1. Why, given that pesticides are regulated in Canada, is extra protection for children needed

By Paule Hjertaas, B.Sc

1. **The regulatory system makes it illegal to claim pesticides as safe.**

2. **Pesticides cause special problems for children.**

3. **Science shows that pesticides are having a negative health impact on children, many at low dose, in spite of the current regulation.**

4. **Science shows that pesticides are widely distributed and some are persistent, thus not fitting the regulatory model**

5. **There are widely recognized flaws in the regulatory system**

Background

1. The regulatory system makes it illegal to claim pesticides as safe

The regulatory system recognizes pesticides as dangerous. In fact, advertising of pesticides as safe, even when used as directed, is illegal under Canadian and U.S. law. A 1996 Canadian directive (12b) forbids the use of terms such as 'safe', 'safer', 'natural', or 'organic' in environmental claims on pesticide products.

The following quote is from this Federal Directive (DIR96-02) (12b):

"Subsection 4(2) of the PCP Act states that "No person shall package, label or advertise a control product in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety."

"2.0 General Principles"

"Vague and potentially misleading statements such as "environmentally friendly", "green", or "ozone friendly" must not be used as they cannot clearly indicate a specific benefit. Comparative claims such as "best", "superior", or "greener" also must not be used."
"The terms "safe" or "safer" in the context of environmental claims (e.g., environmentally safe" or "safe for the environment") may be misinterpreted as relating to personal safety and, as a result, may cause some confusion. For this reason, these terms are not acceptable on pest control product labels"

The second restriction is more specific. The Pest Control Products Regulations (19) specify that, "*Unless otherwise authorized by the Minister, words stating, implying or inferring that a control product is approved, accepted or recommended by the Government of Canada or by any department or agency thereof shall not appear on a package or label or in any advertisement respecting a control product."*

2. Pesticides can cause special problems for children from direct exposure, during fetal development, and through breast milk

a. children

Children are both more exposed and more susceptible to pesticides than adults. (28) For their size children consume more food and drink than adults, and both of those can be contaminated by pesticides. (24) They play in ways that increase their potential exposure. As well, their growing and developing bodies can be particularly sensitive. (11)

The North West Coalition for Alternatives to Pesticides published a report on the some of the 2,300 school pesticide exposures reported to U.S. Poison Control Centers from 1993 to 1996. No mandatory reporting of pesticide poisonings in most of the U.S. states, lack of notification of use and many other reasons make the reported cases the tip of the iceberg only. Many illnesses resulted from registered pesticide products applied according to label direction, indoors or out, many for cosmetic reasons. Many people got sick up to several days after application. (27)

Pesticides can cause short-term illnesses in children, but also more lasting problems. Many authoritative review reports such as those by the US EPA (21, 23), Physicians for Social Responsibility (14), the Ontario College of Family Physicians (5), and review books such as “Having Faith” by Sandra Steingraber (26) conclude that many acute and chronic conditions are linked to pesticide exposure, several affecting children. Elizabeth Guillette has been following the four and five year old Mexican children with severe neuro-cognitive deficits from pesticide exposure she studied in Mexico. (30) The neuro-cognitive deficits identified have persisted. In addition, as they grew older, the girls developed breasts 2 to 3 years earlier than the less exposed controls. These breast tissues were abnormal. For one out of three girls, they contain mostly fatty tissue, with no to very small glands (to produce milk). (34)

b. fetuses

Expectant or nursing mothers are also regularly exposed to pesticides at home, at playgrounds, or during other activities.

Fetuses are especially sensitive to pesticides and other toxins as they are in full development. Scientists now know that the effect of a toxin on a fetus depends on much more than the dose. Genetics, timing, pattern (chronicity, frequency) and duration of the dose will also have an effect. (29) Low dose exposure to environmental chemicals - parts per billion or even trillion - during a critical window of development can cause permanent damage to organs and systems. (5a, 14)

Birth defects are still astoundingly common in the U.S. at 3-4 % of American infants, with several thousands dying from major deformities every year. (22) Many birth defects have been linked to pesticide exposure during pregnancy. (5a, 26). Developmental delays (23, 30), hyperactivity (30), behavioral disorders (23, 30), motor dysfunction (23, 30), nervous system disruption (11, quoting 23, 31) and learning disabilities (5d, 23, 30) add to the toll pesticides take on human health.

C. Breast milk

Many pesticides, like hundreds of other toxins, concentrate in breast milk, contaminating the ultimate healthy food for babies. (25, 26) Each nursing mother is passing persistent organic pollutants (POP) such as DDT, its metabolite DDE and dioxins to her child through her breast milk. There are no uncontaminated mothers. "Indeed, prevailing levels of chemical contaminants in human milk often exceed legally allowable limits in commercial foodstuff."(26, p.251, quoting 33)

Biologist Sandra Steingraber extensively researched this issue. She briefed the United Nations on breast milk contamination, and feels that we should redo the food chain pyramid to put babies on top, as many toxins are found at higher concentration in breast milk than in the mother's tissues. (26) It has also been shown that organochlorines nursing babies drink in breast milk are not excreted. (26, p.263)

3. The evidence of pesticides causing harm to humans is constantly mounting, at very low levels of pesticide exposure (5, 9, 14, 3, 5c, 32)

Dramatic increases in the use of pesticides and other chemicals since the 1950s directly parallel the increased incidence of diseases associated with environmental contamination. There is a tremendous amount of research showing that pesticides are hazardous to human health. Pesticide labels and Material Safety Data Sheets (MSDS) indicate acute effects, but do not mention long-term or chronic health effects.

Many of the pesticides we carry in our bodies can cause cancer (5, 5a, 5d, 23), neurological (5d, 32), respiratory (5d), skin (5d) and reproductive effects, (5, 9, 5a, 5d), disrupt our hormone systems (9), decrease fertility (5e), lower birth weight (5b), cause birth defects (21, 5a, 5c, 5d, 23) or weaken our immune systems (11, quoting 22, 14). A recent study showed that early early-onset persistent asthma was 4.58 and 2.39 times more common respectively when a child was exposed to herbicides and pesticides. (24) These are just some of the known detrimental effects of particular pesticides at very low levels of exposure. (9, 25, 5a, 5d)

4. Pesticide use has increased: pesticides are widely distributed and have been found in everyone who has been tested

a. Current federal and provincial regulations have brought a consistent increase in pesticide use, with no decrease in environmental and health risks (10).

The more pesticides are used, the higher the health and environmental impacts. Unfortunately no official Canadian statistics on pesticide products sales exist at present, and we must rely on what industry for information. (35) Industry tells us that, in 1997, Saskatchewan used 36 % of Canadian sales, and that 9 % of pesticide sales were for non-agricultural uses. (35)

U.S. statistics give us a more precise picture. There was a slight use reduction in the 1980s in a consistently increasing use curve. This occurred when some cultural practices to reduce herbicide use were adopted in agriculture, and when low application rate pesticide products came on the market. "*But aggressive marketing of several new herbicides, coupled with respray guarantee programs, convinced many farmers to drop reduced-chemical weed management alternatives"* (10, p.47), thus increasing the use again. From the 1960s to the 1990s, the percent of crop acres treated has risen from 50% to 96%. During the same time period, the average number of active ingredients applied per acre has also risen from 1 on about 1/2 the planted acres, to more than 2.5 on almost all acres, and pounds applied per acre is up from about 1.05 pounds active ingredient (a.i.) to nearly 3 pounds. (10, p.46) In addition, industry is consistently looking at expanding pesticide markets in other areas such as aquatic vegetation control, mosquito control, lawn care, forestry, municipal use, etc.

b. Banning pesticides has had positive health effects.

Countries like Sweden, who have banned some pesticides including chlorophenoxy herbicides linked to negative health outcomes have noticed a decline in those conditions. (2) On a local scale, the higher the concentration of several pesticides in umbilical cord plasma, the lower the birth weight and the shorter the length of the baby. After banning the indoor use of chlorpyrifos and diazinon, babies returned to normal weight. (3) Only municipalities with bylaws restricting pesticides saw significantly decreased pesticide use with an associated decrease in reported illness. (3a)

c. Current federal and provincial regulations have not prevented widespread contamination of air, water, food, and body tissues by pesticides. (4)

Pesticides do not stay where they are applied. Virtually everywhere they are used, they drift, run off, volatilize for extended time periods, get tracked inside houses and are spread around by sweeping and mopping. They *"can persist for days and even months after application. These 'secondhand pesticides', like secondhand cigarette smoke, can cause serious adverse health effects and are forced on others against their will*" (7). Everyone, including children, carries pesticides in

their body (4).This is called a body burden, and it means that pesticides have been measured in the bodies of everyone tested.

Even children's body tissues are contaminated with by pesticides. (4)

The 2003 Center for Disease Control (CDC) human exposure study showed that all Americans tested had on average 13 of the 23 pesticides tested for, and that levels in children were higher than in adults. (4c) A recent Quebec study shows that over 98 % of children tested were carrying the few tested pesticides in their bodies. (4a). A Saskatchewan study showed that 21.7 % of men, women and children between the ages of 12 and 15 showed detectable levels of herbicides 4-5 months after the last agricultural application (4b). In many cases, pesticide exposure levels indicated by CDC's body burden data (4c) were well above officially permitted thresholds established by government health and environmental agencies. (25)

5. There are widely recognized flaws in the regulatory system

a. Canada's Commissioner of the Environment and Sustainable Development finds that the PMRA is not managing pesticides effectively, nor can it say that pesticide use in Canada is safe.

"Ottawa is not managing pesticides effectively, nor can it honestly say that pesticide use in Canada is safe."

"Overall, my audit has found a large gap between the federal government's promises and its performance in managing pesticides. This is the fourth audit of federal pesticide management in 15 years. The federal government has long known about many of these problems. New legislation and funding provide new opportunities, but the government's response so far leads me to question whether it takes pesticide safety concerns seriously."

"Canadians want to know: Just how safe are the pesticides we use? The federal government should be able to answer that question. But it can't."

Johanne Gélinas, Canada's Commissioner of the Environment and Sustainable Development, 2003. (1)

b. Current Acts and Regulations ignore many factors essential to making informed decisions

Volatilization

The PMRA ignores volatilization (evaporation) of pesticides in their risk evaluation (7), even though volatilization from treated surfaces is recognized as an important contributing factor to the quantity of pesticide in air. For instance, Saskatchewan studies estimated post-application evaporation of 2,4-D at about 18 per cent. (13) In fact, concentrations of pesticides in air peak between eight and 24 hours after the start of application, then decline over several days to several weeks. (7)

This is in contradiction to current pesticide labels, which tend to indicate that it is "safe" to enter a treated area as soon as the pesticide has dried.

Clearly, children using areas in the days following pesticide treatment are exposed to the pesticide.

Air concentrations
Air concentrations of pesticides often exceed acceptable risk even while applied according to label. For many of the pesticides tested in California, the level in the air is higher than what the Environmental Protection Agency of the United States has deemed “an acceptable risk”, usually defined as 1 in 1 million. For instance, at 57 feet away from the experimentally sprayed field, the air concentrations of chlorpyrifos exceeded the “acceptable“ level 165 times. (7)

Testing
Many essential tests to establish safety are missing from the tests mandated by the PMRA. Much is still unknown about the potential health effects of pesticide exposure, especially on the health of fetuses and children. Almost nothing is known about the long-term impacts of multiple chemicals in the body over long periods. (18) Neither Canada nor the United States currently requires the following tests before registering pesticides: endocrine disruption, immune effects, low dose effects, or neurotoxicity (unless a pesticide is already a known neurotoxin), nor does either government demand tests for the health effects of exposure to pesticides in combination with each other or with other toxins. Consequently, these factors are not taken into account when evaluating or re-evaluating pesticides although recent scientific evidence indicates negative health effects. (9, 14, 32)

Lawn-care pesticides are not tested for their chronic health effects, unless they are also licensed for food uses. (17)

Unknown ingredients
Pesticide products contain “active” and “inert” ingredients. Active ingredients target pests or act as plant regulators, defoliants, desiccants or nitrogen stabilizers, and must be identified on the label. *Formulants* (called *inerts* in the U.S.) are not intended to affect a target pest (they are added to pesticides to help dissolve active ingredients, make them easier to apply, or preserve them).

In Canada, consumers do not have a right to know what is in pesticide formulations. Although 289 (18.19%) or our 1588 *formulants* are listed as toxic under U.S. law, only 9 of those and a few allergenic ones currently have to be listed on pesticide formulations labels. (8)

C. The PMRA’s assessments, and the Pest Control Products Act (2002), are built on a foundation of faulty assumptions, as noted by Ms Gelinas. (1)

As the technology to measure exposure and contamination continuously improves and scientists learn to ask new questions, many of the assumptions on which our regulatory system is based have been disproved. (9)

For instance, measurements have shown that exposure often exceeds what is considered acceptable. We have also found that many pesticides have health effects at levels below those previously thought to have no effect (NOAEL). We know that the high dose studies currently performed for regulatory purposes (mandated) are not sensitive enough to show functional effects such as endocrine disruption or developmental problems. We know that many pesticides together, or when present with other substances such as drugs or fertilizers, show effects much more severe than expected. (6) We also know that, because something is written on a label, it does not mean that instructions or precautions will be followed. (1, 12a) This problem likely worsens with low level of inspections such as we have in Saskatchewan. (20)

d. Regulatory systems are too slow to ensure human health is protected. They quickly become outdated.

Identification and Re-Evaluation

There is a significant time lag between identification of a problem, studies and re-evaluation. When a problem is identified, it takes years to determine needed new studies (appropriate studies for regulatory purposes still have to be defined in several fields such as well recognized problems like hormone-disrupting and low-dose studies), years more for industry to carry them and submit the results, and years more before these are evaluated. (10) *During all this time, there is nothing in PMRA' s or EPA's information on approved pesticides indicating what needed studies have not yet been submitted, or have been waved for a particular product* (such as a statement that no immune, hormone-disrupting or developmental neurotoxicology studies have been submitted).

This means that most old pesticides have not been re-evaluated against the new testing standards, but have remained on the market in spite of the missing data, and without any indication of what data is missing. (1,10)

Clearly, children can be affected by pesticides currently registered that have not been tested for many of the new end points such as endocrine-disruption or developmental neurotoxicity.

Labeling

When pesticide uses are canceled, or labels have to be changed to new "safer" tolerance levels, the changes can take many years. (10) Consequently, even after the PMRA decides to restrict sales of a pesticide because it poses unacceptable risks, that pesticide can remain on store shelves for years after the PMRA's decision. The latest example is the recently canceled form (mixed isomers) of the herbicide mecoprop which is still the one used in most weed and feed products, and will still be allowed to be sold in Canada until 2009.

Clearly, this will expose children to a pesticide product which does not meet the current safety requirements for another 5 years.

Temporary Registrations

Many pesticides come on the Canadian market with a temporary registration. (1) That means they are registered without all the data the government considers essential to estimate an acceptable level of risk. These temporary registrations are mostly renewed from year to year without the mandatory safety data being requested from registrants. (1)

Conclusion

In spite of regulations, pesticide use keeps increasing, and the aggregate public health hazards from pesticides have not decreased since 1970. Pesticides now contaminate our whole environment, including every human body. The PMRA is not managing pesticides effectively.

Research shows that many suffer from the negative health effects of pesticides, and that those negative health effects do occur at low levels of exposure. Not only are children are more sensitive to pesticides, they are not adequately protected by the current regulatory system.

The only way to decrease both the cost of regulating pesticides and their health costs is to have an aggressive government policy of reduction in pesticide use, accompanied by a switch to pesticide alternatives. It is an action recommended by many recognized Canadian and Saskatchewan groups such as the Ontario College of Family Physicians, the Canadian Cancer Society, the Canadian Institute of Child Health (CICH), the Canadian Public Health Association (CPHA), the Ontario Public Health Association, and the Saskatchewan Association of Health Organizations (SAHO) (36). Internationally, it is also recommended by the Food and Agriculture Organization (FAO), UN Environment Programme (UNEP) and World Health Organization (WHO) in a recent report. (36, at the end)

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http://www.cullbridge.com/Projects/PesticidesBestPracticeReview-FINAL040324

4. Air and water: hundreds of scientific papers and research projects many by Saskatchewan researchers of various agencies (Allan Cessna - National Hydrology Institute, Raj Grover - Agriculture Canada, David Donald, Don Waite - Environment Canada, Renata Bailey - University of Regina) and even Sask Environment measurements of pesticides in Wascana Creek;
Kay Teschke, et al; "Spatial and Temporal distribution of Airborne Bacillus thuringensis var kurstaki during an Aerial Spray Program for Gypsy Moth Eradication"**;** Environmental Health Perspectives, vol 101/no 1/Jan 2001, p. 47-54
Food: Alanna Mitchell*;* Mon May 24, 1999; "Pesticide Residues on Canadian Produce Doubles: report" ; The Globe and Mail: "*The studies say that nearly a quarter of Canadian produce randomly tested bears traces of pesticides, even after inedible skins are peeled off." "Although the report says that just 1.2% of domestic produce shows residues at illegal levels, that violation rate is triple what it was at the beginning of the decade*."
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4c. United States Center for Disease Control, "Second National Report on Human Exposure to Environmental Chemicals" (2003);

5. Ontario College of Family Physicians; April 2004; "Pesticide Literature Review"; www.ocfp.on.ca.; many thousands of studies and reviews;

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http://www.protectingourhealth.org/corethemes/lowdose/doseresponse.htm; For low level effects: see "Our Stolen Future" (http://www.ourstolenfuture.org/) for regular update on recent studies documenting endocrine and low dose effects (direct links to research abstracts) (see 29)

7. S. Kegley, PhD et al: "Secondhand Pesticides"; 2003; Californians for Pesticide Reform

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http://www.pmra-arla.gc.ca/English/pdf/dir/dir2004-01-e.pdf and "Toxic Secret "Inert" Ingredients in Pesticides 1987-1997"; 1998; prepared by NCAAP for Californians for Pesticide Reform http://www.pesticide.org/inertsreport.pdf

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10. C.M. Benbrook, PhD et al; 1996; "Pest Management at the Crossroads"; Consumers Union; http://www.pmac.net/contacts.htm; and personal communications with the PMRA

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12.a Toronto Environmental Alliance; "Breaking the Law Pesticide Advertising and Public Deception"; Aug 2002;; available free on-line from www.torontoenvironment.org

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12c CBC News Online staff; "Pesticide companies ordered to change ads"; 16 Jan 2004; http://www.cbc.ca/stories/2004/01/16/Consumers/pesticide040116

12d government example: A. Mitchell; Globe and Mail April 24, 2004: Chris Krepski, a spokesman for the PMRA quoted on March 4, 2003 saying that "*malathion is safe if used according to instructions"* is therefore breaking a Federal regulation in making such a statement **municipality example**: City of Regina spraying notice- 2004: *"City Council reaffirmed the use of Dursban TM after Health Canada's Pest Management Regulatory Agency (PMRA) re-evaluated and confirmed that Dursban TM is safe to use in the management of DED*."

13. Studies at Saskatchewan agricultural research stations estimated post-application volatilization rates for 2,4-D and triallate at about 18 per cent. http://www.ec.gc.ca/science/sandeoct01/article3_e.html

14. "In Harm's Way"; Greater Boston Physicians for Social Responsibility; http://psr.igc.org/ihw-project.htm , with a link to the leading scientists who endorsed it.

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18. PANNA; "Chemical Trespass"; May 2004 www.panna.org

19. PCPA regulations C.R.C.,c.1253, section 51c

http://laws.justice.gc.ca/en/P-9/C.R.C.-c.1253/165008.html#rid-165098

20. In fact, Saskatchewan has only three PMRA and one SAF inspectors for millions of pesticide applications per year all over the province.

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http://www.epa.gov/envirohealth/children/ace_2003.pdf

24. M.T. Salam et al; "Early-Life Environment Risk Factors for Asthma: Findings from the Children's Health Study"; May 2004; EHP 112 #6

25. PANNA; "Chemical Trespass"; May 2004;
http://www.panna.org/campaigns/docsTrespass/ChemTresMain(screen).pdf;

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28. National Research Council, National Academy of Sciences, "Pesticides in the Diets of Infants and Children", National Academy Press, Washington, DC, 1993: 184-185

29. J.P. Myers, Ph.D.; **"**Does "the dose make the poison?"";
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32. Mona Thiruchelvam, et al; "The Nigrostriatal Dopaminergic System as a Preferential Target of Repeated Exposures to Combined Paraquat and Maneb: Implications for Parkinson's Disease*"*; The Journal of Neuroscience, 20(24):9207-9214 15dec00

33. T. Schettler et al; "Generations at Risk: Reproductive Health and the Environment": Cambridge MIT Press. 1999, p 205

34. E.A. Guillette; notes from her talk in Regina, May 2003

35. Standing Committee on Environment and Sustainable Development, House of Commons Canada. "Pesticides: Making the Right Choice for the Protection of Health and the Environment". May 2000. 212 pgs.

36. The following **Canadian Associations** have asked for a phase-out of pesticides used for cosmetic purposes in urban areas:
World Wildlife Fund (Canada),
Sierra Club of Canada,
Toronto Environmental Alliance,

Pesticide Free Ontario
The Coalition for Alternatives to Pesticides (CAP), Quebec
David Suzuki Foundation
http://www.davidsuzuki.org/WOL/Challenge/Newsletter/april2004_pesticides/
Sustainability Within a Generation: a new vision for Canada -- chapter six, Producing Healthy Food, outlines pesticide use etc. in Canada:
http://www.davidsuzuki.org/WOL/Sustainability/
Green Communities Association http://www.gca.ca/indexcms/index.php?pfn

Canadian Association of Physicians for the Environment (CAPE),
Canadian Coalition for Health and Environment (CCHE)
Ontario College of Family Physicians (April 2004 report)
Canadian Cancer Society
Canadian Institute of Child Health (CICH)
Canadian Public Health Association (CPHA)
the Ontario Public Health Association,
Canadian Environmental Law Association,
Registered Nurses Association of Ontario, (Partnership for Pesticide Bylaws, Ontario)
Association of Early Childhood Educators - Ontario, (Partnership for Pesticide Bylaws, Ontario)
Breast Cancer Prevention Coalition, (Partnership for Pesticide Bylaws, Ontario)
Women's Healthy Environments Network, (Partnership for Pesticide Bylaws, Ontario)

unions and churches
- The Catholic Women's League of Canada -Resolution - 97.05
- Great Lakes United (Partnership for Pesticide Bylaws, Ontario)
- Canadian Union of Postal Workers (Partnership for Pesticide Bylaws, Ontario)
- United Steel Workers of America (Partnership for Pesticide Bylaws, Ontario**)**
- Local 5 of the Canadian Union of Public Employees asked Hamilton and Hamilton-Wentworth city councils to ban cosmetic use of pesticides

The Canadian Medical Association (CMA) adopted a resolution on Monday, August 16, 2004, calling for the **ban of combined fertilizer and pesticide products**,("Weed and Feed") so to ensure that each be sold separately to consumers. Products that combine a fertilizer with pesticides contribute to the unnecessary use of pesticides with the result that the toxic chemical compounds inherent in these pesticides can be harmful to human beings, animals, and fish. (Beyond Pesticides, http://www.beyondpesticides.org/ , daily news stories, August 20, 2004)

In **Saskatchewan**, the following organizations, MDs and scientists requested a cosmetic pesticide bylaw at the Regina city hearings and/or as letters to the school boards:
- Regina Urban Environment Advisory Council (RUEAC) (presented by Roger Petry and Curt Shroeder) (city bylaw)
- Saskatchewan Lung Association (city bylaw)
- Saskatchewan Environmental Society (SES) (city bylaw)
- Dr James Gomes MSc, PhD, formerly of the Institute of Agricultural, Rural and Environmental Health, U of S, and U of R. Asst. Professor and Director, Environmental Health and Science Program at SIFC, U. of Regina. (city bylaw)
- Elizabeth A. Guillette, Ph.D. Assistant Scientist, Department of Anthropology PO Box 117305, University of Florida, Gainesville, FL. (city bylaw)

- Dr. Delores Logan, Medical Coordinator, **Regina Community Clinic,** (letter to the Regina Public School Board),
- **The University of Saskatchewan, Academic Family Medicine, Regina Division,** (letter to the Regina Public School Board),
- Dr. Maurice Hennick, Deputy Medical Health Officer, **Regina Health District** that states, ".... I have forwarded to you the position statement of the Canadian Institute of Child Health,

which we, from a public health stance, would support. In the same way Public Health has also indicated that we support the views expressed by the Canadian Public Health Association."

Scientists:

- Tanya Dahms, U of R chemistry professor,

"In summary, I think that I have made a strong enough case for you **to completely disregard the presentation made to the committee by Dr. Solomon (University of Guelph**)... I would like to see a pesticide bylaw phased in over several years. " City of Regina Parks and Recreation Committee hearings, Dec 12, 2002)

- Renata Bailey, U of R chemistry professor (City of Regina Parks and Recreation Committee hearings, Dec 12, 2002)
- Fiona Goorman, representing the Biology Undergraduate and Graduate Society, U of R (City of Regina Parks and Recreation Committee hearings)

United Nations: October 5,2004: "Childhood Pesticide Poisoning: Information for Advocacy and Action" has been published by the Food and Agriculture Organization (FAO), UN Environment Programme (UNEP) and World Health Organization (WHO). http://www.who.int/ceh/publications/en/pestipoison.pdf (does not go directly - search the title on google) It confirms that pesticide poisoning is a serious health problem that disproportionately affects infants and children. An estimated 1 million to 5 million cases of pesticide poisonings occur each year, resulting in several thousand fatalities, including children…and urges steps to minimize youngsters' exposure to such potentially deadly chemicals, including pesticide reduction, public education, and education of pesticide users in alternatives.

These three recommended actions reflect the three points expressed in resolution HE-06 of the NDP 2004 AGM. These three points also cover three of the four Saskatchewan government stated priorities in the Strategy for a Green and Prosperous Economy: youth, health and sustainability.