Letters

Alar in Apples

Daniel E. Koshland, Jr.'s editorial "Scare of the week" (7 Apr., p. 9) decries public "overreaction" to Alar in apples and cyanide in Chilean grapes. While it is understandable in light of recent media attention to food safety, Koshland's posture seems itself an emotional overreaction to too much bad news. His "shoot the messenger" attack on the Natural Resources Defense Council (NRDC) misconstrues both the reasons public interest groups sound such alarms and the public's reasons for responding as it does. And the editorial contains important errors of fact that may add to public confusion on the Alar issue.

Koshland uncritically accepts as "facts" two claims by the Food and Drug Administration (FDA) and the U.S. Department of Agriculture about the extent and seriousness of the Alar problem. Both agencies have tried harder to calm public fears than to inform the public about the risks Alar may pose. Their estimate that "only 5% of apples are treated with Alar" is sharply contradicted by several recent surveys of apples for Alar residues that found from 22 to 55% treated. The data come from sources as diverse as the FDA and New York and California state agencies, the Los Angeles *Times, Consumer Reports* magazine, and a private testing company (Nutri Clean). The largest sample (FDA's 1988 residue testing) found Alar in 38% of tested apples (*1*). Even assuming that 60% of the total apple harvest goes to processors (and is presumably not treated with Alar), the residue data cannot be reconciled with the "5%" figure. Far more than 5% of apples now on the market have been treated.

Koshland makes a much more serious error in asserting that Alar residues are "well below conservative Environmental Protection Agency [EPA] tolerances." The existing tolerance (20 parts per million) is anything but "conservative." It predates test results the EPA says suggest that a breakdown product of Alar, UDMH, is a carcinogen. The EPA recently estimated the cancer risk of current dietary exposure to UDMH at 45 in a million, or 45 times greater than their own definition of a "socially acceptable" risk level of 1 per million (*2*). On the basis of the residues associated with that estimate, the level of Alar in processed apple products consistent with a risk of 1 per million is roughly 0.01 ppm, 1/2000 of the current tolerance. The EPA plans to ban Alar and intends to leave the current tolerance in place only for as long as it takes to complete the cancellation process. Koshland's implication that Alar residues are safe by a wide margin is both scientifically untenable and in direct opposition to the EPA's own current policy posture on the risks of the chemical.

Koshland correctly stresses that *socially* unacceptable risks—big enough that the EPA should worry about them—are still small enough that an individual is unlikely to be harmed, and there is no reason for public panic. But, like most scientists pontificating on risk, he shows that he has severe tunnel vision. The scientific facts (estimates of how big the risk is, with all their inherent uncertainties) are just *part* of what the public knows about Alar. The policy choices—both the personal and the public kind—depend on far more than facts. However big a risk may be, whether it is acceptable or not is a value judgment and is heavily influenced by *moral* dimensions of the risk.

For instance, most people probably do not know whether Alar poses a real cancer threat or not, but they know some experts think it *may*. And they prefer not to gamble with their own or their children's health. The fact that Alar is present in apple products without their consent or knowledge and that consumers can do nothing on their own to detect or remove it makes this sort of risk inherently *outrageous*, whether it's a tiny risk or not. As Slovic (*3*), Sandman (*4*), and others have pointed out, public response to risk depends far more heavily on such value and ethical dimensions of the risk than it does on the quantitative magnitude of the hazard.

Risk management must balance values and ethical choices and is unavoidably a political, not a scientific, process. Koshland nevertheless attacks the NRDC for acting politically, accusing them of being unscientific in the process. As the EPA risk data above indicate, the NRDC and EPA are not grossly far apart in their scientific assessments of the Alar problem. Where they do differ is in their sense of urgency. NRDC says the EPA is not acting vigorously enough to protect public health from Alar and from pesticide residues in general. They seek publicity because publicity translates into pressure for political action, not to recruit members, as Koshland asserts. Interestingly, Koshland has no harsh words for the FDA Commissioner or for the Secretary of Agriculture, whose reassuring statements that apples are safe to eat were just as aggressively publicized and just as politically motivated. Nor does he question the "facts" offered on that side, which are at least as debatable as NRDC's.

Koshland's suggestion that NRDC's right to speak out should be constrained to protect "victims of irresponsible information" amounts to a plea to suppress opinions he finds unpalatable. Redress for willfully or recklessly false publicity is already available, under libel and product-disparagement laws. But the statements Koshland decries do not come close to exceeding the bounds of protected expression of views. Koshland's reaction is much more dangerous than the statements that triggered it.

The nub of the issue, for *Science* and for scientists, is how we should respond to public outcries over problems like Alar. Yes, we must teach people to see risks in perspective. At the same time, we must *listen* to what people say about risks. It is not the size of the risk but its moral offensiveness that makes the public respond so strongly. People are not just frightened, they are angry—in large part, because they believe industries, the government, and now even the editor of *Science*, have not told the truth about Alar. When spokesmen for the scientific community give in to the reflex that spawned Koshland's editorial, the posture they strike makes scientists seem arrogant, insensitive, and unconcerned about things that matter a lot to average people. If such reactions predominate, both the quality of the public debate and the perception that science has helpful solutions will suffer grave damage.

EDWARD GROTH III
Consumers Union of the United States, Inc., Mount Vernon, NY 10553

REFERENCES AND NOTES

1. For details of the methods and results of recent surveys on Alar in fresh apples, see comments submitted by Consumers Union to the Environmental Protection Agency, 12 April 1989.
2. U.S. Environmental Protection Agency, *Fed. Reg.*, 10 February 1989, p. 6392.
3. P. Slovic, *Science* **236**, 280 (1987).
4. P. M. Sandman, *EPA (Environ. Prot. Agency) J.* **13** (No. 9), 21 (1987).

Pesticides, Risk, and Applesauce

The tremendous attention in the media to the growth-regulator Alar raises important issues about the nation's efforts to prevent human cancer by regulating chemicals that are carcinogenic in animal studies. Leslie Roberts, in her Research News articles "Pesticides and kids" (10 Mar., p. 1280) and "Is risk assessment conservative?" (24 Mar., p. 1553), did not address several points that we think are important for putting possible risks in perspective.

1) *Pesticides, 99.99% all natural.* Although regulatory efforts are focused on identifying and controlling synthetic chemicals that are estimated to pose a possible carcinogenic risk to society greater than one in a million