PESTICIDE RISK ASSESSMENT IN PERSPECTIVE

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Risk communication is probably the most important problem in environmental protection that we as a country face today.

People are confused! They don't know when to worry and when not to. They don't know when to demand action to reduce risk and when to relax because risks are trivial or even nonexistent.

Worry focused on "phantom" or insignificant risks can divert attention, funding, and effort from real risks that can be reduced. The key is that we are going to have to prioritize and select the right worries and the right actions or we are truly going to become a country of "chemophobiacs". In general, the media, regulatory agencies,, and institutions have failed to communicate what constitutes a risk and what doesn't.

Clearly, society seems to fear the "unknown" or those things they are unfamiliar with. Chronic toxicity effects are a major concern of society today -- those effects that appear some time after exposure that could appear within months, years, or within decades. We worry about such things as cancer, birth defects, or a change in our genetic structure. Of these, probably cancer is what people fear the most. A major concern is whether something will cause us to develop cancer 20 or 30 years after initial or repeated exposures.

Implications are now originating from certain groups and individuals that if we could reduce or eliminate all industrial chemicals (man-made, synthetic), cancer would disappear or become a minor cause of death. However, when you look at those chemicals that are proven human carcinogens, aflatoxins that are produced naturally by certain molds that sometimes occur in our food (corn and peanuts) are at the top of the list. Other food products containing naturally occurring chemicals that have shown to be toxic to laboratory animals include: potatoes (solamine, charonine); mushrooms (hydrazines); celery (psoralens); alfalfa-sprouts (canavanine); lettuce, beets, spinach, radishes, and rhubarb (nitrates); yogurt (ethyl carbamate); coffee (methylglyoxal); cola drinks (formaldehyde); and beer/wine (ethyl alcohol). There are other chemicals that are known animal carcinogens and there are some, including pesticides, that produce tumors in laboratory animals when tested at extremely high levels of exposure (Gori 1980). However, to date there is no consideration for regulating foods containing naturally occurring carcinogens.

Information developed by the American Cancer Society indicates that, with the exception of respiratory disease (lung cancer due to smoking), most cancers are either declining or remaining relatively constant. A greater proportion of people are now dying from cancer than was the case 50 years ago, but the U.S. population has increased as well as the average life expectancy.

Then why do we think that the risk of cancer or death from pesticides is so great? Part of the answer is that the media focus their attention on the few accidents and the risks that occur while overlooking the benefits. Also, people are more likely to fear an unfamiliar chemical than something that they are familiar with (like a car, which poses a far greater risk).

Those actions that we have control over or tend to benefit from are viewed as less of a risk than those that are uncontrollable or non-beneficial. When compared to other actual levels of risk from accidental death from various causes, pesticides were below motor vehicles, swimming, bicycles, hunting, home appliances, commercial aviation, power mower, and skiing (Upton 1982). Comparing risks or deaths from selected occupations shows that mining and construction have 20 and 10.3 deaths per 1000 individuals respectively while agriculture (where many of our pesticides are used) has eight; transportation accounts for 7.6 deaths per 1000 individuals.

Chemicals, especially pesticides, are not equally viewed or perceived as other risks are. Regulatory policy continues to cling to the concept that there is no finite threshold below which chemicals will not exert an effect.

LITERATURE CITED

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G. B. Gori. 1980. The regulation of carcinogenic hazards. Science 208: 256-261.

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NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS
FOOD LABORATORY

Monthly Report for June, 1988

Food Laboratory personnel tested the following number of samples for different agencies during June, 1988:

Number of Samples	Agency
1	NY State Police
6	NY State Liquor Authority
195	Federal Milk Market Administrator
	Department of Agriculture & Markets
39	Kosher Inspection
710	Food Inspection Services
1,305	Milk Control
Total 2,256	

The variety of food analyzed for the Department and the number of violations found are shown in Table 1. Approximately 83 percent of the samples were devoid of misbranding or adulteration.

During June, as shown in Table 3, 327 pieces of Babcock, Gerber and bacteriological glassware were tested for compliance with construction and calibration standards. All items were certified for use in the State for official testing of milk and dairy products.

A summary of pesticide testing is given in Table 4. The 109 samples consisted of apples, fish, milk and milk products, vegetables and various foods and packaging materials from a retail store. Fish contained < 0.01 to 1.1 ppm PCBs but did not contain detectable levels of chlorinated pesticides. Milk, milk products and vegetables were found to be free of detectable pesticides. Daminozide (Alar) was found in 7 of the 23 apple samples tested. Levels ranged from 1.1 to 3.7 (average 1.9) ppm. Daminozide was not found in the other 16 apple samples at the 0.1 ppm level. The majority of foods and food packaging materials obtained as reinspection samples from a retail store were contaminated with Diazinon and Dursban. Foods contained 0.04 to 0.14 ppm Diazinon and 0.02 to 0.06 ppm Dursban. Food packaging materials contained 0.31 to 70.3 (average 10.15) ug/ft^2 Diazinon and 0.07 to 47.1 (average 4.67) ug/ft^2 Dursban.

Special projects during the month included:

1. Continued testing of a large number of cheese samples for adulteration.
2. Analysis of raw milk for sulfa drugs. Sulfamethazine, Sulfamethoxyzole and Sulfaquinoxyline were not detected at the 5 ppb level in any of the 12 samples analyzed.

Table 4

Summary of Pesticide Testing

Period	Food No.	Food Adult.	Dairy Prod. No.	Dairy Prod. Adult.	Animal Feed No.	Animal Feed Adult.	Misc. No.	Misc. Adult.	Total No.	Total Adult.
1973	1145	19	648	31	30	0	7	0	1830	50[1]
1974	1265	15	561	6	19	0	0	0	1845	21[2]
1975	1409	54	602	14	18	2	42	0	2071	70[3]
1976	983	12	670	6	11	0	25	0	1689	18[4]
1977	791	2	279	0	31	4	16	0	1117	6[5]
1978	517	2	305	0	43	2	405	0	1270	4[6]
1979	720	15	581	5	18	1	250	1	1569	22[7]
1980	681	16	401	0	11	0	6	0	1099	16[8]
1981	958	77	437	0	150	29	101	70	1646	176[9]
1982	1144	130	593	0	102	6	338	249	2177	385[10]
1983	843	24	459	1	195	0	226	109	1723	134[11]
1984	2256	103	550	0	14	0	14	2	2834	105[12]
1985	815	6	651	9	14	0	8	0	1488	15[13]
1986	718	19	607	0	5	0	7	1	1337	20[14]
1987	423	8	645	0	1	0	21	0	1090	9[15]
Jan 88	33	2[a]	22	0	0	0	0	0	55	2
Feb 88	107	10[b]	32	0	0	0	0	0	139	10
Mar 88	87	11[c]	41	0	0	0	1	0	129	11
Apr 88	60	4[d]	98	0	0	0	1	1[e]	159	5
May 88	33	3[f]	44	0	1	0	3	2[g]	81	5
June 88	59	3[h]	35	0	0	0	20	20[i]	109	21

Table 4 (continued)

[1] 17 new sources of pesticide contamination
[2] 16 new sources of pesticide contamination
[3] 13 new sources of pesticide contamination
[4] 8 new sources of pesticide contamination
[5] 2 new sources of pesticide contamination
[6] 3 new sources of pesticide contamination
[7] 7 new sources of pesticide contamination
[8] 2 new sources of pesticide contamination

4 new sources of pesticide contamination
5 new sources of pesticide contamination
5 new sources of pesticide contamination
6 new sources of pesticide contamination
8 new sources of pesticide contamination
6 new sources of pesticide contamination
8 new sources of pesticide contamination

o samples of potatoes contained 0.26 and 0.34 ppm Endosulfan.
e imported tomato sample contained 0.07 ppm Sumilex and 9 potato samples from 4 different farm Sullolk County contained 0.23 to 0.44 ppm Endosulfan.
o different samples of strawberries from Florida contained 0.44 ppmand 2.4 ppm Chlorothalonil; ppers from Mexico contained 0.44 ppm Mevinphos and eight reinspections samples of tatoes from Suffolk County contained 0.22 to 0.43 ppm Endosulfan.
reinspection sample of potatoes contained 0.23 ppm Endosulfan; imported pears 0.04 ppm Botran; orida strawberries 28 ppm Captan and California oranges 0.13 ppm Botran.
rfaces of plastic flatware were contaminated with 1.21 to 1.76 ug Dursban/ft2.
ree different lots of imported peas contained 0.09 and 0.13 ppm Botran and 1.15 ppm Parathion.
rrots from an "organic farm" contained 0.21 ppm Terbacil and 0.31 ppm DDE.
reinspection sample of plastic flatware had surface contamination of 1.18 ug/ft^2 Dursban.
inspection samples of candy, cracked bread and tea contained 0.04 to 0.14 ppm Diazinon and 0.0 0.06 ppm Dursban.
inspection samples of paper and plastic food packaging materials contained .31 to 70.3 (ave. .15) ug/ft^2 Diazinon and 0.07 to 47.1 (ave. 4.67) ug/ft^2 Dursban.