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Original Articles

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Pesticide assessment: Protecting public health on the home turf
M Sears, C Walker, RH van der Jagt, P Claman

Pesticide regulation is examined in the context of Health Canada's Pest Management Regulatory Agency's assessment of the chlorophenoxy herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) for turf. 2,4-D is the most common herbicide used to kill weeds in grass.

The medical literature does not uniformly indicate harms from herbicides. However, the balance of epidemiological research suggests that 2,4-D can be persuasively linked to cancers, neurological impairment and reproductive problems. These may arise from 2,4-D itself, from breakdown products or dioxin contamination, or from a combination of chemicals.

Regulators rely largely on toxicology, but experiments may not replicate exposures from 2,4-D application to lawns because environmental breakdown products (eg, 2,4-dichlorophenol) may not accumulate and selected herbicides are possibly less contaminated. Dioxins are bioaccumulative chemicals that may cause cancer, harm neurological development, impair reproduction, disrupt the endocrine system and alter immune function. No dioxin analyses were submitted to the Pest Management Regulatory Agency, and the principal contaminants of 2,4-D are not among the 17 congeners covered in pesticide regulation. Independent assessment of all dioxins is needed, in tissues and in the environment.

The 2,4-D assessment does not approach standards for ethics, rigour or transparency in medical research. Canada needs a stronger regulator for pesticides. Potentially toxic chemicals should not be registered when more benign solutions exist, risks are not clearly quantifiable or potential risks outweigh benefits. Until landscaping pesticides are curtailed nationally, local bylaws and Quebec's Pesticide Code are prudent measures to protect public health. Physicians have a role in public education regarding pesticides.

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