

IPM: A Way of Looking for Solutions to Plant Health Problems

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The agricultural establishment has taken some hard licks in the public media recently. Farmers, land-grant universities, state and federal departments of agriculture, and agribusiness have been depicted as soft on carcinogens, careless with food and drinking water, and callous toward workers and consumers in the DBCP and EDB affairs. And it isn't over yet.

What has gone wrong? We put together a solution (DBCP) to a problem, such as nematodes in soybeans, only to lose it on grounds

that the risks to handlers and to the environment outweigh the benefits. We declare that an emergency exists and obtain a replacement solution (EDB) only to read in the morning paper, "Drinking Water Contaminated." We have difficulty deciding what to think about traces of EDB in well water. Are the levels really harmful? Did the traces of EDB actually come from agricultural use of the material? Does anyone truly understand the single-hit theory of carcinogenesis? How can one relate real loss in crop yield to theoretical enhancement of cancer risk? It seems uncomfortable but necessary to say that agriculturists are not in favor of enhancing cancer risks. But what price is society prepared to pay for risk reduction? Are farmers being asked to pay a disproportionate share of the price of risk reduction, compared to, say, the automobile and medical industries?

Aaron Wildavsky is professor of public policy at the University of California. Recently he wrote in the *American Scientist* (67:32-37, 1979): "The usual way to resolve differences about the effects of technology is to rely on expert opinion—but the experts don't agree. The frustration of scientists at the perpetuation rather than the resolution of disputes over the risks of technology is a characteristic of our time. Unable or unwilling to depend on government officials or acknowledged experts, beset by the 'carcinogen-of-the-month-club', people see their eternal verities turn into mere matters of opinion."

Wildavsky continued: "What is spent to lessen risk cannot be used to increase productivity. . . . Attempting to lower risks [may only] displace them to other objects. . . . Eliminating certain pesticides and fertilizers in the United States may result in less food and higher food prices in the countries that import from us."

Adapted from a presentation to the South Carolina Soybean Board, January 1984.

Wildavsky concluded, "What to favor and what to fear are cultural constructs that enable us to walk right past snarling monsters and run away from little-bitty things."

But what has all of this to do with IPM in crop production? What can we learn from our experiences with DBCP and EDB?

IPM—integrated pest management—is simply a way of looking for solutions to plant health problems. The solutions should be economically feasible, environmentally acceptable, and relatively durable. Usually, the IPM solution to plant health problems involves a combination of cultural, agrochemical, and biological tactics.

The recent era of organic pesticides has created a sort of quick-fix euphoria in our agricultural establishment. Farm groups recognize a problem such as nematodes and demand a prompt solution; the agrochemical industry invents the remedy; and the land-grant/USDA system prescribes the quick fix.

DBCP and EDB have enhanced awareness that some of our quick fixes don't seem to last. Pests become resistant. Nontarget organisms and beneficials are damaged. Unforeseen environmental problems keep blind-siding us. Meanwhile, we have committed insufficient resources to basic understanding of the pest-crop ecosystem.

What can grower organizations do about this? Probably more than they realize! Here are a few suggestions.

1. Leaders of grower organizations should be aware of their potent influence on the priorities of the land-grant/USDA system. Administrators and scientists pay attention to farmers—especially farmers who talk or write to elected officials.

2. Farm leaders should look for longer ranged approaches to problems. Breeding for resistance and researching biological suppression of pests are slower, more tedious, and usually more expensive processes than screening pesticides. But patience and support by farmers are likely to be rewarded with more durable solutions.

3. Grower organizations should encourage and support team efforts. IPM consists, more than anything else, of bringing a diversity of brainpower to focus on a problem area. Producer organizations should raise their level of expectation and support for team research, extension, and teaching programs. Compartmentalized approaches to research, extension, and teaching are not well matched to increasingly complex production problems.

4. Grower groups should encourage, support, and reward creativity. They should take some risks with their research support and invest in a few really novel ideas.

5. Researchers, extension workers, teachers, and administrators are people too. They respond to strokes and rewards. Believe it or not, an impressive certificate from the commodity association for a professor's office, with an honorarium attached, may sometimes be worth more than a raise in pay.