

REALM OF THE UNKNOWN: JANUARY 1999

According to sales and marketing data collected and evaluated by the U.S. Environmental Protection Agency (EPA) an estimated 1.22 billion pounds of active ingredients in the U.S. in 1995, accounting for one-fifth of the worldwide use;

World pesticide expenditures totaled more than \$32.5 billion in 2001.

U.S. expenditures accounted for more than 33% of total world expenditures on pesticides, more than 40% of world expenditures on herbicides, more than 33% of world expenditures on insecticides, and more than 10% and 25% of world expenditures on fungicides and other pesticides, respectively.

The effects of pesticides on wildlife are also poorly documented. Discoveries of pesticide residues have resulted in fishing bans in many bays, lakes and rivers

Increased pest resistance...

A study published in the *American Journal of Public Health* in 1995 suggested that "use of home pesticides may be associated with some types of childhood cancer."²⁵

Many organophosphates are toxic to the brain and nervous system, which are especially vulnerable during infancy and early childhood.

The National Research Council reported that "exposure to neurotoxic compounds at levels "believed" to be safe" for adults could result in permanent loss of brain function if it occurred during the prenatal and early childhood period of brain development."

In 1992, the USDA's Pesticide Data Program analyzed residues in 12 fruits and vegetables from major agricultural production regions in the United States, including Texas.³⁶ Unlike other pesticide residue studies performed by the FDA or USDA, this was the first that tested residue on fruits and vegetables after they were peeled and washed. The results of this study showed that fresh fruits and vegetables routinely contain residues of several different pesticides.³⁷ According to the USDA, 5,592 samples were analyzed. "Residues of 49 different pesticides were detected in approximately 60 percent of all samples.

most

Many samples contained multiple residues, with as many as eight found in one sample. In other words, neither the washing nor peeling of food guarantees the removal of pesticide residues."38

APPENDIX A

POTENTIAL HEALTH EFFECTS OF SOME WIDELY-USED PESTICIDES

Many pesticides are not only toxic to weeds and bugs, they can also have adverse effects on human health.

These effects can include causing different types of cancer, impairment of the nervous system and lingering neurological problems, birth defects, reproductive abnormalities, hormone mimicry and disruption and immunotoxicity. Whether these potential effects actually manifest themselves in any particular person depends on exposure levels, exposure to other pollutants and a variety of other factors.

- **Cancer:** Some pesticides registered for use are classified by EPA as "probable" human carcinogens, others as "possible" human carcinogens. Pesticides have been linked to various and many types of cancers, particularly Non-Hodgkin's lymphoma, multiple myeloma, breast cancer, leukemia, prostate cancer and others.107

According to the National Cancer Institute, children may be more at risk from cancer caused by pesticide exposure than adults.107

- **Nervous System Effects:** The most serious neurotoxic effects often result from acute (short-term) exposures to high levels of a pesticide, but symptoms such as headaches, dizziness and even seizures from these short-term exposures can linger. The organophosphate and carbamate pesticides are particularly of concern for neurotoxic effects, as they are designed to work by interfering with the cholinesterase enzyme, which is essential to normal nervous system function in humans as well as insects. Neurotoxic effects are particularly serious for infants and children, with developing brain and central nervous systems.107 In older people, Parkinson's disease has been repeatedly linked to pesticide use.107
- **Birth Defects:** Exposure of fetuses to some pesticides poses potential risks of birth defects. For example, one extensive study in rural Minnesota found higher frequencies of birth defects in areas with relatively higher pesticide use and higher rates of birth defects in infants conceived during the spring (when pesticide use is higher).107
- **Reproductive Abnormalities:** Pesticides have been implicated in reproductive abnormalities such as miscarriages, stillbirth and premature births, and mutations, though most studies have involved occupational pesticide exposure.107
- **Hormone Mimicry and Endocrine Disruption:** Pesticides are increasingly being scrutinized for links to disruption of hormonal balances in humans and wildlife. The

hormone system controls a variety of important functions in the body.¹⁰⁷ Yet many pesticides have yet to be tested for endocrine disruption effects.

Immunotoxicity: Investigations of pesticide links to impairment of the body's immune system is just beginning, but studies are already showing links to certain pesticides.¹⁰⁷