

LET'S NOT GIVE UP ON CHEMICAL PESTICIDES

by Kenneth D. Meyer

Integrated pest management has been around for thousands of years. In 2,500 BC, ceramic caged mouse traps were used in Iran. In 2,000 BC cats were used in Egypt for mouse control. In 1,000 BC Homer used sulfur to avert pests (5). In 1888, ladybird beetles were imported to California to control cottony cushion scale on citrus. This was one of the first successful biological control endeavors in the United States (6). In 1892, lead arsenic was used against the gypsy moth and was used until about 1970. In 1939, DDT was found to be an effective pesticide and was used until about 1970 (5). These last two chemicals are no longer available to those who relied on them for so many years. Laws and regulations, promulgated to a large degree by sound environmental studies, have removed them from the shelves.

The Environmental Protection Agency was created in 1970, largely as a direct result of a public outcry against the increasing use of chemicals. Fostering this outcry was Rachel Carson's book, "Silent Spring," published in 1962. It reached the people as a bestseller with tales of dead fish in lakes and streams, loss of songbirds, and increasing resistance of pests to chemical pesticides (4).

Biological controls and Integrated Pest Management became bywords of a new generation of ecologists. Claims and scare tactics were expounded by certain segments of society against others, as cries of cancer, teratogens, and other debilitating diseases were put forth as a result of pesticides. There is no doubt that many of the chemicals of bygone days and the means of using these chemicals were improper. The days of dusting fields by hand dusters without the use of respirators and hydraulic spraying while wet and covered with pesticides are now gone. And thankfully so. There is still doubt, however, that the chemicals we rely on today are "safe." Why should there not be doubt when we find traces of chemicals known to cause problems existing in our food and drinking water. Or worse yet, chemicals we formerly were told were "safe" are

now classified as dangerous and removed from the shelves.

Risk versus Benefits

Before we decide to denounce all chemicals, we really must define a chemical and judge the value of the chemical as to the user risks. The California State Department of Food and Agriculture states that the terms "pesticide" and "economic poison" may be used interchangeably. They say that "Economic poisons are substances and mixtures of substances intended for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any and all plant pests" (8). This definition includes many substances used in our daily diets. But when these substances are used in small amounts, harm to us through intake or exposure is minimal. In other words, the risk is small. And this is the area where irrational decisions, based on sensationalism, are often made.

Under the Delaney Clause (1958) of the Food Additives amendment to the Federal Food, Drug, and Cosmetic Act, all pesticides proven to be carcinogens (cancer causing) and are left as a residue on food are to be prohibited from use (3). Yet, the quantities required to induce cancer using many of these chemicals as applied to a crop, is so great, it would be impossible in many cases to ingest or absorb enough to cause ill health if used properly and according to the label.

We are currently surrounded by and daily ingest carcinogens. The Occupational Safety and Health Administration is developing its "blacklist" of suspected carcinogens in the workplace. Added to the list is asphalt, asbestos, acetic acid, ethanol, fluorene, urea, phosphoric acid, and propane (11). An article, dated February 14, 1984, in the *Wall Street Journal* is entitled, "Peanut Butter, Parsley, Pepper and Other Carcinogens," and one recently in *Newsweek* (April 9, 1984) entitled, "Not too Much Pepper, Thank You," states that "Some of nature's own food stuffs are more toxic than the manmade chemicals we eat." Other

articles claim drinking alcohol, coffee, tea, and smoking are all carcinogenic (12). In fact, a recent article in the San Francisco *Chronicle* stated that caffeine, a suspected carcinogen, may be a natural insecticide (13).

We are obviously not trying to poison ourselves and government agencies are doing a wonderful job in monitoring our intake and exposure to dangerous chemicals. The point is, the risks involved are minimized if we use chemicals properly, in moderation, and according to directions. Overdosing on such chemicals as salt, baking soda, aspirin, and alcohol will kill as thoroughly as overdosing on malathion, diazinon, and benlate.

Scientists tell us that the United States homeowner spends about 17 percent of his take-home dollar on food, compared to over 50 percent in underdeveloped countries. They furthermore state that without pesticides, the cost of food would rise by more than 50 percent and that we would have poorer quality food (9). It is, furthermore, pointed out that some serious illnesses, such as malaria, are nearly eliminated in the United States because of pesticides. When DDT was eliminated from use in Ceylon, malaria went from 2 percent of the general population to over 50 percent (9). Yet, we are told that the chance of death from DDT is one in a billion. This is to be compared with a one in one-hundred million chance of dying by cigarette smoking or a one in a million chance of dying by driving 60 miles in an automobile (10). We must balance the risks with the benefits.

Despite our use of chemicals, and, indeed, our bodies are components of these same chemicals, our life expectancy has constantly risen. In 1910, the life expectancy in the United States was 47 years. In 1950, it was 69 years; and in 1975, it was 74 years (1). I believe the latest figure today is around 78 years. The cancer rate has likewise fallen from 114/100,000 population in the United States in 1950 to 107 in 1960 and 100/100,000 in 1970 (1). And, finally, despite the increased amounts of pesticides used, market basket samples of food from 1965 to 1974 show a general decline in pesticides in food. Levels were consistently 1/10 to 1/100 of the government defined acceptable levels (1). Deaths attributed to pesticide poisoning amount to about 150 per year or about the same amount as those who die from

an overdose of aspirin in a given year. Two-thirds of the deaths that do occur are to children under 9 years old who happen upon the concentrate product. Many of the others can be attributed to accidental ingestion, thinking the chemical was a beverage (9).

The public's concern is a problem of poor communicating by government agencies and pesticide formulators and users. The public is obviously not getting the pesticide story. The public should know the chemical risks versus the benefits and the necessity of chemicals as an aid to a better environment. Furthermore, they should know that the chemical sprays companies use are backed by the Environmental Protection Agency and, in California, the California Department of Food and Agriculture. The chemicals also have the blessings of the American Medical Association, the United States Public Health Service and the World Health Organization (9). Instead of welcoming sprays as an aid, the public is fearful and critical.

Who's at Fault

A chemical applicator must be intelligent and follow the prescribed safety rules. If damage by chemical use can be shown, it does not take much in the way of poor application, wrong timing, selection of chemical, posting, or other means for a court to prove negligence. Not only may individuals be awarded actual damages, but they can be awarded punitive damages as well. And, it has been ruled that spraying has a high damage potential and a person or body "cannot delegate work that has a high damage potential and avoid liability." In other words, if a municipality hires an outside contractor to spray and a suit arises from a third party for damages, the municipality would presumably be brought into the suit (15).

In our experience, the best way to handle inquiries and complaints is with a personal visit as quickly as possible. If chemical is on a car, have the car washed. If it is on a person, pay for the laundering of clothes and assure them of the safety of the product. If an animal or child gets sick, again assure the parties involved of the chemical safety and cooperate fully in providing all information requested. Keep a sample of the diluted spray product in a container for possible analysis should litigation develop. Provide copies of labels to doc-

tors or veterinarians as requested.

The applicator should have thorough knowledge about the type of chemical being applied. He is the first line of defense against irate citizens. He is, also, in close contact with the chemical for sometimes long periods of time. He should be aware of symptoms of poisoning. He should be tested for chemical build-up if there are long term exposures of certain chemicals. His personal precautions should be beyond that necessary for the public, as he is working with concentrate chemicals as well as the dilute spray. Gloves, clean clothes, raincoats, respirators and other protective gear should be provided as necessary.

As time progresses, scientists are leading us to a healthier environment with resulting improvement in the quality and duration of life. Chemicals that are environmentally harmful are eliminated and new methods of control are coming forth. It is interesting to note that in an article dated August 5, 1981, in the *San Francisco Chronicle*, the malathion spray zone for Mediterranean fruit fly control in California unexpectedly showed a decrease in health problems following the spraying (14). This is the same spray that brought demonstrations and lawsuits to Los Angeles earlier this year, a full three years later (7). It is also interesting to read recent articles on indoor air pollution. The Environmental Protection Agency is only now beginning to suspect household products and building materials as a further source of carcinogens. As quoted, the "Indoor levels of the volatile organic chemicals are generally tenfold greater than outdoor levels" (2).

The act of cleaning up our environment, both indoors and outdoors, should rightfully continue.

Those of us in the pest control field should learn and educate. We should never lose sight of the relative value chemicals offer us and the environment. A chemical called a pesticide should be just as acceptable as a chemical called a beverage. Each has its own use and each is safe if properly used.

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