than most scientists want to admit and both risk management and risk communication are more of an art than a science. The theory also understates how often these risk assessments are misused.

Governments everywhere use science to disguise trade protectionism. The price of potatoes in Idaho was the real truth behind the “science-based” risk assessment that the U.S. used to delay the export of Canadian potatoes to America during the potato wart crisis in 2000. Does anybody still think that the science-based risk assessment that the U.S. is relying on to continue to prevent the export of Canadian cattle and meat is unaffected by the U.S. political situation in

an election year with a president from Texas? Because trade rules allow countries to ban imports on scientific evidence of risk, we will see a major growth in the use of risk assessments to disguise old-fashioned protectionism.

There are several less obvious reasons to account for the increasing misuse of science-based risk assessments. For one thing, food safety science is almost never as certain as people think. We are still dealing every day with huge areas of deep scientific uncertainty, leaving a lot of room for competing science. Combine this with what is now well accepted that in conducting risk assessments you can’t really separate questions of science from questions of policy and you have a far less objective science-based process than many want to admit. As risk assessment gurus Covello and Merkhofer have made clear: “In practice, assumptions that have potential policy implications enter into risk assessment at virtually every stage of the process. The idea of a risk assessment that is free, or nearly free, of policy considerations is beyond the realm of possibility.”

Another complicating factor is the growing failure of the regulatory system to keep up with the pace of technological change. For example, the technology to detect trace amounts now means that we are flooded with data while desperately trying to find bits of useful information for decision making. The levels of PCBs in farmed salmon were cited in parts per trillion (one part per trillion is the equivalent of one second in 31,000 years). Many safety standards for residues are zero but zero keeps getting smaller, well beyond the point where scientists can say anything meaningful about safety.

Another complicating factor is that for most public health threats, and food safety is no exception, there is always both the science risk and the perception risk. They are quite different and yet they are commonly interchanged. Governments are often forced to introduce measures to deal with the one risk that actually complicates the other. Scientifically illiterate consumers listening to open line radio shows and watching scary pictures on television can’t help but be confused and begin to lose trust in the regulatory system, a fragile thing that is difficult to regain once it is lost. That is the biggest risk of all.

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