Who’s Minding The Schools: Towards Least Toxic Methods of Pest Control In Our Nation’s Schools

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F orty years ago, no one would have expected that smoking would be so clearly linked to lung cancer or that smokers and tobacco companies would be embroiled in widespread acrimonious litigation. It was assumed that government regulations concerning cigarettes were protecting the public from adverse health effects. Today, the public uses pesticides, and is similarly unaware of the
widespread health effects, assuming that government regulations concerning pesticides ensure some degree of safety in their use. Therein lies the fallacy, as the Environmental Protection Agency ("EPA") has specifically stated that no pesticide is used without risk to human health.

Indeed, the EPA does not guarantee the safety of pesticides registered with its office and is currently re-registering and re-evaluating the long-term safety of many pesticides -- while these pesticides remain on the market and available for use. While the EPA engages in this re-registration process, public concern about the use of pesticides is growing, particularly about their use in and around schools.

3. The public continues its use of pesticides today, seemingly unaware of ill health effects, despite Rachel Carson's wake up call first published in 1962 in *Silent Spring*. In her book, Carson called pesticides "elixirs of death" and theorized that future spring seasons would be silent because chemicals would kill all of the animals and wildlife. See RACHEL CARSON, *SILENT SPRING*, ch. 3 (1963). In an introduction to *Silent Spring* written by Vice President Albert Gore during his tenure in office, he noted: "the honest conclusion is that in the twenty-two years since the publication of *Silent Spring*, the legal, regulatory and political system has failed to respond adequately." Albert Gore, *Introduction* to RACHEL CARSON, *SILENT SPRING* xxii (1963). Some have postulated that the public still has only limited information about the dangers of pesticides because the chemical companies have launched an aggressive campaign to keep the public uninformed and to dismiss fear of chemicals as hysteria. See, e.g., NCAMP Calls Industry Fact Sheets On IPM Sent To Schools "Terribly Misleading", PESTICIDE AND TOXIC CHEMICAL NEWS, May 8, 1996 (charging that the industry intentionally mislead school superintendents recently by indicating that the judicious use of pesticides is safe); MAURICE D. HINCHHEY, CHAIRMAN, N.Y. STATE ASSEMBLY ENVT. CONSERVATION COMM., POISONING THE PUBLIC FOR PROFIT: PESTICIDE USE AND ABUSE IN THE EMPIRE STATE 26 (3d ed. 1990). See also Susan Kaplan, Forum, A Cohesive Policy on Government Regulation, 1993 WIS. L. REV. 623, 624-26 (1993).

4. ROBERT ABRAMS, ATTORNEY GENERAL, N.Y. STATE DEP'T OF LAW, ENVTL. PROTECTION BUREAU, LAWN CARE PESTICIDES: A GUIDE FOR ACTION (undated) [hereinafter LAWN CARE PESTICIDES].

5. UNITED STATES GENERAL ACCOUNTING OFFICE, NONAGRICULTURAL PESTICIDES, RISKS AND REGULATIONS 4 (GAO/RCED-8-97, Apr. 1986); LAWN CARE PESTICIDES, supra note 4.

6. DENNIS VACCO, ATTORNEY GENERAL, N.Y. STATE DEP'T OF LAW, PESTICIDES IN SCHOOLS: REDUCING THE RISKS 6-7 (Feb. 1996) [hereinafter PESTICIDES IN SCHOOLS].

7. In California, concern over pesticide use and schools goes beyond the
For example, in the summer of 1996, a school superintendent in Oswego County, New York, planned to apply the weed killer 2,4-D to the school lawns and athletic fields. Parents objected to the use of the weed killer, citing studies that have linked 2,4-D to health problems, including cancer in children. In response to parental concerns, the school superintendent planned to post warning signs to keep people off the lawns for a minimum of forty-eight hours after spraying and to spray over a long weekend.

Parents warned that these steps were not adequate because small children can not read warning signs and noted that last season’s soccer players

school itself. Many schools are close to farms which use the potent pesticide methyl bromide to kill fungus on strawberry plants. Recently, the Los Angeles Times ran a front page story noting that methyl bromide is used near 850 California elementary schools and day care centers. Jennifer Warren, Opponents of Pesticide Cite Risks to Schools, L.A. TIMES, Jan. 8, 1996, at A1. One of the major concerns among Californians is that the chemical drifts from its intended application site to unintended locations, such as in and around school buildings. Id.

If a person is exposed to even small doses of methyl bromide, it can cause headaches, vomiting, and other ailments. Id. Methyl bromide is also a suspected human carcinogen, neurotoxin, and disrupter of the hormone function. Id. At least partially as a result of growing public concern, a ban has been proposed on sales of all methyl bromide in California. Daryl Kelley, Groups Cite Test Results In Urging Suspension of Cropland Fumigants Use, L.A. TIMES, Aug. 23, 1996, at B5.

Office applications which appear to be made for cosmetic purposes alone are particularly troublesome because they present health risks that seem very great when weighed against aesthetic concerns. See DENNIS C. VACCO, ATTORNEY GENERAL, N.Y. STATE DEP’T OF LAW, TOXIC FAIRWAYS; RISKING GROUNDWATER CONTAMINATION FROM PESTICIDES ON LONG ISLAND GOLF COURSES i (Dec. 1995) (risks of using pesticides containing known or probable carcinogens are not outweighed by benefits of aesthetically pleasing lawn); see also MAURICE HINCHNEY, CHAIRMAN, N.Y. STATE ASSEMBLY, ENVTL. COMM., POISONING THE PUBLIC FOR PROFIT: PESTICIDE USE AND ABUSE IN THE EMPIRE STATE 11 (3d ed. 1990) (noting that of forty active ingredients most often used in commercial lawn care products, twelve are suspected carcinogens according to manufacturer’s tests subsequently evaluated by the EPA).

9. See Gramza, supra note 8, at C1.
10. Id.
had suffered from an unusual number of rashes of unknown origin. Stating that he believed the pesticide 2,4-D to be "perfectly safe," if applied properly, the Superintendent ultimately authorized spraying the lawns. These events in Oswego County illustrate a school-leader apparently laboring under the incorrect assumption that the federal and state regulation of pesticides adequately protects children's health because the regulations ensure that use of pesticides in and around schools is "perfectly safe."

Part I of this Article examines the physiological differences between children and adults, and asserts that children are less able to ward off the dangers of pesticides. Therefore, federal and state regulations should account for this inherent difference. Part II reviews and critiques current federal law concerning pesticides and their use in schools. Part III summarizes the current status of voluntary Integrated Pest Management ("IPM") programs and state laws concerning IPM. Part IV proposes that states should legislatively mandate a reduction in the use of pesticides in and

B2 (noting that the concern about inability to read warning signs also extends to birds, rabbits, squirrels, and other wildlife).

12. See Gramza, supra note 8, at C1.

13. But see Robert F. Blomquist, Applying Pesticides: Toward Reconceptualizing Liability to Neighbors For Crop, Livestock and Personal Damages From Agricultural Chemical Drift, 48 OKLA. L. REV. 393, 398 n.17 (noting that the courts are generally agreed that the application of 2,4-D is an inherently dangerous activity (citing Craig A. Kennedy, Liability in the Aerial Application of Pesticides, 22 SAN DIEGO L. REV. 75, 80 (1977)); Eileen L. Daniel, Lawn Chemicals on School Grounds: Are They Safe?, 61 J. OF SCH. HEALTH 45 (Jan. 1991) (noting that dioxin, one of the most deadly of all synthetic herbicides and a part of the defoliant Agent Orange used during the Vietnam War, is formed as an unavoidable contaminant in the manufacture of 2,4-D).

14. This decision can be contrasted with the policy of the Altmar-Parish-Williamstown school district in New York. There, the school superintendent stated that he would not dare use pesticides in his rural school district because the district gets its water from wells. See Gramza, supra note 8, at C1. Rather than using pesticides on school lawns, the Altmar-Parish-Williamstown school district pulls its weeds. Id.

15. See Gramza, supra note 8, at C1.

16. IPM is a system of pest management that works within the ecosystem to reduce the use of pesticides and requires the use of least toxic methods of pest control.
around schools and suggests a paradigm for mandatory IPM in schools. This Article concludes that current regulations concerning pesticide use in and around our schools do not adequately protect children's health and are ripe for dramatic change.

I. PHYSIOLOGICAL DIFFERENCES BETWEEN CHILDREN AND ADULTS THAT MAKE CHILDREN PARTICULARLY SUSCEPTIBLE TO THE TOXIC EFFECTS OF PESTICIDES

Each year in this country, we use more than two billion pounds of pesticides. Schools, with their cafeterias, lawns, athletic fields and gymnasiums, account for a large portion of this total. This is so, even though children's physiology and activities make them especially susceptible to the toxic effects of pesticides.

A. Children Absorb Relatively More Toxins Than Adults Through Their Skin, Mouths, and the Air They Breathe

Children are physically smaller than adults, have higher metabolic rates and, therefore, consume more air and water than adults per pound of body weight. As a result, if the air or water is contaminated with toxins, children receive a larger dose of toxins than adults who come in contact with the same air or water. Additionally, children are lower to the ground than adults and are more likely to play on floors and grassy areas, where chemical particulates settle even if not originally applied to these areas. Thus, children,

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18. See PESTICIDES IN SCHOOLS, supra note 6, at 2-3.
19. See Cynthia F. Bearer, Environmental Health Hazards: How Children Are Different From Adults, 5 THE FUTURE OF CHILDREN (The Center for the Future of Children), Summer/Fall 1995, at 11, 15. Children also consume three times more food per unit of body weight than adults and are thus exposed to a high level of pesticides through the food they eat. See PESTICIDES AND CHILDREN, WHAT THE PEDIATRIC PRACTITIONER SHOULD KNOW 1 (Physicians for Social Responsibility & the Dep't of Pediatrics at Case W. Res. Univ., 1995) (citing U.S. Dep't of Agric. Nat'l Food Consumption Surveys)) [hereinafter PESTICIDES AND CHILDREN].
20. See Bearer, supra note 19, at 15; Richard A. Fenske et al., Potential Exposure and Health Risks of Infants Following Indoor Residential Pesticide Application, 80 AM. J. OF PUB. HEALTH 689 (1990) (finding that chemical exposure to
in comparison with adults, breathe air that is more heavily contaminated, and come into contact with more pesticide particulate, because they are closer to the ground.\textsuperscript{21}

Children also have a larger surface to volume ratio than adults and thus have relatively more skin surface with which to absorb toxins.\textsuperscript{22} Children's skin is also more sensitive than adult skin and is thus more prone to absorb toxins.\textsuperscript{23} Because of this increased relative absorption surface and more absorptive skin, children absorb relatively more toxins than adults in the same environment.

\section*{B. The Effect of Pesticides On Children's Health}

Multiple studies have shown that children who are exposed to pesticides on a regular basis are at greater risk for leukemia and cancers than other children.\textsuperscript{24} These studies are consistent with...
epidemiologic evidence which indicates that, as we continue to increase our use of pesticides, the "[i]ncidence of the two most common childhood cancers is rising." Between 1990 and 1993, the incidence of brain and nervous system cancer increased by 32.6%, and the incidence of acute lymphocytic leukemia increased by 27.4%.  

Pesticides may affect a person's system in several ways. "Some pesticides are mutagenic, inducing cancer by damaging DNA."  

In addition, in order to become fully mature, cells must undergo the process of differentiation, which can be affected by chemicals such as those found in pesticides. Differentiation occurs when cells take on their individual tasks within the body and cease dividing. This process may be triggered by hormones or by certain chemicals, such as chlorinated insecticides, which may mimic hormones. Accordingly, these chemicals can have a drastic effect on a child's endocrine and reproductive systems and on his or her developing organs, particularly the brain and lungs which continue to develop until adolescence.  

Pesticides may also exacerbate the development of infectious diseases by affecting the human immune system. Children, having immature immune systems, may be even more susceptible to immuno-suppression than adults. Recently, a World Resources

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Children Leukemia, HAZARDOUS WASTE NEWS, Aug. 17, 1987 (noting that "parental exposure to pesticides inside the home, or in the family garden increases children's risk of leukemia"). "[S]ome experts suggest that widespread, low-level exposure to pesticides in the environment may be contributing to rising rates of some cancers in the general population." PESTICIDES AND CHILDREN, supra note 19, at 4 (citing Davis et al., 271 J. OF THE AM. MED. ASS'N 431-37 (1994)).

25. PESTICIDES AND CHILDREN, supra note 19, at 7 (citing data collected by U.S. Surveillance, Epidemiology, and End Results Program of the Nat'l Cancer Inst.).

26. Id.

27. Id. at 21.

28. Id.

29. Id. at 5; NEEDLEMAN & LANDRIGAN, supra note 23, at 114.

30. PESTICIDES AND CHILDREN, supra note 19, at 5; NEEDLEMAN & LANDRIGAN, supra note 23, at 114.

31. PESTICIDES AND CHILDREN, supra note 19, at 21.


33. Id.; see also Timothy Noah, Uniyroyal Chemical to Partially Ban Use of
Institute report found substantial evidence which suggests that exposure to pesticides damages the immune system and that pesticide-induced suppression of the immune system is a significant public health risk. Children who are regularly exposed to pesticides are thus at risk for immune suppression and would be more likely to suffer from infectious diseases of the respiratory tract.

Additional research also suggests that pesticides are powerful neurotoxins that can affect a child's learning and long term nerve function. For example, organophosphate and carbamate pesticides "[i]nterfere with the normal functioning of the nervous system by blocking the action of cholinesterase, an enzyme essential for degrading the neurotransmitter acetylcholine." Acute effects from these pesticides include diarrhea, muscle twitching, visual disturbances, hypertension, mood swings, respiratory distress, and death. Long-term effects may involve permanent damage to the nervous system. These possible effects on the nervous system may substantiate concerns that pesticides are linked to an increased occurrence of attention deficit disorder, a major impediment to effective learning in school.

These medical findings indicate that using pesticides in schools

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35. Repetto & Baliga, supra note 34, at 59, 63 (concluding that the evidence of pesticide induced immunosuppression warrants immediate precautionary actions). Such sicknesses are likely to result in increased absences from school.

36. John F. Wasik, Organic Food: Is It Worth The Higher Price?, Consumer's Digest, Nov. 21, 1995, at 13. There is also mounting evidence that damage to the nervous system can result in Multiple Chemical Sensitivity, a disorder triggered by chemical exposure which can seriously harm the health and well-being of the affected individual. Tracy Frisch, N.Y. Coalition for Alternatives to Pesticides, Multiple Chemical Sensitivity: A Disorder Triggered by Exposures to Chemicals in the Environment 1 (June 1992).

37. Pesticides and Children, supra note 19, at 3.
38. Id. at 3.
39. Id.
40. See Wasik, supra note 36, at 13.
poses a risk to children's health and that "[t]he most effective way to reduce a child's exposure to pesticides is to reduce the use of pesticides. Pesticide use needs to be minimized in all sectors of our society — in agriculture, in the home, on lawns, in gardens, and in schools and playgrounds."^42

II. FEDERAL REGULATIONS CONCERNING PESTICIDE USE IN SCHOOLS

A. Overview of Federal Regulations Concerning Pesticide Use In The Schools

The Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"), originally passed in 1972, regulates the sale and use of all pesticides in the United States, including those used in schools. FIFRA requires manufacturers to register pesticides with the EPA before sale. In 1978, Congress amended FIFRA and instituted a more rigorous registration process by raising the level of documentation necessary for registration. As a result, the EPA is re-examining pesticides which contain active ingredients first

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41. Only a handful of cases have been filed as a result of harm from pesticides in the school environment. See, e.g., Miranda v. Shell Oil Co., 15 Cal. Rptr. 2d 569 (Ct. App. 1993) (awarding damages to compensate for future medical monitoring costs as a result of exposure to pesticides at school); Lorentzen v. Anderson Pest Control, No. 88 C 7142, 1990 WL 8451 (N.D. Ill. Jan. 17, 1990) (summary judgement in favor of manufacturer denied in case brought by elementary school teacher for harm as a result of pesticide application in classroom); Dunn v. Kanawha Cty. Bd. of Ed., 459 S.E.2d 151 (W. Va. 1995) (court approved settlement between teachers, parents, students, and others who sued manufacturers of pesticides and school board, alleging injuries from exposure to toxic substances at school); Board of Ed. v. Nationwise Exterminating & Deodorizing, Inc., 627 N.Y.S.2d 768 (2d Dep't 1995) (school board action against pesticide applicator for negligent application of pesticide and resulting school closing).

42. NEEDLEMAN & LANDRIGAN, supra note 23, at 128-29 (emphasis added) (indicating that the most effective approach to minimizing pesticide use while still providing excellent long-term control of pests is IPM).


44. 7 U.S.C. § 136a(a).

45. Id. § 136a(c)(1)(F)(i); see DENNIS C. VACCO, N.Y. STATE DEP'T OF L., ENVT'L. PROTECTION BUREAU, HOME AND GARDEN PESTICIDES: QUESTIONS AND ANSWERS ABOUT SAFETY AND ALTERNATIVES 3 (Feb. 1996) [hereinafter HOME AND GARDEN PESTICIDES].
registered before 1978 to determine whether they meet current standards. 46 FIFRA also calls for the EPA to re-register all pesticides registered before 1984 for which it does not have all required data and which have not met the requirements under the revised registration process. 47 This re-evaluation and re-registration will take many years to complete, and during its completion, pesticides that are being re-evaluated for safety will remain on the market and available for use in schools. 48

Under FIFRA, a pesticide may be registered with the EPA for general use if the EPA determines that when used as anticipated, it will not generally cause "unreasonable adverse effects on the environment." 49 FIFRA defines unreasonable adverse effects on the environment as "any unreasonable risk to man or the environment, taking into account the economic, social and environmental costs and benefits of the use of the pesticide." 50 A pesticide may be registered with the EPA for restricted use if the pesticide, when applied normally in accordance with its directions for use, "may generally cause, without additional regulatory restrictions, unreasonable adverse effects on the environment, including injury to the applicator." 51 Persons engaging in the commercial application or sale of any pesticide which has been classified as a restricted use pesticide must be certified applicators. 52 Applicators may be certified by a state plan for certification 53 or by the EPA administrator. 54

The EPA’s registration process centers on balancing the known risks of the pesticide against the stated benefits, but it does not guarantee a product’s safety or attempt to reduce pesticide use. 55

47. Id. § 136a-1(a), 136a(c)(5).
50. Id. § 136(bb)(1).
51. Id. § 136a(d)(1)(C).
52. Id. § 136a(d)(1)(C)(i).
53. Some state laws are more protective of consumers and applicators. See, e.g., N.Y. ENVTL. CONSERV. LAW § 33-0905 (McKinney 1995) (requiring all commercial applicators of pesticides to be certified, whether they are applying general use or restricted use pesticides).
54. 7 U.S.C. § 136a(a).
55. HOME AND GARDEN PESTICIDES, supra note 45, at 2.
In fact, the EPA has stated that "no pesticide can be considered safe" and all pesticides are "associated with some risk of harm to human health or the environment."

B. Current Federal Regulations Do Not Adequately Protect the Health of School Children

In his introduction to Rachel Carson's ground-breaking book, *Silent Spring*, Vice President Albert Gore concludes:

[FIFRA, t]he statute that regulates pesticides, fungicides, and rodenticides sets far looser standards than those that regulate food and drugs, and Congress intentionally made them more difficult to enforce. In setting safe levels of a pesticide, the government takes into account not only toxicity but also the economic benefit it provides. This dubious process pits increased agricultural production (which might be obtained otherwise) against potential increases in cancer and neurological disease. Moreover, the process for removing a hazardous pesticide from the market generally takes five to ten years. New pesticides, even if they are very toxic, can win approval if they work just marginally better than existing ones. . . . The present system is a Faustian bargain—we get short-term gain at the expense of long-term tragedy. . . . Essentially, what we have inherited is a system of laws and loopholes, deadlines and delays, facades that barely disguise a wholesale failure of policy.

In terms of protecting the health of children, three major criticisms can be levied against the regulatory framework. First,
FIFRA calls for the EPA to balance the benefits of a pesticide versus the potential for harm to the environment and human health. Aside from the major criticism that this process does not guarantee any degree of safety in a registered pesticide, this balancing test is extraordinarily difficult to administer. The difficulty arises because we may not see or feel the health effects from a pesticide in the short term and we cannot accurately assess the long-term risks. In registering or re-registering a pesticide, the EPA largely ignores certain health risks, failing to consider the neurotoxic, neurobehavioral, or synergistic effects of the active ingredients in pesticides, or any health effects of the inert ingredients in pesticides. Yet, the neurotoxic and behavioral effects of the ingredients in pesticides may be particularly significant for children, who are in critical stages of physical and mental development. Thus, the EPA should consider these effects when deciding whether to register or re-register a pesticide. Additionally, the synergistic effects of pesticides are

although an argument can easily be made that such uses involve interstate commerce and are thus capable of federal regulation. Id. § 136-136y.

60. Id. § 136a(d)(1)(B).


62. LAWN CARE PESTICIDES, supra note 4, at 6 n.2; see HINCHEY, supra note 3, at 3.

63. LAWN CARE PESTICIDES, supra note 4, at 6 n.2; see HINCHEY, supra note 3, at 3.

64. LAWN CARE PESTICIDES, supra note 4, at 9; Lynn R. Goldman, Case Studies of Environmental Risks to Children, THE FUTURE OF CHILDREN, Summer/Fall 1995, at 31 (noting that where children suffer multiple exposures, the symptoms are difficult to identify, evaluate and treat). If a child's home is treated with a pesticide and others are used at the child's school, the child may suffer symptoms that are a consequence of the interaction of the chemicals and that are thus less recognizable than they would have been in the case of a single exposure. Id. at 32. In this way, the symptoms may go untreated and the exposures may cause long term harm. Id.

65. HINCHEY, supra note 3, at 3.

66. Id. at 12; LAWN CARE PESTICIDES, supra note 4, at 8.
also significant for school children who may be exposed to one pesticide in the cafeteria, another in the gym, and yet another in the classroom.

Because humans and pests depend on the same food chain and are not that fundamentally different, it is not surprising that the use of chemicals that are intended to kill and destroy one comes with unknown risks to the other. Given our current state of knowledge, we cannot accurately assess the inherent risks to adults in the use of pesticides. Moreover, risk-benefit analysis is an even more troublesome tool to use where children are concerned when the methodology does not even purport to consider the special physiology or needs of children. The current regulatory framework — based on assessing known scientific risks as those risks apply to adults alone — is thus totally inadequate to protect the health of school children.

A second major criticism of the regulatory framework is that FIFRA is deficient because it is mainly concerned only with the active ingredients in pesticides. Yet, a 1996 New York State Attorney General’s report concludes that the inert ingredients in pesticides may be just as toxic, if not more toxic, than their active counterparts. Active ingredients in pesticides are those that actually kill pests, weeds, or fungi. All pesticide ingredients that are not active are classified as inert ingredients. FIFRA does not require the manufacturers of pesticides to test for safety

67. PESTICIDES AND CHILDREN, supra note 19, at 6; see Mary Cabrera, Legal Remedies for Victims of Pesticide Exposure, KAN. J.L. & PUB. POL’Y 113, 119 (Summer 1991).
70. 7 U.S.C. § 136(a)(1).
71. Id. § 136(m).
or to make public the inert ingredients contained in pesticides. This practice of allowing pesticide manufacturers to keep inert ingredients in pesticides secret was started almost fifty years ago to protect manufacturers from the threat that competitors would copy their products. Today, such trade secret protection is obsolete because the technology exists to analyze a competitor's product's composition. Indeed, information about product composition is now secret only to the public.

A third major problem with FIFRA is that it does not require adequate training for certified applicators. Specifically, FIFRA does not require certified applicators to be competent with respect to IPM or even to receive rudimentary training concerning the dangers of pesticides to human health and the environment. FIFRA also affirmatively forbids state plans from requiring applicants for certification to take an examination to establish competency in the use of any pesticide. Where FIFRA requires a certified applicator to administer a pesticide, the applicator is not even required to be present at the job site. Instead, FIFRA requires only that the certified applicator be under the supervision of the actual applicator, who may be totally untrained.

In sum, FIFRA fails to adequately protect school children because: (1) the risk-benefit methodology on which it rests is an inappropriate tool for pesticide regulation; (2) it ignores the health effects of the inert ingredients in pesticides; and (3) it does not require proper training of certified applicators. FIFRA's shortcomings in assessing pesticide risks and protecting the public suggest that regulations centered on identifying and weighing risks and benefits should not be the focus of current and future pesticide regulations in the schools. Rather, pesticide regulation

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72. Id. § 136(a), (c), (n)(1); id. § 136a-1; id. § 136h(a).
73. The Secret Hazards of Pesticides, supra note 69, at 1.
74. Id.; 7 U.S.C. § 136h(a).
75. 7 U.S.C. § 136i(c).
76. Id. § 136i(a)(1).
77. Id. § 136a(d)(1)(C).
78. Id.
79. See Carlucci, supra note 61, at 190.
80. See id.; see also Dennis C. Vacco, Attorney General, N.Y. State Dep't of L., Toxic Fairways: Risking Groundwater Contamination From
is particularly suited for "pollution prevention' approaches ... that have gained support in recent years as alternatives to the conventional 'pollution management'" approaches. Regulatory reform should thus be aimed at reducing overall pesticide use in schools, rather than managing school pollution from pesticide use. One mechanism for this approach would be state legislation which mandates the use of the least toxic methods of pest control in schools through IPM.

III. THE CURRENT STATUS OF INTEGRATED PEST MANAGEMENT

IPM is a system of pest control which requires the use of the least toxic methods of pest control, including biological methods of control if possible, and that pesticides be used to control or eradicate pests only as a last resort. Thus, when a system of IPM is in place, an effort is first made to locate and eliminate the source of a pest problem and, if necessary, to treat the problem in the least toxic manner possible.

A. Schools Have Not Voluntarily Implemented Least Toxic Methods of Pest Control or IPM

On the whole, most states have not required schools to use least toxic methods of pest control, and most schools have not done so voluntarily. Even in cases where state policy recommends that schools use IPM, schools have not always followed state policy. In New York, for example, the State has not legislatively mandated that schools use the least toxic pesticide control methods or IPM.

Pesticides on Long Island Golf Courses i (Dec. 1995).
81. Carlucci, supra note 61, at 190, 210-11.
82. See New York Coalition for Alternatives to Pesticides, Integrated Pest Management Resources for Schools: A Partnership for Healthy Schools 1 (undated).
83. General Services Administration, National Capital Region, Pest Management Information Bulletin 1 (1989); Needleman & Landrigan, supra note 23, at 133-34.
84. See infra Part II.C, for a discussion of states that have required IPM.
85. New York does, however, require that when pesticide applications are made to institutional structures, defined to include schools, that schools give notice to students and their guardians prior to the pesticide application. N.Y.
In 1995, however, acting on the advice of an advisory committee, the New York State Board of Regents recommended that schools: (1) use IPM to reduce or eliminate pesticide use; (2) seek less toxic pesticide alternatives; and (3) have policies that minimize individual exposure, including posting warning signs of applications and keeping adequate records. Although these recommendations were made in 1995, the events in Oswego County, New York in the summer of 1996 indicate that school leaders still presume that using pesticides is "perfectly safe" and continue to use pesticides in and around schools without any significant effort to reduce or eliminate their use.

ENVTL. CONSERV. LAW § 33-0905 (McKinneys 1995). Despite the fact that this legislation was passed in 1983, the rules for its implementation have not been made and the legislation has not been fully implemented. Proposed rules dated May 14, 1996 would require that when a pesticide is applied to an elementary or secondary school, an informational notice be posted at least forty eight hours prior to application, or at the beginning of the school year, at least forty eight hours prior to the initial application, an informational notice be supplied to the guardian of each elementary student or the student of a secondary school or his or her guardian. Pt. 325.53(d), draft rules pursuant to N.Y. ENVTL. CONSERV. LAW § 33-0905.

86. In October 1993, the New York State Board of Regents convened an advisory committee to develop policy and proposals to improve the environmental quality of schools. The committee considered the issue of pesticides in schools. In a written report to the New York State Board of Regents in 1993, the Advisory Committee on Environmental Quality in Schools recommended that schools "adopt and publicize IPM policies and practices to prevent, reduce, or eliminate pesticide use." The Committee also recommended that schools warn parents, faculty and students prior to any pesticide application and that schools maintain and make available to parents and personnel detailed reports of pesticide applications. REGENTS ADVISORY COMM. ON ENVTL. QUALITY IN SCHOOLS, THE UNIV. OF THE STATE OF N.Y., STATE ED. DEP'T, REPORT TO THE NEW YORK STATE BOARD OF REGENTS ON THE ENVIRONMENTAL QUALITY IN SCHOOLS 7 (1994) [hereinafter REGENTS ADVISORY COMMITTEE REPORT].

87. PESTICIDES IN SCHOOLS, supra note 6, at i.

88. Id. Prior to the time when these recommendations were made by the Regents, the New York State Attorney General reported that as of 1991, 87% of all of New York's schools used pesticides in and around school buildings. Id. at 9.

89. See Gramza, supra note 8, at C1.
B. Voluntary Adoption of Least Toxic Methods of Pest Control in Schools

Some school systems have voluntarily adopted IPM in their schools where it has not been legislatively mandated, and have had great success.90 Dade County, Florida, which has the fourth largest school system in the United States, has adopted IPM with an aim toward eliminating all pesticide use in its public schools.91 In Maryland, the Montgomery County Public School System adopted IPM in 1988.92 Although volunteer programs have begun the process of moving schools toward less toxic pest control and lawn maintenance, the process is far from complete.93

C. State Legislation Concerning IPM in Schools

To date, five states have legislation concerning IPM in their schools: Illinois;94 Louisiana;95 Michigan;96 Texas;97 and West Virginia.98 Yet, only two of those states, Texas and West Virginia, require their schools to utilize IPM. Illinois, for example, requires its Department of Health to prepare guidelines for an IPM program in school buildings but only “encourages,” rather than mandates, that schools adopt an IPM program incorporating

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90. NEEDLEMAN & LANDRIGAN, supra note 23, at 128-29 (listing school districts that have adopted IPM and indicating that the National Parent Teacher Association has recently passed a resolution to “work toward the elimination of pesticides in schools”).

91. REGENTS ADVISORY COMMITTEE REPORT, supra note 86, at app. C, 43.

92. Id.; Solutions, NEW YORK COALITION FOR ALTERNATIVES TO PESTICIDES 10-16 (Spring 1996) (listing school districts that have had success with IPM and describing programs); see REGENTS ADVISORY COMMITTEE REPORT, supra note 86 (listing other successful IPM programs and noting that the Schalmont School District in Schenectady, New York has begun using organic compost on its school lawns and athletic fields in place of chemical fertilizers and pesticides).

93. See, e.g., PESTICIDES IN SCHOOLS, supra note 6, at 3.

94. ILL. ANN. STAT. ch. 235, para. 10.2 (Smith-Hurd 1996).


96. MICH. COMP. LAWS ANN. § 324.8325 (West 1994).

97. TEX. AGRIC. CODE ANN. §§ 135b-6.3 to .4J (West 1995).

these guidelines. Similarly, in Michigan, legislation has merely required the executive branch of state government to make rules providing for the development of IPM systems in schools. Louisiana has enacted a more stringent statute, requiring schools to prepare an annual IPM plan, which “strongly” recommends the use of least toxic methods of pest control in and around school buildings.

Texas has even stronger IPM legislation, requiring the Texas Structural Control Board (“Board”) to adopt standards which require the use of least toxic methods to control pests, rodents, insects and weeds and to provide a list of products that a school is allowed to use to control pests. Additionally, the Texas statute states that the Board’s standards only allow schools to apply pesticides during periods in which students will not be present for at least twelve hours following application. All public and private schools in Texas were, in turn, legislatively required to adopt IPM programs which incorporated standards set by the Board before September 1, 1995.

West Virginia’s recent legislation stands out as the clearest and most stringent legislative mandate for IPM in schools. The statute gives the Commissioner of Agriculture the power and duty, in consultation with the State Board of Education, division of Human Services for Child Welfare, representatives from the environmental community, and of schools and day care employees, to promulgate “emergency” rules establishing an IPM program. The legislature mandated that these “emergency” rules require: (1) using the least toxic methods of pest control; (2)

100. MICH. COMP. LAWS ANN. § 324.8325(2)(b). Michigan’s legislation also requires that parents and guardians be made aware of their right to notification of future pesticide applications, not of the applications themselves. Id. § 324.8316.
101. LA. REV. STAT. ANN. § 3:3388. Louisiana also requires that eight hours precede the exposure of children to areas where restricted use pesticides have been applied, as that term is defined under FIFRA and that only certified applicators trained in IPM apply pesticides in or around schools. Id. §§ 3:3384, 3:3386.
103. Id. § 135b-6.4J(e).
104. Id. § 135b-6.4J(b).
applying pesticides only when monitoring indicates that pest infestations are present; (3) ensuring that school employees and students are not present when applications are made (unless such is required to prevent imminent threat of bodily harm); (4) defining what qualifies as a pesticide; and (5) implementing a system of prior notification to parents and school and day-care employees.106

IV. TOWARD IPM: MANDATORY REDUCTION IN THE USE OF PESTICIDES IN SCHOOLS

A. A New Paradigm For IPM Legislation

While Texas and West Virginia have enacted legislation requiring IPM in schools, most school districts continue to practice conventional pest control. Due to increasing public awareness,107

106. Id. The West Virginia law went into effect on September 1, 1996 and may have been passed at least partially in response to a case brought by students from Andrew Jackson Middle School, in which students alleged that the application of pesticides in the 1980s harmed their health. Linda Blackford, Schools Try To Get The Bugs Out, CHARLESTON GAZETTE, Sept. 4, 1996, at P1C (describing settlement of case); W. VA. CODE § 19-16A-4(h).

now is an optimum time for sweeping legislative changes requiring IPM in both public and private schools. This section outlines suggested components for legislatively mandated IPM in schools and answers potential criticisms of such a mandate.

1. IPM Plan

Legislation requiring schools to practice IPM would require each school to develop an IPM plan. The plan would name an IPM officer and outline the procedures for IPM in the school. Pursuant to the plan, the IPM officer would then survey the school site to evaluate existing pest problems. The IPM plan would then serve as the blueprint for IPM practices at the school and would detail future procedures in the event that a pest problem exists or develops.

2. IPM Officer

Because IPM requires managers of pest control to work within the ecosystem to reduce or eliminate pesticide uses, each school's IPM officer should be legislatively required to train in the policies and practices of IPM. Ideally, the officer would be an existing school employee who is currently responsible for safety and/or maintenance. If this person lacked the ability to take on the role, other school employees could be asked to volunteer or, in the alternative, the school would hire an additional employee to assume the position. The IPM officer would be trained in IPM and would oversee the IPM program and, in the event of a necessary pesticide application, would only use, or authorize a

108. Parents and administrators interested in formulating an IPM plan can contact: the National Coalition Against the Misuse of Pesticides, Washington, D.C. ("NYCAMP") at (202)543-5450; The Northwest Coalition for Alternatives to Pesticides, Eugene, Oregon ("NCAP") at (503)344-5044; or the New York Coalition for Alternatives to Pesticides at Albany, New York ("NYCAP") at (518)426-3052. Interested persons can also obtain, EPA, OFFICE OF PESTICIDE PROGRAMS, PEST CONTROL IN THE SCHOOL ENVIRONMENT: ADOPTING INTEGRATED PEST MANAGEMENT (Aug. 1993).

state certified applicator who specializes in IPM to administer, the least toxic methods of pest control.\textsuperscript{110}

3. Pesticides Used Only As a Last Resort or Not At All and Routine Use Prohibited

Avoiding the routine use of pesticides is the cornerstone of any effective IPM program and, thus, paradigm IPM regulation would prohibit the routine use of pesticides at schools. Entomologists and scientists have shown that routine use of pesticides increases pest resistance and decreases natural pest controls\textsuperscript{111} and simultaneously subjects children to unnecessary, regular exposure to pesticides.\textsuperscript{112} Legislation mandating an IPM program would instead require that pest problems be identified and assessed and the nature of the pest and its life cycle considered. Before an application of pesticides is even considered, school personnel and the IPM officer would decide whether any steps are needed to eliminate the problem.\textsuperscript{113} If the pest problem needs corrective action, an attempt would first be made to remedy the physical aspects of the building allowing the pests to enter. Problem areas would be noted and cleaned, and students and faculty would be urged to keep these areas clean.\textsuperscript{114}

Legislatively mandated IPM would allow schools to apply nontoxic substances to the area of infestation to control the pest.\textsuperscript{115} If feasible, weeding programs could be initiated to control outdoor weeds, and predator insects or other biological agents

\textsuperscript{110} See Needleman & Landrigan, supra note 23, at 128.
\textsuperscript{111} Michael J. Dover, Study 4: A Better Mousetrap 5-6 (World Resources Inst., Sept. 1985).
\textsuperscript{112} See supra Part I, for a discussion of the effects of pesticides on children.
\textsuperscript{113} See Eugene, Oregon Public Schools, Policies and Procedures for IPM (undated).
\textsuperscript{114} General Services Admin., Nat'L Capitol Region, Pest Management Bulletin 1 (Jan. 1989) (noting that sanitation is far more important in pest control than pesticides).
\textsuperscript{115} William Olkowski et al., Managing Cockroaches With Least-Toxic Methods, Common Sense Pest Control (Winter 1991); New York Coalition For Alternatives To Pesticides, Integrated Pest Management Resources For Schools (1996).
could be used to control outdoor pests.\textsuperscript{116}

If none of the above nontoxic pest control methods solve the problem, a school’s required IPM program could — but would not be required to — permit the use of a pest-specific, spot pesticide treatment in response to a limited pest problem.\textsuperscript{117} For a widespread pest problem, the school’s plan could also allow (but would not have to allow) use of a broadcast application of the least toxic pesticide available.\textsuperscript{118}

4. Least Toxic Pesticides Applied by Certified Applicator

Mandatory IPM would also require schools to administer the least toxic pesticide available through a certified applicator who is trained in both IPM and the least toxic use of pesticides.\textsuperscript{119} Requiring certified applicators would prevent people who are not properly trained in the application of a pesticide from applying the wrong pesticide for a particular purpose or applying a pesticide in a manner that is not recommended. Such improper applications can be extremely harmful to children. In one incident, the pesticide diazinon was applied incorrectly in a home by an uncertified applicator. Consequently, the infant living in the home suffered neurological impairment and other serious harm.\textsuperscript{120}

\textsuperscript{116} See Carlucci, supra note 61, at 211.
\textsuperscript{117} Fuehring Interview, supra note 109.
\textsuperscript{118} See EUGENE, OREGON, POLICIES AND PROCEDURES FOR IPM (undated).
\textsuperscript{119} In fact, FIFRA does not even require that applicators be trained in IPM or the basic dangers of pesticides. 7 U.S.C. § 136(e)(1).
\textsuperscript{120} Goldman, supra note 64, at 29-30 (citing S.L. Wagner & D.L. Orwick, Chronic Organophosphate Exposure Associated With Transient Hypertonia in an Infant, PEDIATRICS 94:1:94-97 (1994)); see Fenske, supra note 20, at 689 (finding dangerously high levels of chemicals in infant breathing zone when applied by trained applicator, but noting that because training of applicators is often minimal, potential for exposure is even greater than shown in study).

The case study discussed in Goldman, supra note 64, at 29-30, documents a child’s exposure to a pesticide improperly applied and the grave effects. In that case, an infant in Oregon had a routine medical examination in December 1989. At the December examination, the pediatrician noticed that the infant showed signs of hypertonicity or excessive muscle tone in her legs. \textit{Id.} at 29. By the second exam one month later, the condition had spread to her arms and hands. \textit{Id.} A consultant diagnosed the child with cerebral palsy and began treating the infant with physical therapy for this condition. \textit{Id.} In early 1990, the parents
Applicators applying chemicals in schools should not only be trained, but they should also be as impartial as practicable. That is, they should neither represent the industry nor stand to gain financially from the use of pesticides. Rather, the applicator may well be the school's IPM officer trained to assist in the IPM program.

5. Complete Records of All Pesticide Applications

Legislation mandating IPM in schools would require trained applicators to maintain complete records of the dates and substances applied at their schools and the methods of application. Such record-keeping would ensure that the pesticides chosen and manner of their application are appropriate for the problem. In addition, it would facilitate parental and medical review of the school's policies in cases in which a child suffers adverse health effects. Some public interest groups have advocated the pediatrician who had initially examined the child and informed the doctor that the pesticide diazinon had been sprayed throughout their home one month prior to the initial examination of the child in December 1989. Id. The diazinon had been misused, as it should only have been applied to cracks, crevices, and small areas. Id. Although the parents had no observable illness, they were advised to move out of their home. Id. at 30. Six months after leaving their home, the child showed no signs of disease. Id.

Thus, a child can be seriously affected by a chemical pesticide, even though adults equally exposed to the pesticide can show no signs of illness or side effects. Id. at 30. This research is consistent with studies that have found young animals to be more susceptible than older animals to chemicals known as organophosphates, such as diazinon. Researchers theorize that the "existence of a parallel phenomenon in humans is quite possible." Id. Notably, in this study the physician was able to connect the exposure to the symptoms. Id. If she had not done so, the child may have suffered chronic and permanent neurological damage and the case would have been unknown. Id. Where children receive multiple chemical exposures, the symptoms are even more difficult to identify and evaluate. Id.

ed that schools maintain pesticide application records for a minimum of thirty years so that chronic effects of pesticides can be recognized and treated.\textsuperscript{122} In addition to facilitating assessment of the health effects of pesticides, legislation requiring adequate and complete records would also reduce pesticide use in schools by making it a more serious and less convenient undertaking.

6. Provide For Longer Reentry Periods Than Those Recommended By the Manufacturer

Mandatory IPM could allow schools to apply the least toxic pesticide for a given problem. In such cases, pesticide application would be treated cautiously and be followed by reentry periods at least twice as long as those recommended by the manufacturer.\textsuperscript{123} Pesticide treated classrooms would not be left to detoxify without any influx of fresh air during the waiting period. Rather, airing out of a building or classroom would require that schools open windows for at least the time stated by the manufacturer for reentry. Additionally, the schools would wash floors and desks after indoor pesticide applications so that children would not be exposed to pesticides through skin contact with surfaces on which pesticide particulate have settled.\textsuperscript{124}

In cases of outdoor pesticide applications, schools would keep students and faculty off the pesticide-treated areas for at least twice the recommended reentry period.\textsuperscript{125} Small signs indicating that the outdoor area has been treated would not be sufficient because small children and animals cannot read.\textsuperscript{126} Mandatory IPM legislation would thus require that treated areas be physically demarcated. This requirement would also serve a dual purpose: making pesticide applications safer and making them less convenient.

\begin{itemize}
\item \textsuperscript{122} Speilberg et al., supra note 121, at 38; accord McCauley, supra note 121, at 20.
\item \textsuperscript{123} Needelman & Landrigan, supra note 23, at 123.
\item \textsuperscript{124} Fenske, supra note 20, at 692. See Bearer, supra note 19, at 11, 15.
\item \textsuperscript{125} Needelman & Landrigan, supra note 23, at 123.
\item \textsuperscript{126} See Source of Odor Still UnKnown, supra note 11, at B2.
\end{itemize}
7. Notification To Parents, Students, and Faculty Prior To Application

Additionally, IPM legislation would permit pesticide applications to be made only after school officials provided parents, students, and faculty with written notice seven days in advance of a pesticide application.\textsuperscript{127} Paradigm IPM legislation might contain a very limited exception from this notice requirement for emergency situations, such as a dangerous pest in the classroom that was not capable of control by non-toxic methods. Because it is difficult to imagine a situation in which a pesticide application and the required subsequent evacuation of the classroom would be more practical than an alternative non-toxic method of pest control, this exception would be extremely limited.

8. Pesticides Should Not Be Stored On School Property

IPM laws would mandate that pesticides may not be stored on school property because they are dangerous and will be infrequently used. In addition, such a requirement would avoid the risk of accidental spills and reduce the temptation to use pesticides as a matter of convenience.

9. New Schools Should Be Designed To Keep Pests Out

Paradigm IPM legislation would also require that all new school construction be built to be pest proof. In this way, the necessity for pesticide applications in school buildings will become obsolete.

10. School Staff Will Be Trained To Recognize Acute Pesticide Poisoning and Will Keep Records of Pesticide Poisoning

School staff must be trained to recognize the symptoms of acute pesticide poisoning so that affected children can be treated, and to keep records of such poisoning. Records of such incidents will help treat students chronically affected by school pesticide applications and can be used to document the need for future

\textsuperscript{127} SPEILBERG ET AL., supra note 121, at 38; accord MCCAULEY, supra note 121, at 20.
environmental reform.

B. Potential Criticisms of Mandatory IPM

Criticisms of legislatively mandated IPM will undoubtedly include charges that IPM education and implementation will be expensive, that IPM systems will not effectively control pests, that mandating IPM will curtail the freedom of school administrators to manage their schools, or that conventional pest control is safe. Each of these criticisms can be addressed and dispelled.\footnote{See Susan B. Kaplan, A Cohesive Policy on Government Regulation, 1993 Wis. L. Rev. 619, 624 (1993) (calling for a cohesive public voice on issues affecting the public welfare, such as pesticide regulation).}

First, the facts show that IPM will work as well as chemical pest control. School systems that have voluntarily adopted IPM have successfully reduced their costs, provided healthier school environments, and effectively controlled pests.

For example, in Montgomery County, Maryland, the County School system voluntarily implemented IPM and reduced its pesticide use by ninety percent between 1988 and 1990 and effectively controlled pests. And as of 1984, the Eugene, Oregon public school system has run a model IPM program that emphasizes weed pulling and other non-toxic pest management alternatives.\footnote{Fuehring Interview, supra note 109. Other school systems in the country have also reported huge success with IPM. See NEEDLEMAN & LANDRIGAN, supra note 23, at 128-29 (noting that the following schools have IPM programs: San Diego, California schools; the Wheaton/Warrenville, Illinois schools; Ann Arbor, Michigan schools; and Plum Borough, Pennsylvania schools); HINCHLEY, supra note 3, at 57 (noting that as of 1984, the Toronto, Ontario public schools system entirely banned the use of pesticides in and out of school buildings); Solutions, supra note 92, at 10-15 (noting that four New York school districts currently have IPM programs in place: Nassau County BOCES, Locust Valley Central, The Baldwin Union Free School District, and the Rondout Valley Central Schools).}

It is becoming increasingly clear that as pests become more resistant to chemical pest control,\footnote{Carlucci, supra note 61, at 212 (citing MICHAEL J. DOVER, STUDY 4: A BETTER MOUSE TRAP 5, 6 (World Resources Inst., Sept. 1985)).} we will have to use stronger, more toxic pesticides in greater quantities to do the same job...
previously done with less chemical use. As a result, we have little choice but to move toward a regulatory scheme which requires a reduction in the use of toxic substances rather than one that attempts to control risks.

Resistance to IPM because of its cost overlooks the fact that schools already incur high costs in applying pesticides. Indeed, current monies allocated for routine pesticide treatments could instead be directed to IPM efforts. State legislatures could provide that schools able to reduce their pesticide use could utilize dollars previously earmarked for pesticide applications for educational purposes instead. In the long term, therefore, states would save money and, at the very least, redirect monies from toxic pesticide applications to educational benefit. Moreover, education concerning an IPM program can be both morale building for the whole school and an educational tool for the children.

Two examples of this approach are found in a school corporation in Indiana and a school in Michigan. In Monroe County Community School Corporation in Indiana, an entomologist from Antenna University is helping to make the school corporation pesticide free. The school board accepted a $30,000 grant in the summer of 1996 to adopt IPM in its schools—the same amount that it would have paid annually for pesticide application in its schools.131

A successful “bug eradication” program was run in three of the corporation’s elementary schools in 1995. In the program, faculty and students learned about the insects’ life cycles, what attracts them, and how to break bad “bug-attracting” habits.132

In Ann Arbor, Michigan, a contractor was hired to institute an IPM program, instructed only to apply pesticides when it was indicated and only after authorization from school officials.133 In

132. Id. Marc Lame, the entomologist helping the Monroe County Community School Corporation suggests cleaning up stacks of cardboard boxes (which attract roaches), keeping snacks in airtight containers, using caulking and weather stripping to seal insect entries in the building, and breaking bad habits such as spreading food crumbs in all areas. Id.
1990, roaches were controlled using a “crack and crevice treatment of boric acid, which is somewhat low in toxicity,” and only one pesticide application was required.\footnote{Id. at 14.} What is truly remarkable about the Ann Arbor program is that \textit{costs were the same} for the IPM program in its first year of operations as costs had been in the conventional pesticide program. This is the case even though paid employees had been performing pest monitoring pursuant to the IPM program. In 1991, the school was to begin using school staff to monitor pests, impliedly reducing costs below that of a conventional pest control program.\footnote{See id.}

Even if state funding for the initial start-up of IPM programs was needed, it could come from an increase in state registration fees for general use pesticides and larger increases in fees for restricted use pesticides as categorized by the EPA.\footnote{HINCEHY, supra note 3, at 50, 59 (suggesting an increased sales tax on non agricultural pesticides to fund environmentally sound programs).}

Another good way for state governments to provide additional funding for IPM in schools would be to charge a flat fee per kilogram of active ingredient.\footnote{REPETTO \\ & BALIGA, supra note 34, at 63.} This would encourage the use of newer and often safer pesticides, which can be applied sparingly, but which are more expensive per unit.\footnote{Id.}

States also could reduce long-term costs by reducing the risk of potentially costly toxic tort litigation. Although only a few cases have been filed to date involving school pesticide poisonings,\footnote{See supra note 41.} commentators have predicted that pesticide poisoning could prompt future toxic tort litigation.\footnote{Jeffrey A. Foran et al., \textit{Predicting Future Sources of Mass Toxic Tort Litigation}, 7 RISK: HEALTH, SAFETY \\ & ENV'T 15 (Winter 1996).} This litigation could foreseeably involve students poisoned in school and accompanying litigation costs.

Critics may also assert that IPM programs curtail administrators’ freedom to manage their schools and are overly regulatory. However, overusers of pesticides (and arguably all users) are polluters and the law does not recognize one’s right to
pollute at an external cost to others.\textsuperscript{141} For example, pollution from the use of pesticides is akin to the emission of automobile exhaust, the level of which is highly regulated.\textsuperscript{142}

Finally, chemical manufacturers' claims that pesticides are safe\textsuperscript{143} for use in schools are not supported by the facts. As discussed in Part I.B, multiple studies have linked pesticide use to cancer, neurological problems, and immune system deficiencies in children.

**CONCLUSION**

As recently as November 1996, I toured a local public school in my neighborhood. The principal, known in the community for his enthusiasm and activist spirit, did not even know the meaning of IPM and admitted to the group that he did not know how the school controlled pests — even though the policy in his state clearly calls for schools to adopt IPM plans.

Policy statements and volunteer programs have not resulted in uniform safe pesticide use in our schools. The time has come for states to protect school children legislatively from the hazards of daily exposure to pesticides — poisons that their physically immature systems may not be able to tolerate safely. Federal regulations do not directly address the use of pesticides in schools, and in any event, are not sufficiently protective of human health. States will have to take the initiative by legislatively requiring

\textsuperscript{141} Carlucci, supra note 61, at 213.

\textsuperscript{142} It is also interesting to note that the current regulation of emissions is aimed at reducing external costs to others in society and to the environment, rather than containing the risks. \textit{Id.} This is consistent with what commentators have described as the trend in environmental regulation toward regulations that decrease pollution and use rather than allow products and activities that fall within acceptable risk levels. \textit{See id.} at 210.

\textsuperscript{143} In 1988, the Attorney General of New York sued ChemLawn, urging that it had falsely advertised its products as "safe" and "nontoxic." New York v. ChemLawn Serv., No. 88-40533 (New York Cty. Sup. Ct. 1988). ChemLawn settled the case on June 29, 1990, agreeing not to advertise its products as safe and nontoxic and to pay $100,000 in fines. \textit{Id.} This case illustrates that claims that pesticide products are safe are no longer tolerable, given our current scientific knowledge and increasing public awareness. New York State law also prohibits false advertising in the conduct of any business. N.Y. GEN. BUS. LAW \S 350 (McKinney 1996).
schools to practice the least toxic methods of pest control through IPM. The word must go out that pesticides are not safe and non-toxic and that they must not be used freely and without forethought and careful planning in our nation’s schools.