

Citizens, experts differ...

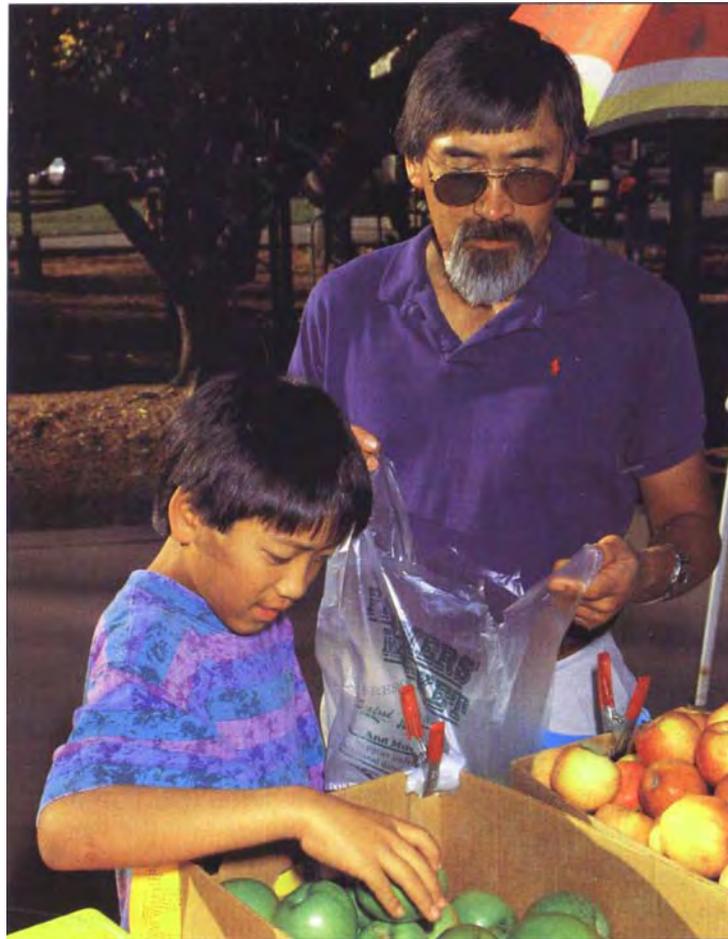
What is "acceptable" risk?

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The safety of our food supply leaves no one uninterested. Recent examples of public crises range from the deadly episode involving *E. coli* 0157:H7-contaminated hamburger to the intentional, but apparently non-injurious, placement of hypodermic needles in soft drink cans. While involving different degrees of public risk, both provoked major concern. We take for granted that the foods we purchase, but don't produce, are safe for us and our families. In fact, the United States food system involves very low risks of acute foodborne illness. Chronic risk is more difficult to assess. However, in either case, low risk is not zero risk, and safety, like beauty, is often in the eye of the beholder.

Safety is not the same as zero risk. Life presents us with nothing that is totally risk-free. Risk is the probability that something unwanted will happen. There are risks that we can measure (actuarial risks) and risks that can only be estimated from risk assessment. Both actuarial and estimated risks are for entire populations; they are not individual risks. Individual risk is often lower (or higher) within populations depending on individual exposure, susceptibility and behavior.

What individuals define as "safety" is "acceptable risk" and cannot be de-



Pesticide residues on produce are typically miniscule, say regulators, but the public does not always agree with scientific estimates of risk.

termined scientifically. Both as individuals and as a society we decide how much risk we will accept from potential hazards, and decide which safeguards are necessary. While risk can be scientifically estimated, safety is a matter of public policy and outside the boundaries of science.

Writing on the issue of public perception of risk, Dr. Paul Slovic, president of Decision Research in Eugene, Oregon, has explored the characteristics that cause risks to be perceived as either excessive and unacceptable, or acceptable. Comparing how risks are perceived differently even though they have a similar likelihood of occurrence, he found that acceptable risks are known, familiar, observable, have immediate impact, are less feared, less fatal and voluntary. Unacceptable risks were the opposite (more feared, less familiar, fatal, involuntary, etc.) Public concern is often inconsistent with the degree of risk measured or estimated by the scientific community. Such differences may frustrate scientists and nonscientists alike and inevitably lead to conflict between expert and popular views of safety.

How should public policy be determined when public concern about risks is at odds with expert opinion? Should scientific estimates of risk be given priority over public expressions of concern? At the very least, public concerns must be taken seriously when they are clear, widespread and persistent within a community. First, the principles of public policy in a democracy rest on the proposition that majority public opinion — even when it differs from expert opinion — is the



Consumer fears about food safety reflected in purchases

Surveys show that consumers cut back on produce purchases when news events undermine their confidence in the food supply — despite the well-publicized conclusions of the National Academy of Sciences that a diet rich in fruit and vegetables reduces the likelihood of cancer.

In a nationwide survey conducted last year, 55% of men and 67% of women told the

Center for Produce Quality that they were “very concerned” about pesticide residues. Surveyed before the release of the National Academy of Sciences’ report *Pesticides in*

the Diets of Infants and Children, 79% expressed concern that current pesticide regulations do not take into account the effects that residues may have on

children. To protect their children, 15% said they would serve fewer fruits and vegetables, and the percentage rose among people of lower income and less education.

Other events in the last 5 years have had measurable impact on public confidence in the food supply:

- In January 1989, 81% of consumers polled said they were completely or mostly confident that food in the supermarket was safe (table 1). Two months later — after “60 Minutes” aired the Natural Resources Defense Council’s claim that apples grown with the plant growth regulator Alar posed potential health risks for children and two Chilean grapes were reported to have been contaminated with cyanide — consumer confidence plummeted to 67%, according to Food Marketing Institute surveys. In a University of California survey of California shoppers, 8% volunteered that they had curtailed some purchases of fresh produce.

- *The Packer Focus Fresh Trends ‘90* survey reported that 17% of shoppers nationwide were buying less fresh produce because they were concerned about pesticide residues. Only 54% agreed that “the potential health benefits of eating fresh fruits and vegetables outweigh the potential risks from pesticide residues.” Nearly half — 46% — disagreed with the statement.

- In 1992, *The Packer* asked the question again, and 59% agreed, but 46% said they were more concerned about pesticide residues at the time than they were 12 months before. Also in the 1992 survey,

TABLE 1. Consumer confidence in food safety

Completely or mostly confident				
Jan 1989	Jan 1990	Jan 1991	Jan 1992*	Jan 1993
81%	79%	82%	72%	73%

*The 10% change from '91 to '92 could be due to increased awareness of microbial contamination, according to Christine Bruhn, UC Consumer Food Marketing Specialist. She pointed out that concern about spoilage jumped, while concern about pesticides slipped a few notches.

Source: Food Marketing Institute, Washington, D. C.

58% of respondents said they were more concerned about salmonella contamination of their produce than they had been the previous year. — Editor

appropriate foundation for public policy. Second, public agencies and institutions established and supported by public funds have an inherent obligation to serve the public interest. Finally, as some of the authors in this issue will point out, the science upon which expert judgments are based is not certain (indeed all science involves uncertainties), and risk estimates of many activities will continue to change as science and risk assessment develop. This uncertainty is particularly relevant to concerns about chronic diseases, like cancer, for which causal mechanisms are the subject of ongoing scientific investigation.

Ultimately, it is for citizens to control the types and degrees of risk they will accept. However, effective decision-making in this area demands understanding of the complexities of risk estimates and their implications. The interpretation of expert information and its application to risk management must be subject to direct public participation. In some situations, such methods have worked well. Sadly, when dealing with large populations and with broad environmental issues, like those discussed here, these methods have not proven as effective. Risk education and communication must be independent from risk acceptance; management decisions must be made by those exposed. This means acknowledging the public’s right to inquiry and decision. To do so is correct, prudent and consistent with the most essential governing principle of our nation. Thomas Jefferson wrote, “I know of no safe depository of the ultimate powers of the society but the people themselves, and if we think them not enlightened to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion.”

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