

Now the facts about 2,4-D: Hundreds of research studies have shown that the most common agricultural herbicide is not a carcinogen -- and cuts billions off the cost of food

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The Honourable Charles L. Caccia
Chairman, Standing Committee on Environment and Sustainable Development

Dear Chairman Caccia:

I would like to respond to the allegations made against the herbicide 2,4-D in your committee's report, "Pesticides: Making the Right Choice for the Protection of Health and the Environment."

To introduce myself, I am the executive director of the 2,4-D Task Force, representing an international group of companies that must jointly fund the more than 270 new research studies required by U.S. Environmental Protection Agency and requested by the Canadian Pest Management Regulatory Agency. 2,4-D, in addition to being the most widely used agricultural herbicide worldwide, is also the most widely used lawn-care herbicide in Canada, where it was introduced in 1947.

The allegations made in support of banning the "cosmetic" use of pesticides, such as removing weeds from lawns, are as follows:

- Pesticides are inadequately researched. 2,4-D, in addition to being the most widely used agricultural herbicide worldwide, was the first selective herbicide developed (a selective herbicide controls weeds in a crop without harming the crop), something that stimulated an enormous amount of research on 2,4-D all over the world. The reason for the huge research effort has been 2,4-D's enormous impact on increasing world food production while reducing food production costs. A recent U.S. government study concluded that should 2,4-D no longer be available, the cost to consumers, in the form of higher food prices, and to users (farmers) in the form of higher production costs, would total US\$1.68-billion annually in the United States alone. An earlier 1998 study initiated by the Canadian government concluded that the loss of 2,4-D would cost Canadians a third of a billion dollars annually.

The toxicology database alone exceeds 4,000 peer-reviewed, published studies, plus hundreds of unpublished studies that the manufacturers must fund for the various regulatory agencies throughout the world. Additionally, there are now more than 100 peer-reviewed, published epidemiologic (human) studies pertinent to 2,4-D. If anything, 2,4-D seems to be researched ad infinitum. The reason anti-pesticide activists keep insisting on more research is that they either have little comprehension of the extent of the current data package or the fact that the weight of today's scientific evidence simply does not support their allegations.

- The bulk of the research has been "done by industry" and is therefore biased and should not be taken seriously. As mentioned above, this task force was formed to fund more than 270 new research studies requested by the PMRA and the U.S. EPA. This research, which applies to pesticides registered before November, 1984, has cost in excess of US\$30-million for 2,4-D alone. Yet this task force did not conduct a single study, which by U.S. law must be done by EPA Good Laboratory Practice (GLP) qualified laboratories. These are laboratories that meet stringent EPA specifications and controls. U.S. EPA carefully reviews all studies for GLP compliance; an intentional GLP violation (such as the understating of toxicity) is a violation of federal law, a felony. These laws are enforced, so GLPs are taken very seriously by both the industry involved and the laboratory doing the work. This task force has contracted the required 2,4-D research studies to more than 30 EPA/GLP qualified laboratories for completion. The last of these studies was submitted to EPA in December, 1995, although additional work is ongoing. The Canadian PMRA has either received copies of the complete studies, some of which run 5,000 pages or more, or they have received copies of U.S. EPA's critique of the study in place of the entire study, at PMRA's option.

- 2,4-D causes cancer in laboratory animals. This allegation is repeatedly made by activist groups. However, the toxicology database now demonstrates conclusively that 2,4-D does not cause cancer in laboratory animals. Attached is an EPA review of several GLP lifetime mouse and rat feeding studies and a re-review of a multi-generational reproductive study in rats. This review is important because it contains the current EPA toxicology profile sheet on 2,4-D. As you will note, it describes 2,4-D as both non-carcinogenic and non-mutagenic. Some of the animal feeding studies required the feeding of massive amounts of 2,4-D to the test animals daily over their expected lifetime. Copies of several peer-reviewed, published reviews of the numerous 2,4-D animal studies are attached. PMRA has received copies of this same research. When activists make the charge that 2,4-D causes cancer in laboratory animals, they should be asked to cite the study supporting the allegation. What they typically cite are articles from activist publications rather than actual research studies.

- 2,4-D is a human carcinogen. Activists cite only the few case-control studies suggesting an association between 2,4-D and cancer and disregard the many studies that do not support the alleged association. Case-control studies are short-term studies based mainly on questionnaires and telephone interviews. Exposure to the studied chemical is assumed based on the type of work done by the people who make up the cases and controls in the study, and no actual exposure measurements are made. In contrast, the more powerful cohort studies do not suggest an association between 2,4-D exposure and cancer. Cohort studies are long-term studies (20 years or more) where the participants' actual medical records are followed and, in many cases, exposure studies are actually conducted. This is why the most recent EPA review of the 2,4-D toxicology and epidemiology databases has concluded (for the fourth time) that 2,4-D should remain a class D compound. Under EPA's classification of carcinogenicity, class A compounds are "known carcinogens," class B compounds are "probable carcinogens" and class C compounds are "possible carcinogens." A D classification means that there is insufficient evidence of carcinogenicity in the data package to place the compound in any of the three higher classifications. The recent WHO/FAO review of 2,4-D reaches the same conclusion.

- 2,4-D is an "endocrine disruptor." This is a relatively new allegation. The endocrine-disruption hypothesis (there is still no hard scientific evidence that endocrine disruptors exist in the environment) was popularized by the anti-pesticide activist Theo Colborn in her best-selling book *Our Stolen Future* (1996). Ms. Colborn, who is employed by the World Wildlife Fund, suggests that there are minute quantities of very persistent compounds in the environment -- both pesticides and industrial chemicals -- that when combined with similar chemicals have powerful hormonal effects on humans and wildlife. This allegedly causes birth defects, mutants, cancers of the breast and reproductive system, etc. She cites the long-banned chlordane and DDT as examples. (She does not identify 2,4-D, which she mentions only once in her book, as an "endocrine disruptor.")

This hypothesis of endocrine disruptors appeared to be strongly supported by a Tulane University study that allegedly showed that certain persistent chemicals, present in the environment in very small quantities, when combined with similar chemicals exhibited remarkable synergistic activity. Supposedly, the combinations were as much as 1,600 times as potent than the individual chemicals alone.

This study received extraordinary media coverage in Canada and the United States, creating widespread public concern. However, other researchers (and the author of the study himself) were unable to replicate the results, forcing the author to ask that the study be withdrawn from the scientific literature and prompting his resignation from the university.

The retraction of this widely publicized study received almost no media attention. Activist groups still cite it as strong evidence of the dangers of "endocrine disruption." Other studies designed to support the endocrine-disruptor hypothesis have failed to do so. Widely publicized findings of deformities in frogs found in some parts of the United States were promptly blamed on endocrine disruptors. But later studies identified other environmental factors as the cause -- notably, damage to frog eggs by ultraviolet light in sunlight.

In 1997, as a result of public concern caused by Ms. Colborn's book and the Tulane study, the U.S. Congress ordered U.S. EPA to develop testing procedures for endocrine disruption for tens of thousands of chemicals. In 1998 EPA issued their list of the first 168 chemicals to be tested. 2,4-D was classed as a substance known to have no hormonal activity.

Sincerely,

Donald L. Page

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