

READING, WRITING, and RAID[®]

Pesticide Use at Vermont Schools

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Vermont Public Interest Research Group, Inc.*

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VPIRG thanks the 235 participating schools who took time to respond to our survey.

For additional copies of this report visit our website at <http://www.vpirg.org> or send \$10 for each copy to the VPIRG 141 Main Street, Ste. 6, Montpelier, VT 05602.

About VPIRG

The Vermont Public Interest Research Group is Vermont's largest environmental and consumer watchdog organization with 20,000 members throughout the state. The Vermont Public Interest Research and Education Fund is VPIRG's tax-exempt charitable arm that conducts research and education on a wide variety of issues. Founded in 1972, VPIRG has provided 30 years of research, organizing, and advocacy campaigns to ensure policies are made in the public's interest. For more information about our work, please write VPIRG, 141 Main Street, Ste. 6, Montpelier, VT 05602 or call 802-223-5221 or visit www.vpirg.org.

Executive Summary

To find out how pesticides are being used in Vermont schools and to gauge potential pesticide exposure to students, parents, and community members, VPIRG and the University of Vermont, with the support of the Vermont Department of Education conducted a pesticide use survey in the Fall of 2002. Surveys were sent to all public school principals in the state, and 70% of the schools responded to the survey.

Key Findings

- 70% of schools reported that they use pesticides.
- Only 6% of these schools give prior notification to parents before they apply pesticides.
- 57% of schools reported using pesticides that are considered to be EPA category I or II pesticides – meaning that they are among the most toxic pesticides available. At a minimum this means that **32,800 students are at risk of being exposed to the most toxic pesticides at school.**
- Just 23% of the schools are keeping written records of pesticide use.
- Only 7% of the schools have a written pesticide use policy.
- Most schools (73%) had not heard of integrated pest management (IPM) before this survey.

Pesticides are chemicals designed to kill unwanted living organisms. These chemicals harm not only target pests, but they may also harm other living organisms including humans. The Environmental Protection Agency (EPA), and numerous other agencies, scientists and medical experts have acknowledged that children are at a greater risk from exposure to chemical pesticides than adults. This is because children breathe and ingest more on a pound-for-pound basis than adults, and are thus exposed to more pesticides from the environment. Children also play on the floor or lawn more where pesticides are commonly applied, and have frequent hand to mouth contact. Finally because children are still growing and developing, synthetic chemicals found in pesticides can detrimentally interfere with normal bodily processes, including development of the brain, affecting the ability of children to learn.

Because of increasing concern over the use of chemical pesticides at schools, the EPA now encourages schools to adopt Integrated Pest Management (IPM) policies. A strong IPM plan relies on the use of safer alternative in lieu of toxic chemicals to control pests. Toxic pesticides are used only as a last resort.

In addition to the EPA's strong endorsement of safer pest management practices, thirty-three states around the US have passed laws to minimize pesticide use in schools. Specifically states have enacted laws eliminating the most toxic chemicals at schools, requiring prior parental notification and the posting of signs when pesticides are to be used, and requiring the implementation of written pesticide use policies.

Survey findings show that although 13% of schools are setting a strong example for pesticide risk minimization by not using any pesticides at all, the vast majority of schools in Vermont need assistance in reducing children’s pesticide exposure. To make schools safer for children in Vermont, VPIRG recommends the following:

- Schools should adopt policies and procedures to eliminate the most toxic pesticides at schools, notify parents and post signs when pesticides are used, and implement written pesticide use policies.
- State officials should assist schools in creating safer pest management policies.
- State officials should provide information to schools and serve as a clearinghouse of information so that schools can learn from other schools’ experiences.
- State legislation or policies should be considered that would protect children from unnecessary pesticide exposure at school.
- Parents are encouraged to work with members of their school administration, staff, and other parents to set up and establish pesticide risk minimization policies.

Introduction

Pesticides are chemicals designed to kill plants, insects, rodents, fungus, and other living organisms. * Because their function is to kill living things, they are toxic by design and inadvertently pose negative health risks to humans. According to the US Environmental Protection Agency (EPA) adverse effects of pesticide exposures range from mild symptoms of dizziness and nausea to serious, long-term neurological, developmental and reproductive disorders.¹ Children are particularly vulnerable to the harmful effects of chemical pesticides for many reasons. First, children breathe and ingest more pesticides relative to their body size than do adults. Second, children’s bodies are still developing and maturing, and synthetic chemicals may interfere with the normal chemical balance required for healthy growth. Third, children play low to the ground and have more

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* For the purposes of this report and the survey results, the term pesticides includes: insecticides, herbicides, fungicides, and rodenticides.

exposure to pesticide residues in the soil, carpets, and on floors. This increases their risks of exposure through ingestion (hand to mouth contact) and inhalation (breathing in dust and dirt from the ground). Therefore, because pesticide exposure may so negatively affect children's health, pesticides should be used with caution – especially at schools where children spend half of their days for twelve to thirteen years.

A common misperception is that because pesticides are available on the market for home lawn and garden use, insect control, or through pest control companies, that pesticides are safe for use and pose little if any health risks to humans. Unfortunately this is often not the case. Pesticides are generally inadequately tested for human health and safety – especially the health and safety of children. Many pesticides on the market are registered for use and sale by the EPA even though they have been shown to be carcinogens (or “cancer causing” agents) in animal studies.² In fact, the EPA in 1994 acknowledged that more than 70 active ingredients found in pesticides cause cancer in animal tests.³ Moreover, the Agency has noted that most currently registered pesticides have not been adequately tested to determine toxicity concerning the developing immune, endocrine, and nervous systems, and organs as the kidney and liver.⁴

Pesticide products are inadequately tested before sale and distribution on the market, in part due to the structure of Federal laws regulating pesticide use. The Federal Insecticide Fungicide and Rodenticide Act (FIFRA) governs the regulation of pesticides.⁵ Under the law, pesticides must be registered with the EPA prior to manufacture, distribution, or importation. The EPA will register a pesticide for use if the manufacturer provides to the Agency proposed labeling, and scientific data showing that the product meets the standards for registration.⁶ Unfortunately, the law has many loopholes, and many pesticide products on the market have not been reviewed under modern environmental and public health standards. In fact, old scientific data is still used to register many products, even though this data is from an era when environmental and health effects were poorly understood.⁷ Moreover, pesticide manufacturers themselves do the actual health and safety testing as opposed to an independent third party, resulting in an obvious conflict of interest.⁸ Finally, much of this testing ignores the reality that exposure to pesticides in the real world occurs outside of a vacuum and persons are likely to be exposed to multiple pesticide products throughout their lifetime. Most tests today only focus on one product at a time.⁹

Partially because of this misperception that pesticides on the market are safe for use and will not cause any serious harm to humans, pesticides are commonly used at schools. In fact many school officials use synthetic pesticides without knowing that they are potentially harming

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children who may be exposed to these chemicals. According to the EPA, children are more susceptible to risks from pesticide exposure than adults, yet schools are using pesticides without notifying parents, or putting any mechanism in place for protecting children's health.

Vermont schools are no exception to this practice. In classrooms, on playgrounds, and in school cafeterias, children in Vermont schools are regularly exposed to harmful chemical pesticides. Chemical pesticides are applied at many Vermont schools without advanced notification to parents and with little public disclosure. Safe and effective alternatives to pesticides are available. It is time for Vermont schools to reevaluate pest management practices so that children are never unnecessarily exposed to toxic pesticides.

Background

Chemical pesticides are virtually the only toxic substances intentionally released into the environment with the sole purpose of killing living things. They work by attacking or interfering with essential biological or chemical processes in the target pest. This is the case whether the target pest is a weed, an insect, a rodent or a fungus. Unfortunately, these "killer" chemicals can impact more than just the target pest. They may also harm other living organisms including humans. In fact the US General Accounting Office reported that there were over 2300 pesticide poisonings in American schools between 1993 and 1996.¹⁰ Many children are also exposed to pesticides at home. In Vermont, over one million pounds of pesticides were applied by commercial applicators in 2000, an increase of 100,000 pounds from 1999.¹¹

Many studies over the past few decades have shown links between pesticides and human health risks. A recent study in California shows that children aged one to three living in homes where professional pest control services were used on a routine basis were more likely to develop childhood leukemia. Moreover, children exposed to indoor use of chemicals (as opposed to chemicals used outside) were more likely to develop childhood leukemia.¹² Many other studies show that the incidence of cancer in children increases in relation to exposure to pesticides in the home, in the garden, and from parents using pesticides.¹³ Studies from Israel show that when chemical pesticides known to accumulate in breast tissue were banned, incidence of breast cancer declined.¹⁴ Another recent study shows that sperm count for men in rural areas is lower than that in urban areas. Scientists hypothesize that the intensive use of pesticides in rural agriculture areas may be the cause.¹⁵

There are numerous classes of chemical pesticides in common use. VPIRG's survey found that pesticides most frequently used at Vermont schools are organophosphates, triazines, pyrethroids and pyrethrins, and phosphonates. (See Appendix E). Children exposed to any of these chemical compounds can be at risk for health problems, even at very small doses. Symptoms of pesticide exposure to any of these chemicals often mimic viral infections such as flu or colds, and are therefore difficult to diagnose.¹⁶

Organophosphates

Organophosphates are a group of pesticides that affect the normal functioning of the nervous system. They were originally designed as nerve warfare agents.¹⁷ Exposure to these chemicals affect the body in a number of ways. Acute (short term) symptoms include headache, nausea, dizziness, hypersecretion (excessive salivation or sweating), muscle twitching, weakness, tremor, incoordination, vomiting, abdominal cramps, and diarrhea.¹⁸ Children exposed to organophosphates exhibit slightly different symptoms including seizures, mental and behavioral changes, lethargy, and possibly coma.¹⁹ Long term reproductive effects of organophosphate exposure may include fetal deaths, abnormal sperm, abnormal ovarian follicles and eggs, hormonal changes, DNA damage, birth defects, and neurological disorders.²⁰

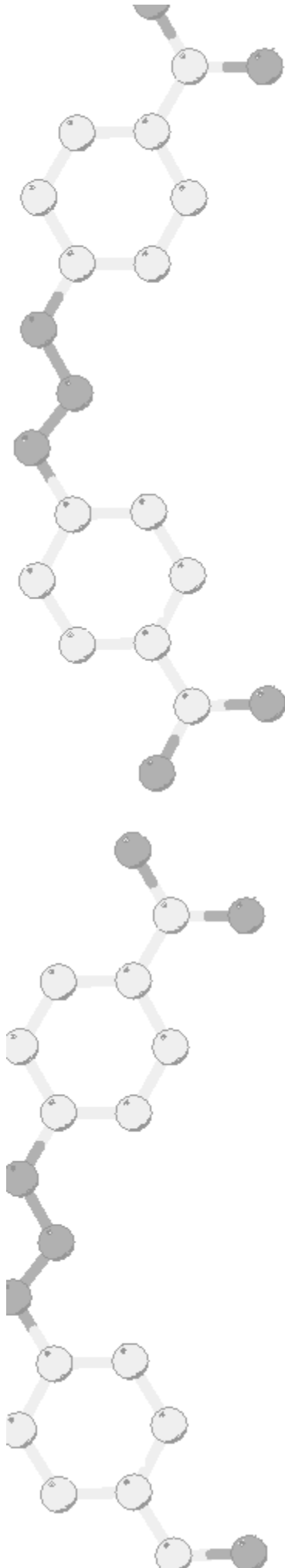
Organophosphates include chlorpyrifos, diazinon, malathion, and many other chemicals as active ingredients.²¹ They include products commonly known as Dursban, Spectracide, KnoxOut, Diazinon, Raid Wasp Spray, and Raze.²² Many of these chemicals (and products) are categorized by the EPA as category I or II pesticides.²³ These categories generally are determined by the EPA based on current animal toxicological testing, and are considered the most toxic chemicals.²⁴ Organophosphates are currently under review from the EPA because of their potential toxicity, especially to children.²⁵ Some of these chemicals like Dursban have already been banned for sale on the market, and others like Diazinon are undergoing phaseouts from use and sale.²⁶

Triazines

Triazines are a group of chemicals that are linked with reproductive impairments and may also be endocrine disruptors.²⁷ Common triazines are atrazine, symazine, and prometon. On the shelf these chemicals include products like WeedBGon, and Parch.²⁸ Immediate effects of triazine exposure might include eye and skin irritation, and respiratory tract irritation.²⁹ Long term effects of these chemicals may include cancer, adrenal damage, kidney and urinary tract stone formation, lung damage, damage to developing fetuses, and impairments in sperm production.³⁰ Many of these chemicals and products are considered Category I and II pesticides by the EPA.³¹

Pyrethroids and Pyrethrins

Pyrethrins are made from pyrethrum - the extract from dried chrysanthemum flowers. This extract contains about 50% active

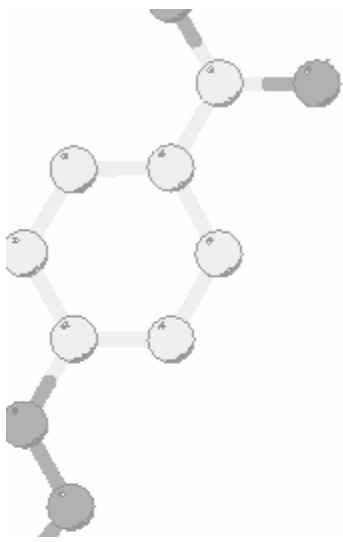


insecticidal ingredient that is known as pyrethrin.³² Because these chemicals are taken from a “natural” plant, there is a misconception that insecticides with pyrethrins are less toxic than other pesticide chemicals. Pyrethrins are chemicals that quickly paralyze the nervous system. They are often mixed with other chemicals as petroleum distillates, piperonyl butoxide, and other chemicals to maximize their effect.³³ Pyrethrins are a dermal allergen, and have caused rhinitis and asthma. On their own they don’t seem to pose a great risk to mammals, but when mixed with other chemicals, they may pose a greater risk to health.³⁴ Pyrethrins are often referred to as botanical insecticides. Some common products on the market are PT-565, Bug-M, and Shoofly. These are all categorized as category I or II EPA pesticides.

Pyrethroids may be confused with pyrethrins, but are synthetic chemicals designed to be more toxic and to resist breakdown. They are chemically similar to pyrethrins, but are chemically modified for commercial use.³⁵ They are often combined with other highly toxic pesticides to increase their effectiveness. Pyrethroids cause damage to the central nervous system, and symptoms of exposure may include seizures, skin sensations as stinging, burning, tingling, itching, and numbness, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability.³⁶ Although they are not directly toxic to nerve cells, their effect is to prolong neural excitation with potent activation of sympathetic nerves.³⁷ Long term reproductive effects may result from pyrethroid exposure.³⁸ Moreover, some studies have shown that low doses of pyrethroids have impacted brain function and resulted in behavioral and learning disabilities in study animals.³⁹ Some pyrethroids are even linked with cancer.⁴⁰ Common active ingredients in pyrethroids are cyfluthrin, cypermethrin, and permethrin. Pyrethroid products commonly known are Demon, Tempo, Raid Wasp Spray, Cy-kick, Bonide, Talstar, Demand, Spectracide, Golden Jet, Ortho Bee/Hornet, Kibosh, Suspend sc, and cynoff.⁴¹ Many of these products are category I or II EPA pesticides.⁴²

Phosphonates

This class of chemicals causes irritation to the eyes, skin and upper respiratory tract.⁴³ Common active ingredients in phosphonates are glyphosate, fosamine, and ammonium.⁴⁴ Common products are Roundup, glyfonox, and krenite. Glyphosate is the common active ingredient in Roundup, and exposure to it may lead to symptoms of eye and skin irritation, headache, nausea, numbness, high blood pressure, and heart palpitations.⁴⁵ Lab studies of this



compound have found adverse effects in the following areas: salivary gland lesions, inflamed stomach linings, genetic damage to human blood cells, reduced sperm counts, and thyroid cancer.⁴⁶ Although the exact mode of action for this chemical is not yet clearly known, studies show that it affects the activity of enzymes.⁴⁷ Moreover, some studies have shown glyphosate to be linked with tumors in rats.⁴⁸ Glyphosate (Roundup) may be considered a category I or II pesticide depending on the specific product and what the chemical mixtures are.⁴⁹

Many of the above chemicals and products are used in Vermont schools, with few precautionary steps being taken to prevent children from being exposed. Part of the reason for this is that Vermont does not require that least toxic pest management or integrated pest management (IPM) be used at schools. Nor is there any requirement in Vermont that parents, guardians, employees or children be notified prior to pesticide applications in or outside of schools.⁵⁰ Moreover, although the posting of signs are required on outside school fields by a certified applicator, the same does not hold true for any pesticide application that takes place indoors.⁵¹

Approximately 33 states have already adopted pesticide laws or regulations in and around schools to protect children.⁵² This includes nearby states of Massachusetts, New York, Maine, Connecticut, and Rhode Island.⁵³ One state requires that the most toxic pesticides be eliminated from use at schools.⁵⁴ Other states require that parents be notified in advance of pesticide application,⁵⁵ and/or that schools have a written pesticide policy and engage in least toxic pesticide management (or integrated pest management IPM).⁵⁶

Vermont does not require the elimination of the most dangerous pesticides from use at schools, parental notification prior to pesticide applications, the use of least toxic management or IPM in schools, and the posting of signs in conjunction with indoor pesticide usage. Instead Vermont's School Environmental Health law (Act 125) requires only that the Vermont Department of Health create a program whereby schools can voluntarily participate in implementing a plan to minimize the risk of exposure to pesticides.⁵⁷ Vermont schools are not required to participate in this program, and the School Environmental Health Act does not require the elimination of the most toxic pesticides, the advanced notification of pesticide use to parents, the posting of signs for indoor pesticide use, or the use of least toxic pesticide management at schools.⁵⁸

Research Methods

A mail survey of all public schools in Vermont was conducted during the Fall of 2002.

In early September, a pesticide use survey (See Appendix A), a cover letter from VPIRG and the University of Vermont (See Appendix B), and a letter of support from the Vermont Commissioner of Education (See Appendix C), were sent to Vermont's 337 public school principals (334 schools). Included in the survey packet was a self-addressed and stamped envelope so that schools could easily return the completed survey. The survey packets were compiled by University of Vermont Students from class NR 185 "The Environment and Human Health" during brief portions of their class time. Each survey was numbered with an ID number so that responses by schools could be easily tracked and to avoid the duplication of requests to individual schools.

Two weeks after the initial surveys were sent out (mid-September), a reminder postcard from was sent from UVM students to schools that hadn't yet responded to the survey. This postcard thanked schools that had already responded to the survey, and provided information for those who had not yet responded to the survey.

During the second and third week of October, a VPIRG intern (a University of Vermont student) began follow-up phone calls to schools who had not yet responded to the survey. Schools were randomly selected for these calls, and calls were made through the middle of October.

Throughout the fall VPIRG sent additional copies of the survey and cover letters to schools requesting them. VPIRG also answered questions for several schools concerned about use of the information.

The last part of October and most of November were spent compiling data and analyzing results for this report.

Results

Survey Respondents

Surveys were sent to Vermont's 334 public schools. Responses were received from 235 schools, or 70%. At a minimum this represents 52,200 students⁵⁹ in the Vermont public schools.

Of these:

- 109 schools were elementary schools (PreK-6), 12 were middle schools (grades 6-8), 23 were high schools (grades 9-12), and 90 were combined age schools.
- 77% of schools considered themselves to be rural, 11% suburban, and 10% city.

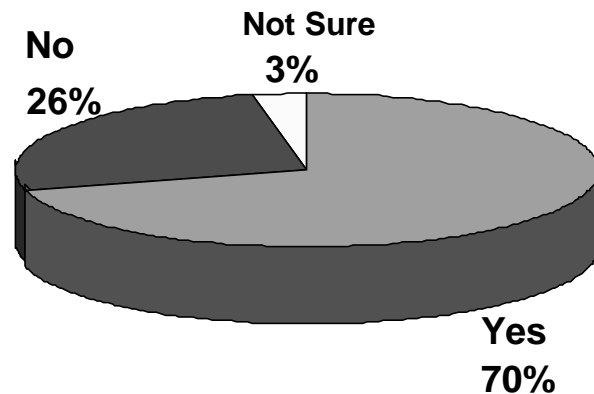
% of schools responding by county	
Bennington	88%
Windham	74%
Rutland	84%
Addison	79%
Windsor	71%
Orange	53%
Washington	86%
Chittenden	45%
Lamoille	24%
Caledonia	71%
Essex	50%
Orleans	86%
Franklin	91%
Grand Isle	100%

Pesticide use at schools

Seven out of 10 schools responding to the survey know they use pesticides in school buildings or on school grounds. At a minimum this represents 44,150 students in Vermont schools. Of these:

- 47% are elementary schools, and 38% are combined age schools. Only 10% are high schools and 6% middle schools.
- 66% used pesticides to eliminate pests that are present.
- 14% reported using pesticides to prevent the establishment of pests that are not present.
- 14% use herbicides on concrete areas as parking lots and sidewalks.
- 13% use herbicides to control weeds on playgrounds and athletic fields.
- 5% use herbicides on grassy areas that are not athletic fields.
- 1% use herbicides to protect ornamental plants.

Vermont Schools Using Pesticides



Approximately 26% of schools responded that they did not use pesticides. 3% were not sure if they used pesticides. Of these:

- 17% later checked off specific pesticide products that were being used at their school (i.e. Roundup, Raid, Tempo, etc.), or they used an independent contractor to apply pesticides.
- 13% said they weren't sure which pesticides were being applied at their school.

Frequency and timing of pesticide use

- Most schools reported only using pesticides when a pest problem is actually present – 54%.
- 13% schools reported never using pesticides.
- 9% schools use pesticides once a month.
- 7% of schools reported applying pesticides annually.
- 2% of schools apply pesticides either 2, 3, or 4 times a year.

- Most schools apply pesticides during the evening when school is not in session (38%), or on weekends (27%). 8% schools reported using pesticides only during the summer or vacations.
- 12% schools reported applying pesticides early in the morning before school started, and only 1% of schools use pesticides during the school day.

Areas where pesticides are most frequently used

- Cafeterias and kitchens (25%)
- Playgrounds (24%)
- Athletic fields (19%)
- Lawns (17%)
- Classrooms (14%)
- Hallways (13%)
- Offices (10%)
- Boiler room (7%)
- Rest Rooms (5%)
- Gym/Locker room (4%)
- In addition, many schools reported using pesticides outside buildings, around fountains, in storage areas, in attics, at dumpsters, and in cellars.

Most common pests

- Head lice (77%)
- Bees/wasps (71%)
- Mice (70%)
- Ants (67%)
- Flies (54%)
- Spiders (39%)
- Fleas (4%)
- Cockroaches (3%)
- Rats (2%)
- Only one school reported termites as a pest.

Which pesticides are used

- 26% of schools that reported using pesticides were not sure which pesticides were being used at their schools.
- 57% of schools using pesticides were using chemicals that are considered Category I or II EPA Pesticides. (These chemicals are what the EPA considers to be the most toxic.)
- Schools reported using a wide variety of pesticide products, but the most common pesticides used were Round-up (30%), Tempo (10%), and Raid wasp/bee killer (9%). All three of these product brands fall under the Category I or II list.⁶⁰

- Schools using pesticides reported using products containing the following active ingredients:

- Chlorpyrifos (Dursban)
- 2,4-D
- Cypermethrin
- Cyfluthrin
- Pyrethrin
- Diazinon
- Glyphosate
- Prometon
- Malathion
- Tetramethrin
- Piperonyl butoxide.

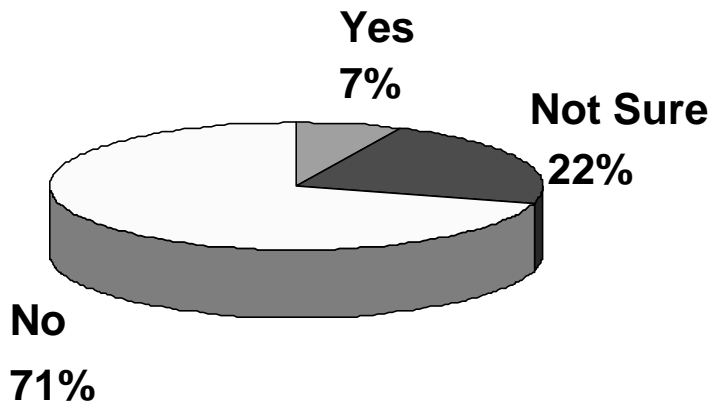
The sale of Dursban was **banned** in June 2000 because of the risks it poses to children, and phase-outs of the sale and use of Diazinon began in 2001, and will continue through 2004.⁶¹

Written pesticide use policy

Of the schools which reported using pesticides:

- Only 7% (or 12 schools) reported having a written pesticide use policy. 22% reported that they did not know if there was a policy or not.
- Of the schools knowing they had a written policy, 14 have a policy for indoor and outdoor pesticide use, 2 just for indoor use, 0 just for outdoor use. One school is unsure of what the policy covers.
- Only 26% of schools have a process whereby parents, staff, or students may influence the school's management or use of pesticides.

Schools Having Written Pesticide Procedures/Policies



Of the schools who reported not using any pesticides at all:

- 2% (or 4 schools) reported having a written pesticide use policy that could guide them in the event of an emergency.

Who applies pesticides

Of the schools using pesticides:

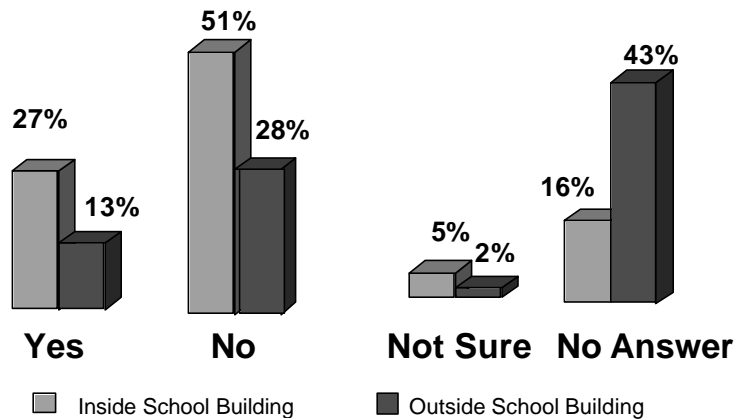
- 44% of schools have independent contractors applying pesticides inside. The most common contractors are, Orkin, L&R pest control, B&G Pest Control, Southern VT Pest Control, Terminix, and Pest Pro.
- 54% of schools have custodial or other staff applying pesticides inside school buildings.
- 32% have independent contractors applying pesticides outside. These include Orkin, L&R pest control, Northcountry landscaping, MJS lawncare, Northeast Ag. Services, and JP Chemical.
- 65% of schools have custodial or other staff apply pesticides outside school buildings.
- Only one school knew for certain that pesticides are applied by a pesticide applicator licensed by the Vermont Department of Agriculture Food and Markets. 9% of schools using pesticides are not sure if those applying pesticides hold an applicators license.⁶²
- Schools having independent contractors apply pesticides on a more frequent and routine basis than those who do not. Those schools using custodians or other staff tend to apply pesticides on an “as needed” basis.

Records

Only 23% of the schools keep written records of pesticide use at the schools. Of these:

- 30% keep them at schools for 5 or more years. 50% keep them between 1 and 4 years, while 4% keep them for less than 1 year.
- 60% have Material Safety Data Sheets (MSDS) for pesticides used available to parents, staff, or students. 37% have records of pesticide use available to parents, staff, or students
- 34% schools using pesticides report or record pesticide related injuries. Most of these schools report to have a specific protocol in place for responding to pesticide related injuries at school, but the majority specify that their protocol consists of visiting the school nurse, the school's emergency response plan, or standard injury report protocol. Only 1 school reported that they would notify parents in the event of pesticide exposure, and only 4 schools mentioned insurance coverage related to pesticide exposure.

Prior Notification of Pesticide Application



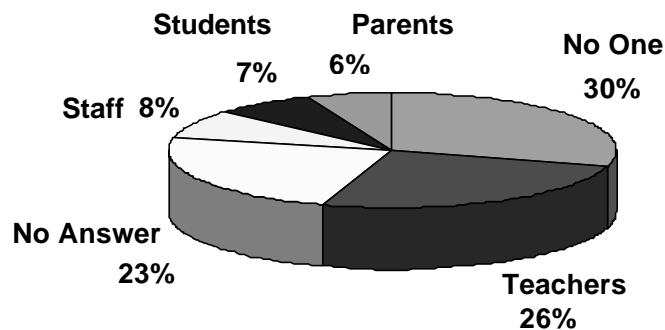
Notification

Most schools do not notify parents, staff, or students of pesticide usage prior to application. Of those schools using pesticides:

- Only 27% of schools give prior notification when a pesticide application is to take place inside.
- Only 13% give prior notification when a pesticide is to be applied outdoors.
- Only 6% of schools report that they are notifying parents prior to the application of pesticides at school. Most schools are not notifying any one at all (29%), but 25% schools are giving teachers advanced notice, 8% of schools notify other staff, and 7% of schools notify students.
- Many schools (11%) are not sure how far in advance notification is given, and only 4 schools notify parents more than 48 hours before a pesticide is applied.
- Only 20% schools post warning signs around areas treated.⁶³

Most schools (29%) are unsure how long these warning signs remain up after treatment. Only 9% schools keep these signs up over 48 hours.

Who Gets Prior Notification of Pesticide Use?



Integrated Pest Management

The most common IPM techniques being used at schools are:

- Plastic liners in garbages (75%)
- Removing and securely storing all food (63%)
- Cleaning up clutter (58%)
- Use of traps/capture devices (52%)
- Screening vents/windows (51%)
- Improved sanitation (49%)
- Regular inspection for pests (43%)
- Sealing cracks and crevices (42%)
- Avoiding use of high risk pesticides (32%)
- Vacuuming (29%)
- Not allowing students to store food outside of designated areas (28%)
- Use of least toxic products (25%)
- Educating students & staff on how to help reduce pest problems (17%)
- Insecticidal baits (9%)
- Rodent poison (8%)

Overall:

- 73% of schools had not heard of IPM before this survey.
- Only 9% of schools said they practiced IPM. Of these schools, all but one are using pesticides and 85% are using either Class I or Class II EPA pesticides.
 - Few if any schools seemed to know if implementing an IPM program has resulted in increased, reduced, or similar school maintenance costs.
 - Most schools (61%) were interested in learning more about IPM.

Discussion and Conclusions

The survey findings demonstrate that there is a need for immediate changes in pest management practices at most schools in Vermont. Synthetic chemicals designed to kill living organisms are commonly applied in cafeterias, classrooms, athletic fields and playgrounds at the majority of Vermont schools. Parents are not notified in advance of these chemical applications, despite any desire that they may have to remove their children from school when this occurs. Very few schools are knowledgeable about safer pest management practices like IPM or least toxic pest management, or which chemicals are being used at their schools.

Specific findings show that schools do not have a strong understanding of what pesticides are. Although the survey and cover letter defined pesticides to include herbicides, insecticides, fungicides, and rodenticides, many schools answering that they did not apply pesticides in the survey later checked off boxes in the survey that they were using products like Roundup. This may be because there is a common misperception that certain herbicide products like

Roundup are safe for use. As discussed above, glyphosate, the active ingredient in Roundup, has been shown through testing to be toxic. Other schools responding that they did not apply pesticides at schools later answered that they used independent contractors for pest control services, and were not sure which pesticides were actually being used. This shows that schools may need help in understanding what pesticides are, what constitutes pesticide application and how they can be harmful to children.

Many schools reported that they are using pesticides that contain the most dangerous or toxic chemical ingredients. Approximately 57% of schools reported using EPA category I or II pesticides despite the fact that these chemicals can cause the most damage to growing children. This means that **at a minimum 32,800 students may be exposed to harmful chemical mixtures while at school**. Moreover, any pregnant staff may be placing their fetus at risk to chemical exposures that may impact normal growth and development.

Most schools do not have written pesticide use policies. Many schools had not heard of IPM before filling out this survey. This means that schools need assistance in defining procedures for responsibly handling pest problems and minimizing the risks of pesticide exposures.

Although many schools responded that they in fact do have a procedure or protocol for emergency pesticide

exposures or injuries, many of these schools did not include parental notification as part of this response process. Most schools responded that school nurses will handle any emergencies or injuries at schools including pesticide exposures. It is unclear if pesticide poisonings are something that school nurses are routinely trained to identify and respond to.

Very few schools notify parents prior to pesticide applications. This is problematic as the survey shows widespread use of pesticides in Vermont schools, that many students could be at risk from exposures, and that many schools are not using alternatives to pesticides in controlling pests. Parents who have chemically sensitive children, or who have children that they don't want to be exposed to harmful chemicals are not able to protect their children from unwanted pesticide exposures because they are not provided with prior notification. This can be especially disconcerting to parents who know that their child is sensitive to chemical pesticides and who may exhibit extreme health and behavioral effects as a result of exposure.

Most schools are already engaging in some form of IPM, whether or not they are adding plastic liners to garbage cans, sealing cracks in buildings, storing food in separate areas, or engaging in regular inspections for pests. Yet most of these schools do not realize their techniques are part of the IPM process, and do not have a formal IPM or least toxic pest management program in which they can minimize the overall risks to pesticide exposure by engaging in a systematic program. Because there is plenty of information about IPM in schools, Vermont schools can easily learn about how to engage in least toxic pest management and IPM programs.

“
Many schools reported that
they are using pesticides that
contain the most dangerous or
toxic chemical ingredients.
”

The results of the survey are not all negative! ***The good news is that 13% of schools in Vermont reported that they never use pesticides. This shows that schools in Vermont can in fact be managed with out using harmful chemicals to control pest problems.***

Many of these schools used alternative techniques that are normally part of the IPM process. These include sealing cracks to prevent pest infestations, storing and securing food in special food storage areas, cleaning up clutter, screening vents and windows, regularly inspecting for pests, setting up traps and capture devices, improving sanitation, putting plastic liners in the garbage and vacuuming pests. These schools may be models for minimizing risks of pesticide exposure.

What schools can do

- **Schools should immediately eliminate the use of the most dangerous pesticides in and around schools.** There is no need for children to be exposed to the most toxic chemical pesticides when alternatives are available.
- **Schools should notify parents when pesticides are used.** VPIRG recommends that parents be notified at least 48 hours in advance of pesticide applications. Signs should also be posted wherever pesticides are used at schools.
- **Schools should adopt IPM or least toxic pest management.** This includes the monitoring and use of alternative strategies in lieu of using synthetic chemicals to control pests. IPM is endorsed by the EPA, the National Education Association, the American Public Health Association, and the National Parent Teacher Association.
- **Schools should support community and parental initiatives concerning pest control.** Administrators, staff, and buildings and grounds personnel should openly discuss the issues and concerns surrounding pest control at schools when parents and community members are concerned.

What the State of Vermont can do

- **State agencies and officials should encourage schools to adopt least toxic management programs that minimize pesticide exposure at schools.** Because the survey shows that schools need to improve their overall understanding of pesticides, the state can play a key role in raising public awareness about the importance of reducing pesticide exposures while at school.
- **The state should help develop policies and procedures for schools to minimize pesticide exposure risks.** Act 125 – Vermont’s School Environmental Health Act provides state agencies with legislative authority to create pesticide minimization programs. Officials and agencies should work together to create strong policies that require the elimination of the most toxic pesticides at schools, require advanced notification to parents of pesticide applications, requires the use of written pesticide use policies, and requires the posting of signs indoors in the event of indoor pesticide usage.
- **The state should provide technical expertise to schools.** State agencies have the expertise and the ability to provide information about IPM and least toxic pest

management to schools. In addition, schools should be able to share their successes and pitfalls with other schools through state information services.

- **The State should consider legislation to require least toxic pest management at schools.**

What parents can do

- **Parents can organize an environmental health committee at their child's school.** This committee should include other members of the community, school staff and administration. To learn more about how to create such a committee, please look at VPIRG's 2001 publication "Healthy Schools for Healthy Kids," available at www.vpirg.org
- **Parents can join with other concerned parents and community members to encourage the schools to engage in least toxic pest management.** As more parents get involved, the schools will be more likely to adopt least toxic management.
- **Parents can work with their towns and municipalities to create ordinances that restrict the use of pesticides on school property.** This is a way to get the entire community involved in minimizing pesticide risks, and to create a healthier learning environment for Vermont's children.

NOTES

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⁸ FIFRA, 7 USC Section 136(a).

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- ²⁰ MASSPIRG, *Pesticide Peril: The Harmful Effects of Toxic Pesticides on Human Reproductive and Developmental Health*, April 1998.
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⁴⁸ MASSPIRG, *Primary Exposure II; The case for reduced pesticide use in Massachusetts schools*, September 1997.

⁴⁹ See, Pesticide Action Network, www.pesticideinfo.org/index.html

⁵⁰ See Generally, Vermont Regulations For Control of Pesticides, Department of Agriculture, Food and Markets.

⁵¹ Id. Section IV(8).

⁵² Beyond Pesticides, “The Schooling of State Pesticide Laws – 2002 Update,” *Pesticides and You*, 22(1), Spring 2002

⁵³ Id.

⁵⁴ Massachusetts is the only state so far to prohibit the use of the most dangerous pesticides in and around schools. See Chapter 85 of the Acts of 2000, An Act Protecting Children and Families from Harmful Pesticides.

⁵⁵ Alaska, Arizona, California, Connecticut, Illinois, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New Mexico, New York, Pennsylvania, Rhode Island, Texas, Washington, West Virginia, and Wyoming all require parents be notified in advance of pesticide application. Many of these states have set up a parent registry so that schools will only send information to parents requesting this information. See, Beyond Pesticides, “The Schooling of State Pesticide Laws – 2002 Update,” *Pesticides and You*, 22(1), Spring 2002

⁵⁶ Florida, Illinois, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Texas, and West Virginia all require that Integrated Pest Management (IPM) be implemented at schools. In some cases IPM is defined as least toxic management, meaning that pesticides are only used as a last resort after other alternatives have been used. This is the most protective of children’s health. See, Beyond Pesticides, “The Schooling of State Pesticide Laws – 2002 Update,” *Pesticides and You*, 22(1), Spring 2002

⁵⁷ The School Environmental Health Act, Sec.3(c)(3) of No. 125 of the Acts of the 1999 Adj. Sess. (1999).

⁵⁸ Id.

⁵⁹ This numerical figure does not include schools reporting less than 50 students in their population. This number of students is reported using the lower number of the ranges of numbers as given in the pesticide use survey (i.e. 50-250, 250-500, 500-1000, or 1000 or more). At best these numbers are conservative.

⁶⁰ A determination of whether or not specific brand names or names of products with active ingredients falls under the EPA Category I or II list was completed after obtaining information from the Pesticide Action Network’s pesticide database. This can be found at www.pesticideinfo.org/index.html Some products like Roundup were considered both Category II and III pesticides depending on the exact product. We counted all schools using a product that is both Category II and III in the survey, as using Category II pesticides.

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⁶² Although such a license is generally not required in Vermont to apply pesticides at schools, other states like Massachusetts require that anyone applying pesticides at schools be licensed by the Department of Food and Agriculture. See See Chapter 85 of the Acts of 2000, An Act Protecting Children and Families from Harmful Pesticides.

⁶³ In Vermont signs are required to be posted by a certified applicator outside on school “turf” – like athletic fields. The specifications for how and when these are posted are found in Section IV(8) of the Department of Agriculture Food and Markets Regulations for the Control of Pesticides. Signs are not required under these regulations to be posted indoors when pesticides are used indoors. However, the DAFM has suggested in its proposed new regulations that signs be posted indoors upon indoor use of pesticides at entry ways in all areas accessible to the public.