

FORUM

‘Cosmetic’ Pesticides: Safe to Use by Professionals and Homeowners**JOHN J. HOLLAND¹**

The Special Committee on Cosmetic Pesticides was instituted by the British Columbia government to investigate whether or not pesticides can be used safely for the protection of ornamental plants and turf. After hosting numerous presentations in order to gain a fundamental understanding of the issue, the Committee recently concluded that there existed no scientific grounds to prohibit the products (Bennett, 2012). Representatives of Health Canada’s Pest Management Regulatory Agency (PMRA), the agency responsible for ensuring the safety of pesticides, appeared twice and also provided written responses to two submitted lists of questions. Dr. Keith Solomon, one of Canada’s most internationally respected toxicologists and acclaimed expert on pesticides, answered committee questions by conference call.

Many presenters were opposed to the use of pesticides. Unfortunately, none of them had a background in toxicology or the necessary expertise in pesticide science. The Canadian Cancer Society, one of the organizations most vocal in opposing pesticides, presented on November 8, 2011, with Kathryn Seely (CCS Public Issues Manager) stating that the Society had “weighed the growing body of evidence that’s suggestive.” But therein lays the problem: the CCS seems to regard as trustworthy only selected and weak epidemiological studies that fit preconceived notions concerning the ‘dangers’ of pesticides. The Society has managed to collect 200 or so selected epidemiological studies with weak correlations; but compare these to the 23,000,000 pages of proprietary scientific studies alone which the PMRA uses to assess pesticide safety (as explained by the PMRA’s Jason Flint – Director, Policy and Regulatory Affairs Division – in the January 17, 2012 presentation to the committee). Also not understood by many Canadians is that the

CCS is a fund-raising advocacy association, not a scientific organization.

A tenet of epidemiology is that correlations cannot prove causation. As well, epidemiology cannot prove biological plausibility. Toxicological confirmation is required in order to illustrate plausibility, and none exists to substantiate the suggestion that ‘cosmetic’ pesticides cause cancer. Furthermore, no ‘cosmetic’ pesticide registered in Canada today has been determined to be carcinogenic by any regulatory agency in the world. The CCS, which has done much good work in the past, would seem to have lost its way on this issue, perhaps preferring to follow opinion rather than science.

In response to a written question submitted by the Committee on April 30, 2012, the PMRA stated that “(w)hen determining the acceptability of a pesticide, PMRA scientists critically examine the totality of the scientific database for pesticide active ingredients and end-use products, including the epidemiological studies in the OCFP (Ontario College of Family Physicians).” This could certainly help explain the difference between the conflicting stances of the PMRA and the CCS: the PMRA considers all the evidence, including toxicology, not just a few selected epidemiological studies.

In 2007, a report by the World Cancer Research Fund International and the American Institute for Cancer Research outlined the results of a five-year review by nine teams of international cancer experts. One of the main findings is as follows: “There was no epidemiological evidence that current exposures to pesticides cause cancer in humans” (WCRFI and the AICR, 2007). The same report maintains that it is necessary to enroll 10,000 to 100,000 or more subjects in a study, in order “to have sufficient statistical power to identify factors that may increase cancer by as little as 20 to 30 per cent.” The

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studies promoted by the CCS and other anti-pesticide organizations generally have considerably less than 2,000 subjects enrolled. Because epidemiological correlations are based on statistics, many subjects are required to provide some assurance that links are not merely chance occurrences.

The ongoing American Health Study (AHS) was initiated in 1994 and is the largest continuous epidemiological study ever undertaken on the possible effects of pesticides. It has 89,000 Iowa and North Carolina farmers, spouses, and commercial applicators enrolled, in order to examine possible causes of diseases – including cancer. In a review of the findings of the AHS, the PMRA's Dr. Scott Weichenthal stated at a 2009 Health Canada meeting in Winnipeg that "current occupational exposure levels are not expected to result in increased risks of adverse health effects." If occupational exposures to pesticides were not creating adverse health effects, why would homeowners and others with extremely limited exposure to pesticides develop them?

As another of its stated reasons for a prohibition, the CCS says that the International Agency for Research on Cancer (IARC) finds that pesticides can be carcinogenic. What is not mentioned, however, is that none of the recognized carcinogenic pesticides are registered for use in Canada. And, according to a recent report by the IARC, "(v)ery few currently available pesticides are established experimental carcinogens, and none is an established human carcinogen. Studies in humans have failed to provide convincing evidence of an increased risk, even in heavily exposed groups" (IARC, 2007). In the words of Dr. Connie Moase (Director, PMRA Health Evaluation Directorate) in her appearance before the Committee on January 17, 2012:

For any known human carcinogen, whatever the chemical might be – I'm not speaking directly to pesticides – the animal models that have been used have shown to be positive for anything that's known

to be carcinogenic to humans as well. So they are well understood predictors of potential human toxicity, and those are the models that are well worked out and used for toxicity testing.

Some medical associations have joined with the CCS to oppose pesticides. Unfortunately, physicians generally have neither the scientific nor toxicological expertise that must be gained over years of postgraduate studies and experience, and the position of a medical association's board of directors does not necessarily represent that of the majority of its members.

The 'viable' organic alternatives, suggested by those opposed to conventional products, are much more expensive, very labour-intensive, and do not work very well – if at all. As Health Canada states, "(i)n most cases, efficacy data requirements for non-conventional products will be less than for conventional pest control products and the establishment of a lowest effective rate (such as is required for conventional products) will not be needed. The PMRA recognizes that some non-conventional products may not be as efficacious as conventional products" (Health Canada, undated).

A ban of 'cosmetic' pesticides in B.C. would result in a duplication of Ontario's experience: parks so full of weeds that they cannot be used, lawns destroyed by grubs, and ornamentals lost to insects and disease. The next time you hear of a study about the 'danger' of pesticides, you should ask the following two questions: (1) is the study epidemiological and, if so, how many subjects were enrolled?; and (2) does toxicology confirm the biological plausibility of the suggested correlation?

Removing useful products that can be used safely – merely because weak epidemiological studies are proffered as evidence (without toxicological findings to substantiate correlations) – is not part of a scientific process. Fortunately, the Special Committee on Cosmetic Pesticides made a decision based on science, not opinion.

REFERENCES

- Bennett, Bill. 2012 (May 17). Report of the Special Committee on Cosmetic Pesticides. Ministry of Environment, Government of British Columbia, Canada. 118 pp.

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- (IARC) International Agency for Research on Cancer. 2007. Attributable causes of cancer in France in the year 2000. World Health Organization, Switzerland.
- (WCRFI) World Cancer Research Fund International and the (AICR) American Institute for Cancer Research. 2007. Food, nutrition, physical activity and the prevention of cancer: a global perspective. American Institute for Cancer Research, Washington, DC.

Disclaimer

The BC Cancer Agency was also asked to write a Forum article on the topic of cosmetic pesticides. We hope to run their contribution to this discussion in an upcoming ESBC publication.

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