

Canadian Association of Physicians for the Environment

Position statement on Synthetic Pesticides

Preamble

The large-scale use of synthetic pesticides has been taking place for only two and a half generations.

Beginning with the use of DDT during the Second World War (whose discovery earned entomologist Dr. Paul Mueller a Nobel Prize in 1948), the pesticide industry has grown rapidly, and at times even exponentially, up to the present day. Currently over 2.5 million tons of such chemicals, worth over US \$30 billion, are applied to crops in every country in the world. Of this amount, 73% is produced by just ten multinational agrochemical corporations¹; five countries – France, the U.S.A., Germany, Britain and Switzerland – are the primary producing nations². Encompassing insecticides, herbicides, parasitocides, nematocides, growth regulators, fungicides, defoliant and dessicants among others, this wide-ranging set of approximately 100,000 compounds, 7000 of which are registered for use in Canada³, have one thing in common; they are all designed to kill one or more often many species of living organisms, usually in a non-specific manner. Estimates that less than five percent of pesticide formulations by volume reach intended target organisms may well be accurate, considering the inevitability of drift, routine pesticide use as prevention without prior confirmation of infestations, and incautious application. So-called ‘inert’ portions of formulations – composing up to 95% of many products – are often quite toxic in themselves.

Early on in their history, the development of resistance to chemical pesticides became a significant issue. The rapid multiplication rates of single-celled or other simple organisms makes it clear that such a problem is inevitable, but the speed with which resistance occurs has often surprised observers. Resistance to DDT was a major problem only five years after its introduction. Today multiple pesticide resistance is common, and new pesticides, like new antibiotics, are regularly produced by industry to address this problem.

The World Health Organization (WHO) estimates today – in figures that are widely accepted to be underestimates – that 200,000 people are killed world-wide, every year, as a direct result of pesticide poisoning, up from 30,000 in 1990. The WHO further estimates that at least 3 million persons are poisoned annually, many of whom are children. A study in England and Wales demonstrated that 50% of pesticide poisonings involved children under the age of 10.⁴

Pesticides can be remarkably persistent in biological systems. The U.S. Environmental Protection Agency has conducted the National Human Adipose Tissue Survey since 1976, measuring toxic compounds in human fat. In 1982 this study found DDE, the primary metabolite of DDT, in 93% of samples⁵. A 1990 study of adipose tissue levels of toxic compounds in autopsy specimens from elderly Texans found DDE, dieldrin, oxychlorane and heptachlor epoxide in 100% of samples⁶. These findings are particularly disturbing because DDT has been banned in the U.S. since 1972.

Pesticides are also found far afield, in ecosystems considered pristine and far from active pesticide use. Osprey eggs in the Queen Charlotte Islands, polar bear fat in the high arctic, and the blubber of whales in all the oceans of the world are contaminated with pesticide residues⁷, even though all these creatures live far from point sources of pesticide application. Water and wind, as well as the bodies of animals that serve as prey for others (including humans) higher on the food chain, are the universal vectors for pesticide dispersal. Highest on the food chain, human breast milk is of great concern because of high levels of bio-accumulated pesticides. Breast milk of Inuit women contains much higher pesticide levels than the milk of women in southern Canada, raising concerns about this most intimate and crucial form of human sustenance.⁸⁻⁹

Two other factors make pesticides problematic for human and ecosystem health. First, many pesticides are not persistent in human or other biological systems. Therefore they may be difficult to measure in tissue or other samples collected more than a few hours after exposure, although their biological effects may persist

for days, months or even years. Second, many pesticides undoubtedly have additive or synergistic effects with one another, especially when they belong to the same chemical class. Only recently have these two issues been acknowledged by legislators, with the 1996 U.S. Food Quality and Protection Act being the first major enactment anywhere in the world that takes the latter fact into consideration.

A further health issue regarding pesticides has emerged in the last decade. This is the demonstration that many chemical compounds, among them many pesticides, have hormone-like effects in biological systems, effects that were previously unsuspected as occurring on such a wide scale. During the last four years, the U.S. Environmental Protection Agency (EPA) has been designing a first-ever program for analysing these effects. The work has proceeded so slowly, however, despite a legislative mandate to act speedily, that the EPA itself is now being sued for dragging its feet!¹⁰ The Canadian government, lacking legislation for examining any adverse effects of pesticides, relies on manufacturers to supply such evidence.

Rationale for a CAPE position statement

As a result of the unquestioning trust that the population at large has placed in the scientific community, the commercial sector and regulatory agencies in the past, pesticides have become dispersed on a massive scale throughout our global ecosystem, without adequate testing for adverse effects in humans. In what has been called a massive, uncontrolled, global biochemical experiment, they are now essentially universal in surface waters, soils and biological systems. Because of their fundamentally toxic nature, pesticides are unlikely to be absolved of their demonstrated negative role in the health of humans and biological systems in general. In fact, it can be logically inferred that their deleterious impact will eventually be shown to be far more extensive than what is known at present, because so much research has yet to be done on the full range of toxicity potentialities.

Physicians are ill-trained to diagnose the adverse effects of pesticide exposures. Because there is no mandatory requirement for reporting actual or suspected pesticide poisonings, little confidence can be placed in many aspects of estimates of the public health effects of pesticide accumulation in local or regional ecosystems.

However there is growing evidence that the health of future generations may be severely harmed by pesticides, alone or in combination with other toxic chemicals now permeating the global ecosphere. The fetus and the newborn child, in particular, appear to be uniquely sensitive to the harmful effects of pesticides and other toxins.¹¹ Children, it has often been said, are not simply small adults. They are beings with uniquely vulnerable physiological processes. They incorporate ingested or inhaled substances into their growing bodies far more avidly than adults; these substances can profoundly influence their unique developmental processes, and induce disproportionately greater acute and chronic toxicity.¹²

For the above reasons, the Canadian Association of Physicians for the Environment feels it is important for us, as concerned clinicians, to lay out clearly what we believe to be the path for ethical scientists, medical or otherwise, to advocate on behalf of Canadian society. We believe that in such a statement, we must avoid ambiguity. We believe that we should likewise avoid clinging to banal certitudes. Instead, we must speak in a balanced and responsible way about the future direction society must take to avoid a possible looming toxic tragedy.

Statement

Reaching the goal of pesticide elimination cannot be accomplished without a dramatically increased support program for farmers and other growers who are prepared to convert to sustainable growing practices, including cessation of pesticide use. We believe that the best means to accomplish the goal of eliminating routine pesticide use is as follows:

- through an immediate and substantive increase in funding and practical support for research and information dissemination concerning alternative, non-toxic methods of pest control,

coupled with strong market incentives for non-chemical lawn and garden care contractors and product suppliers.

- through the development of new and imaginative legislative initiatives and clear-cut and substantive market incentives (including tax shifting) to support and encourage the rapid expansion of organic growing practices in all parts of the country; at all levels of government. This must include an essentially cost-free, uniform, nation-wide certification process for new and already established organic growing operations.

- through the Federal government and its regulators immediately moving towards a legislated end to cosmetic pesticide use within two years, as recommended by the House of Commons Standing Committee on Environment and Sustainable Development¹³. (Cosmetic uses encompass lawn and decorative garden management, and the non-commercial growing of food crops.)

- through the Federal government legislating, for the Pesticide Management Regulatory Agency, an increasingly restrictive regulatory framework governing the use of synthetic pesticides. This would begin with the most toxic substances, but ultimately include all synthetic chemical pesticides and 'inerts' unless needed for critical, short-term, emergency situations. Three initial steps in this direction must include: 1) the immediate elimination of the most toxic pesticides, as determined by an independent scientific panel; 2) the rapid introduction of full disclosure of ALL ingredients in pesticide formulations; and 3) the establishment of an independent office for the collection and public disclosure of all reports of proven or possible adverse effects resulting from pesticide exposures.

- through all government pesticide regulation reflecting the following four essential elements: a) the precautionary principle (do not act without reasonable proof of *harmlessness*); b) the principle of reverse onus (the *producer* bears responsibility for safety); c) zero discharge and residual contamination (no persistent ecosystem residues); and d) closed (clean) production processes.

- finally through all levels of government working steadily toward the abandonment of all synthetic pesticide use except in rare, urgent, critical situations.

¹ Van der Gaag N: Pick Your Poison: the price we pay for using pesticides. *New Internationalist* 323:9-11, May/00, p.11.

² The Facts on Pesticides. *New Internationalist* 323:18-19, May/00.

³ Pesticides: Making the Right Choice for the Protection of Health and the Environment. Report of the Standing Committee on Environment and Sustainable Development, p. 18, May/00.

⁴ Van der Gaag N: Op.cit., p.9.

⁵ Crinnion WJ: Environmental Medicine, Part 1: The Human Burden of Environmental Toxins and Their Common Health Effects. *Alt Med Review* 5:52-63, Jan/00.

⁶ Crinnion WJ: op. cit., p. 53

⁷ Lappano S: Personal communication. July 25/00

⁸ Jensen J et al (eds): Canadian Arctic Contaminants Assessment Report. Northern Contaminants Program, Indian and Northern Affairs Canada, 1997.

⁹ Rogan W et al: Should the presence of carcinogens in breast milk discourage breastfeeding? *Regulatory Toxicology and Pharmacology* 1:228-240, 1991.

¹⁰ Solomon G: Personal communication. July 7/00.

¹¹ Jacobsen J: Human health effects of water-borne pollutants in the Great Lakes. Presentation to Eco-Summit 2000, Ottawa, May 16/00

¹² Martin K: Brief to the Standing Committee on Environment and Sustainable Development of the House of Commons, Dec.1/99.

¹³ Op cit., page 116.