Only bad science links 2,4-D to cancer

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The Ontario College of Family Physicians' recent review on the effects of pesticides on humans raises important questions about Canada's scientific and regulatory process. More importantly, it raises concerns about the ability of trusted professional bodies to erode the public's faith in this process.

Canada has a comprehensive regulatory system to protect Canadians from a wide range of potentially harmful substances. In the case of pesticides, a product is acceptable for use only after demonstrating that it does not cause any unacceptable health risk, including cancer. The system is effective because of rigorous review processes whereby all the applicable science is examined to ensure the best and most evidentiary decision on what is safe and what is not.

When other bodies, particularly those from a supposed science-based discipline, follow a less stringent process to produce and promote a "comprehensive review," we no longer give Canadians informed decisions based on the weight of evidence.

In the OCFP's review, a large body of extremely important and widely recognized research is ignored. In fact, the OCFP appears to have committed the ultimate transgression in scientific reporting: to selectively choose research that supports one's hypothesis. And even worse, to selectively pick information from within research studies.

Although the OCFP singled out 2,4-D for special attention, recent reviews of 2,4-D by regulatory agencies such as the World Health Organization, the U.S. Environmental Protection Agency and the European Commission came to conclusions very different from those reached by OCFP. These three agencies -- which are mandated to protect human health -- agree that 2,4-D is not an animal carcinogen, mutagen or teratogen. Furthermore, not one regulatory agency in the world classifies 2,4-D as a human carcinogen.

These reviews included all pertinent epidemiologic and toxicology data and offer conclusions based on the weight of the total evidence. Given their prominence, one can only assume they were not included because they in no way support the OCFP's conclusion.

The U.S. National Cancer Institute has spent 20 years and millions of dollars testing for any link between 2,4-D and non-Hodgkin's lymphoma. Its analysis concluded that there is no association between non-Hodgkin's lymphoma and "ever having used 2,4-D."

More importantly, NCI researchers concluded: "while some pesticides may present a cancer risk to humans, many, maybe even most, pesticides do not." The OCFP review completely ignores this landmark study.

The OCFP review has Canadians believe that populations exposed to pesticides can expect a higher rate of cancer and other health problems than the general population.

This simply flies in the face of many studies that demonstrate there is no such relationship. To the contrary, a 20-year cohort study of over 33,000 Florida pesticide workers cited by OCFP actually found the overall incidence of cancer among the pesticide applicators to be significantly lower than the general Florida population, and the applicators to be in significantly better health.

On page 36 of the report, the authors pull one data element from the 1994 Morrison study of 155,000 farmers in Manitoba, Saskatchewan and Alberta. But they neglect to inform the reader that this population actually lives longer than the average Canadian, has a lower incidence of cancer and significantly fewer deaths from non-Hodgkin's lymphoma.

Other major studies have also shown that populations of applicators, farmers and chemical workers who actually manufacture 2,4-D products have an overall mortality from cancer below that of the general population. It is puzzling why the authors of the OCFP review chose not to include these and similar findings.

Contrary to the claims in the OCFP review, 2,4-D was not developed during the Second World War as a chemical weapon to eradicate the Japanese rice crop. In fact, it is the world's most widely used rice herbicide, used to protect rice from yield-destroying invasive weeds. It is still extensively used by Japanese rice growers today and has been an important tool to increase rice production worldwide (also wheat, barley, corn, oats) having a significant impact on reducing world hunger.

Remarkably, the OCFP review failed to include the comprehensive literature reviews by researchers attempting to quantify the contribution of pesticides to the overall incidence of cancer. Such reviews include Sir Richard Doll (1981), Doll (1998), Ritter (1997) and Gold (2002). Every one of them concludes that the major causes of preventable cancer are smoking, alcohol consumption and lifestyle (mainly diet), and that the contribution from pesticides is negligible.

Based on these expert reviews, the health of Canadians would be better served to have all the resources currently dedicated to banning lawn care pesticides redirected to improving the diet and exercise of the population.

Last year at this time, Sir Richard Doll, professor emeritus of cancer research epidemiology at Oxford University, spoke at a meeting in Guelph, Ont. As reported by the news media, when a local municipal politician asked Sir Richard if there was a connection between the use of pesticides and cancer, and if a ban was warranted on the use of lawn and garden pesticides, he responded, "No. There's no scientific basis for it."

It is not in the public interest to misrepresent the science when science is the fundamental basis for our decision-making. Doctors and scientists charged with protecting our health should make decisions on the basis of the weight of evidence. The OCFP report fails that critical test.

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