Green Schools Within Reach

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Green Schools Within Reach:
Moving Beyond The Healthy Schools Act of 2000

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EXECUTIVE SUMMARY

In 2000, California enacted a landmark law to protect school children, the Healthy Schools Act of 2000. The law was among the first in the United States to require notification of pesticide use at schools and to favor safer, greener pest management techniques – known as integrated pest management (IPM) – over conventional pesticide-reliant treatments.

Unfortunately, in recent years California's progress toward less toxic pest control at schools has been uneven. Approximately 70% of school districts responding to a 2007 survey conducted by the California Department of Pesticide Regulation report having adopted an IPM program. Eleven percent of the districts have even adopted six or more of seven recommended voluntary IPM policies and practices. Yet 40% of reporting districts continue to use the most dangerous high-exposure methods for treating weed and ant problems, two of the most common pest problems for California schools.

Since children spend so much time on school grounds, pesticide use at school can have a dramatic impact on their health. Nationwide, school-aged children between the ages of six and eleven have been shown to have the highest levels of pesticides in their bodies compared to any other age category, with an average of seven pesticides per child, according to the Center for Disease Control & Prevention.

Pesticides used at school expose children to toxic substances during a critical stage of development that can result in permanent, irreversible effects. Childhood pesticide exposure has been linked to learning disabilities, asthma, cancer and other serious health effects.

Healthy pest control, or integrated pest management, uses common sense and sound science to address pest problems. Calling for simple steps, such as mulching to control weeds or sealing cracks to prevent future pest infestations, IPM seeks the safest and most effective ways to prevent pests from becoming larger problems.

Examples of California schools and school districts that have fully adopted green pest management systems abound. From the second largest school district in the nation, which has won awards for its outstanding IPM practices, to tiny districts made up of only two schools, IPM has been shown to be feasible. Two-thirds of the school districts in California that practice IPM have found it to be not only more effective but also no more costly than the conventional pesticide practices they used in the past.

All California school children deserve at least a minimal level of protection from the most harmful pesticides and application methods. California schools across the state should be encouraged and given additional resources to fully adopt green pest management.

PEST & PESTICIDE PROBLEMS IN SCHOOLS

More than 50 million U.S. children and 6 million adults spend much of their days in schools. They eat, study, teach, exercise and socialize in classrooms, cafeterias, landscaped areas and playing fields. With this tremendous number of people and activities come pests.

And these pest problems are real. From roaches to termites and poison ivy, schools need to tackle the problems in front of them, especially when these pests pose health threats to school children. Flies, fleas, and mice carry disease, while cockroaches and house dust mites can make allergies and asthma worse. However, many schools resort to the use of pesticides to address these challenges, which may cause more harm than good.

Pest prevention and control has long been understood to be the most effective way to tackle pest problems at the source. Pests enter schools in a variety of ways, including some of the most simple. Pests enter through cracks in baseboards and under doors, or through heating and plumbing pipes, or even doors left open. They remain attracted to schools that offer easy access to food and water through avenues like open trashcans or dumpsters, leaky roofs, leaky plumbing, and standing water from irrigation.

Sadly, in their efforts to eradicate pests, many California schools first turn to routine pesticide sprays instead of pest prevention or least toxic chemical methods. Sprays are problematic, because they vaporize quickly and give rise to airborne pesticide residues that often spread to nearby surroundings, exposing those close by or in contact with exposed items. In contrast, gel and paste crack-and-crevice treatments and self-contained baits often use smaller amounts of active ingredients and result in lower risk of exposure. These lower-risk application methods also tend to be more effective. Unlike sprays, which kill on contact, they're designed not simply to kill the targeted pest but to be picked up and carried by that pest back to destroy entire nests.

There is no silver bullet for tackling pest problems, but the solutions can be simple, effective and green. In schools, homes, offices, and parks, Californians have demonstrated that pests can be managed with common sense and healthy pest management. These solutions include:

- **Pest exclusion:** block entry points, hiding places and passages
- **Reduction of food and water sources:** repair leaky plumbing, store food properly, and take garbage out frequently
- **Manage pests with low-risk control products and application methods:** boric acid, self-contained baits, traps, and fly swatters

Unfortunately, many California students and school staff are exposed unnecessarily to pesticides because they do not all benefit from the protection provided by high quality integrated pest management programs – green strategies for effective pest management that are safer and usually less costly than traditional school pest control practices. To provide greater protection at schools nationwide, the US EPA recently launched an initiative to promote expanded use of integrated pest management. California now has an opportunity to be a leader in this national effort.

CHILDREN OVERBURDENED BY PESTICIDES

Parents, adults who work with children, and all of us who remember our childhood know intuitively that children interact with and experience the world differently than adults do. In the last twenty years, this intuition has been documented, formalized, and used to develop a new paradigm for policies about how toxic chemicals are used.

In a recent (2011) article entitled "Protecting Children From Pesticides and Other Toxic Chemicals," world-renowned pediatricians Philip Landrigan and Lynn Goldman discuss what they call the "unique exposures and exquisite vulnerabilities" of children to pesticides. They outline four principles that should be the foundation for any policies that concern children and pesticides:

• **For their size, children suffer greater exposure to toxic chemicals.** They breathe more air (pound for pound) than adults. They put almost anything in their mouths, and their play puts them routinely in greater contact than adults with the ground and other surfaces.

• **Children have more trouble ridding their bodies of toxic chemicals.** Because they're still developing, children's organs are not able to detoxify pesticides as well as those of adults.

• **Children face windows of pesticide-susceptibility that exist only in early development.** Pediatricians now talk about "windows of vulnerability." These are critical periods during pregnancy and childhood when exposure to a pesticide or other toxic chemical can cause "devastating injury" - permanent changes to the brain, for example.

• **The consequences of childhood exposure don't end in childhood.** Researchers find that many diseases triggered by pesticide exposure, like some cancers, start early in life, taking decades for the disease to manifest. Since children have more years of life ahead of them, they are at greater risk of developing diseases resulting from early exposure.

Because children spend significant amounts of time at school, the policies that govern pesticide use at schools must incorporate these principles. In California, and elsewhere, this means helping schools develop and implement integrated pest management so they can efficiently solve pest problems without exposing children to the most hazardous pesticides.

PROGRESS TOWARD GREEN SCHOOLS

In 2000, California enacted a landmark law, the Healthy Schools Act of 2000. The law requires public schools and child care facilities to keep records of pesticide use, notify parents about pesticide use, and post warning signs when pesticides are applied. The law also encourages schools to use "integrated pest management" (IPM), requires the Department of Pesticide Regulation to provide IPM training for schools, and defines what IPM means.

Because the definition of IPM has been controversial, the Healthy Schools Act defined IPM in the school context as a “pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as monitoring for pest presence and establishing treatment threshold levels, using nonchemical practices to make the habitat less conducive to pest development, improving sanitation, and employing mechanical and physical controls.”

Figure 1. Examples of Green (IPM) Pest Management Strategies Recommended for Schools by the Department of Pesticide Regulation

Pest Problem	Green Pest Management (IPM) (In order of preference)	Conventional Pest Control
Weeds	Hoeing, hand removal	Herbicides
	Adjust irrigation	
	Modify size or type of planting	
	Weed flamer	
	Hot water	
	Mulch	
	Herbicides	
Ants	Inspect and monitor	Insecticide sprays
	Sanitation (clean up food debris, empty garbage daily, etc)	
	Caulk cracks, crevices, and holes	
	Bait stations and bait gels	

As the success of the law became evident in public K-12 schools across the state, legislators looked for new opportunities to protect California children. In 2006, the law was updated to include private child care centers.

The Healthy Schools Act initiated important changes in the way that California schools manage pests. Many schools adopted pest management techniques that reduced their pesticide use.

For example, a 2007 Department of Pesticide Regulation survey found that over 90% of reporting schools used nonchemical weed management techniques like pulling or mowing. Almost 60% of those schools successfully reduced weed problems by using mulches, and almost half were using irrigation management to reduce weeds.

The same survey found that many schools had success using IPM techniques to treat insect pests like ants. Almost 70% of responding schools used caulking to keep ants out and close to 90% used improved cleaning practices to discourage ants.

Overall, schools districts found that IPM was a successful way to manage pests. Over 60% of the school districts participating in the survey reported that IPM was more effective in managing pests than what they had done previously. More than two-thirds found that IPM did not cost more than traditional techniques.

Along with the good news, the 2007 survey revealed that more work needs to be done to move *all* California schools toward safer, green pest management practices. In 2007, almost half of all California schools were still using high-exposure sprays to manage ants, a number that hasn't changed much since the Department's first survey in 2001. In addition, almost 40% of California schools were using high-exposure broadcast sprays for weed management, a percentage that has actually increased since 2001.

MODELING GREEN SUCCESS: PROFILES OF CALIFORNIA SCHOOLS

Across California, many schools are on pace to create the greenest, healthiest campuses for school children and teachers alike. These schools exemplify healthy pest management.

Ten years ago, Pesticide Watch Education Fund interviewed schools districts about efforts to reduce pesticide use on school grounds, the results of which were published in the CPR coalition report “Advancing Alternatives.” During March and April of 2011, we followed up with facilities managers at school districts around the state that are using IPM to find out about their experiences. We found, as might be expected, that every district is different. Some are enthusiastic about IPM, some just find it routine, but all of the districts – large to small – are successfully dealing with their pest problems. Some examples of what we found are the following:

For years the Los Angeles Unified School District (LAUSD) – the second largest school district in the nation – has proven that effective, green pest control is possible. While acknowledging that “every program will be unique,” LAUSD personnel are proud to show that a large school district (over 1000 sites) can successfully practice IPM. Since adopting its landmark IPM program in 1999, Los Angeles Unified has served as a model for schools in California and across the country, receiving numerous awards for its early preference for non-chemical techniques that increase the benefits and reduce the risks of pest control. For more than a decade LAUSD has successfully managed pests without relying on broadcast spraying or the use of pesticide bombs.

The much smaller Placer Hills Union School District has also seen success with its IPM program. Made up of only two schools, IPM has nevertheless saved the school district money. “We reduced costs by treating sites with pesticides when it is necessary, not annually as it was done in the past.” Pest management in this district is contracted with a private business.

San Francisco Unified School District (SFUSD) is an enthusiastic supporter of its IPM program, which has been in place since 1999. Known for having a strong written IPM policy, over the years SFUSD has received numerous requests for advice from other districts interested in crafting a good policy. The current director of facilities management started the IPM program and acts as a resource for other school districts.

Other enthusiastic supporters of IPM are the Santa Barbara School Districts. The facilities director reports that the districts have "definitely, successfully reduced the use of pesticides over the last ten years," with a dramatic reduction in the last five. There are 21 school sites in Santa Barbara with seven staff people who practice IPM.

The facilities manager at the Ventura Unified School District describes its IPM program as child centered: "It's a positive change because we are protecting children. We're here to provide a safe, clean learning environment. It's our job to protect the children by eliminating chemicals that are questionable."

Since 2001 the Palo Alto Unified School District has also used IPM techniques in place of herbicide spraying on its K-12 campuses, significantly reducing the pesticide exposure of approximately 11,000 students. According to public statements by the Parks Division Manager, “No pesticides are used at all at Palo Alto Unified School District athletic fields for 13 elementary and three middle schools.”

Parent Goli Sahba speaks to a reporter about efforts to make her school pesticide-free.

Success in Sacramento: Parents and Teachers Show Truly Green Campus at Language Academy

Parent Goli Sahba and teacher Lanae Davis noticed something wasn't right. Their vibrant garden was decaying around the edges. They had worked hard to build a garden that was thriving in the middle of one of Sacramento's poorest neighborhoods and schools. Unfortunately, the school maintenance official had been tasked with spraying pesticides to control weeds and grass borders while school was in session. So he sprayed along the edges of the garden, unknowingly using pesticides linked to a variety of adverse health problems.

"People think pesticides are benign because they're sold everywhere," Sahba said. "Maybe for adults it's not a big deal, but kids are more susceptible because their brains and bodies are still developing."

When parents and teachers learned about what was happening, the administration agreed to stop using pesticides. The school conducted a successful 3-month IPM trial, which proved that healthy pest management is as effective as treatment with pesticides. The school is now invested in a collective solution – everyone pulls weeds when they see them. And in the past few years, the school has maintained a beautiful green lawn and garden.

Members of Parents for a Safer Environment who worked with school officials to pass a successful Integrated Pest Management Policy.

Pesticide Mistake Turned Opportunity: Moraga Unified School District

In February 2005, the Moraga Unified School District (MUSD) hired a contractor to eliminate weeds at all four of their school sites. The contractor used a product called KleenUp herbicide. A child from one school arrived home complaining of an asthma attack. In another incident, two girls – one of whom is not normally an asthmatic – left the fields with symptoms and immediately reported their asthma attacks to the school secretary. At another school, a parent picking her children up noticed that certain areas of the playing field were turning yellow. She contacted the head of maintenance for the District and asked about the yellowing fields. Only at that point was it discovered that the herbicide had been applied.

Unfortunately, when the pesticide was applied, the contractor and the school district did not post notifications or otherwise notify parents, violating existing law. And it wasn't the first time either.

Although the affected children told their parents, and in one case a school secretary, about the asthma attacks, it was only happenstance that the herbicide treatments were ultimately identified as the cause. Months earlier, an informal group of parent volunteers had organized to challenge pesticide practices at Moraga Unified after becoming concerned about their own children's health when they witnessed even earlier pesticide applications on campus. While collecting signatures to pressure the district to adopt a written policy and implement a sound pest management program, they encountered the parents of the youngsters who had recently suffered asthma attacks. The parents told the volunteers about the incidents. After some investigation, the pieces of the story finally fell into place – the herbicide treatments on school fields were found to have triggered what had previously seemed like disconnected attacks.

At the time, the MUSD did not have a least-toxic pest management policy (IPM) and the staff did not have any healthy pest management training; thus, many decisions were being made by under or misinformed contractors and staff. Ultimately, however, a silver lining developed to the story. Like many schools, the accidents and the follow-up by parents eventually convinced the School Board to approve a written IPM policy.

On May 10, 2005, the MUSD adopted one of the most protective written IPM policies in the State of California, with restrictions on possible human carcinogens and hormone disruptors. By replacing unnecessary, routine insecticide spraying with low-cost bait stations, among other least toxic methods, the MUSD has actually saved money while protecting children's health.

WHAT'S IN MY SCHOOL?
COMMON PESTICIDES USED IN CALIFORNIA SCHOOLS

Each year, California collects information from licensed pesticide applicators who apply pesticides at schools. This is part of a larger reporting program that includes agricultural pesticide applications and applications made by structural pest control operators. It should be noted that pesticides applied by school staff, including janitors, maintenance staff, and teachers, are largely unreported. So the actual use of pesticides is likely greater. The reported numbers alone show that an enormous number of pesticide applications are made every year in California's schools. In 2009, the most recent year for which the Department of Pesticide Regulation has made the reports available, there were over 30,000 applications. This is about equal to the number of applications reported in 2002, but a huge increase over the approximately 20,000 applications reported in 2005.

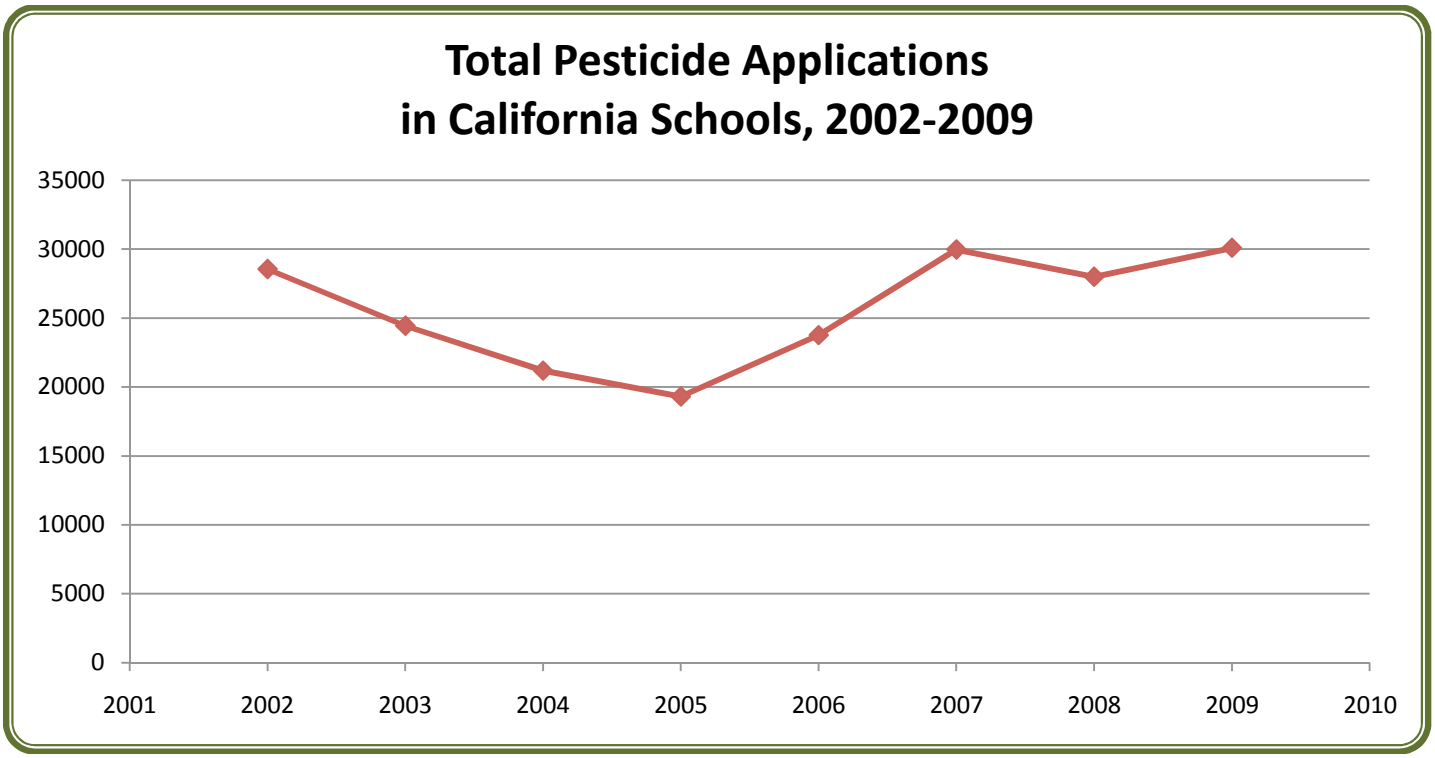

Figure 2. Pesticide use decreased in the 5 years after passage of the Healthy Schools Act of 2000. Pesticide use increased again in the successive 4 years, between 2005 and 2009.

Many of the pesticides used in California schools cause significant health problems. Some are linked to cancer, under the California Proposition 65 notification law, or are considered cancer-causers by the US Environmental Protection Agency. Other pesticides are linked to reproductive problems, brain damage, and groundwater contamination. To illustrate some of these problems, we selected the top five pesticides used in our schools between 2007 and 2009. A comprehensive listing of pesticides with over 100 applications in California schools is available in the appendix. A brief summary of how these pesticides are used and the health problems associated with them follows:

Aluminum Phosphide
Aluminum phosphide is used to kill rodents on school grounds. Over 15,000 applications were made to California schools between 2007 and 2009.

It is hazardous to breathe the phosphine gas, which is released when aluminum phosphide is used; therefore, the US Environmental Protection Agency classifies aluminum phosphide in its highest toxicity category. A tragic incident illustrates this toxicity: A woman who lived near a grain storage bunker fumigated with aluminum phosphide reported a strong odor while removing her laundry form her clothesline. Later that evening she was so ill that she went to the home of her doctor, saying she was dying. She was taken to the hospital and died several hours later.

Aluminum phosphide also causes genetic damage. In lab studies conducted for the manufacturer of this pesticide, exposure to aluminum phosphide damaged chromosomes in hamster cells.

Lambda-cyhalothrin
Lambda-cyhalothrin is a multipurpose insecticide. Almost 8,000 applications were made in California schools between 2007 and 2009.

The National Institute for Occupational Safety and Health (NIOSH) identifies two primary health concerns for lambda-cyhalothrin: genetic damage and reproductive harm. NIOSH identified four studies done with rats, fish, and other animals showing that lambda-cyhalothrin caused two kinds of genetic damage. Three studies with laboratory animals demonstrated reproductive problems, including death of newborns, decreased fertility, and early miscarriages.

US EPA does not have sufficient information to determine whether or not lambda-cyhalothrin causes cancer.

Fipronil
Fipronil is also a multipurpose insecticide. Almost 7,000 applications of fipronil were made in California schools between 2007 and 2009.

Symptoms of exposure to fipronil, according to the National Pesticide Information Center, include nausea, headaches, and dizziness. In laboratory tests in which animals were fed small amounts of fipronil for a year, this insecticide caused seizures and disruption of thyroid hormone levels. In similar laboratory tests, fipronil's breakdown product caused aggression and convulsions.

In other laboratory studies, fipronil exposure reduced fertility and caused thyroid tumors. US EPA classifies fipronil as a "possible human carcinogen."

Cyfluthrin
As with the chemicals above, cyfluthrin is a multipurpose insecticide. Almost 6,000 applications of cyfluthrin were made in California schools between 2007 and 2009.

The National Institute for Occupational Safety and Health identifies two primary health concerns for cyfluthrin: genetic damage and reproductive harm. NIOSH identified three studies done with rats and human cells showing that cyfluthrin caused two kinds of genetic damage. Three studies with laboratory animals demonstrated reproductive problems, including reduced growth and survival of newborns.

Deltamethrin
Deltamethrin is another multipurpose insecticide. Over 5,000 applications were made in California schools between 2007 and 2009.

As with lambda-cyhalothrin and cyfluthrin, the National Institute for Occupational Safety and Health identifies two primary health concerns for deltamethrin: genetic damage and reproductive harm. NIOSH identified seven studies done with rats, mice, and human cells showing that lambda-cyhalothrin caused five kinds of genetic damage. Eleven studies with laboratory animals demonstrated reproductive problems, including damaged sperm in fathers and birth defects, reduced survival, and behavioral problems in newborns.

It's worth noting that schools are kept in the dark when it comes to what's in many of the pesticide products they use. Unfortunately, "inert" or more aptly called "secret ingredients" aren't shared with applicators, schools, or parents. These ingredients may be linked to a variety of adverse health impacts, including cancers and developmental disabilities, but they still don't have to be disclosed.

PESTICIDES OF GREATEST CONCERN STILL USED IN SOME CALIFORNIA SCHOOLS

Many schools are taking steps to phase out the use of pesticides and replace them with safer products, including soaps and oils. Unfortunately, a handful of schools are making small applications of pesticides of the greatest concern. It's unclear why many of these products are still being used. What's clear is that these pesticides don't need to be used on school campuses and can easily be replaced, given their limited usage.

Cancer
Increasingly, science demonstrates a link between pesticides and various forms of cancer, spurring the uncontrolled growth of abnormal cells in the body. Oxadiazon, an herbicide used for weed control, is listed by the State of California as a known carcinogen and developmental toxicant under Proposition 65. Oxadiazon was nevertheless applied some 20 times on school campuses in 2009.

Birth Defects and Other Reproductive Harm
The ant killer Hydramethylnon is a Proposition 65 chemical, known to the State of California to be a developmental toxicant, and yet it was applied over 500 times in each of the last five years on record.

Endocrine Disruption
The endocrine system is made up of glands and hormones that regulate vital functions such as body growth, response to stress, sexual development and behavior, production and utilization of insulin, rate of metabolism, intelligence and behavior, and the ability to reproduce. The insecticide Abamectin, for example, was used only nine times in the last year on record, but it's a suspected endocrine disruptor as well as a reproductive toxin.

Cholinesterase-inhibitors
Cholinesterase-inhibiting chemicals prevent nerves from functioning properly. They are a family of older insecticides whose use has declined recently. These chemicals not only affect insect nerves, but can also affect a child's nervous system. Three cholinesterase-inhibiting pesticides, malathion, acephate and ethephon, were applied 6, 5 and 4 times, respectively, in California schools in 2009.

HELP NEEDED: ENABLING SCHOOLS TO BECOME GREEN PEST MANAGEMENT LEADERS

IPM only works when schools have someone knowledgeable in the practice. Without that initial understanding of what IPM entails – understanding the habits and biological needs of specific pests and having knowledge of alternative treatments – successful transition from more conventional pesticide treatment to greener pest management techniques is not possible. For that reason, ensuring that all school districts receive training in IPM is critical.

Fortunately, ever since passage of the Healthy Schools Act of 2000, the Department of Pesticide Regulation has offered a statewide IPM training program for school IPM coordinators, maintenance staff, and operations personnel. The trainings emphasize hands-on instruction in prevention practices and least hazardous treatments for common school pests. As required by the 2000 Act, the trainings use a "train-the-trainer" approach so that staff who attend the trainings are equipped to train other staff in their districts. To help with this wider training, DPR also provides curriculum for some common pests. The trainings are often held at schools and include tours of schools. DPR has recently invited schools to host trainings, giving schools the opportunity to have staff attend the training without travel costs.

Despite having offered IPM training to California school districts for more than 10 years, DPR estimates that about 25% of school districts have never sent anyone to attend one of these trainings.

DPR offers extensive IPM resources on its school IPM web site as well. These are available to schools whether or not they have attended the trainings. The trainings provide the additional benefit of hands-on instruction as well as the opportunity to network with other professionals involved in school IPM.

RECOMMENDATIONS

With the passage of the Healthy Schools Act of 2000, California schools took important steps to reduce the use of pesticides on their campuses. Many schools have reduced the number of pesticide applications they make each year, while adopting green pest management techniques. Unfortunately, some schools are still reliant on outdated pesticides of particular concern, especially those linked to cancer, endocrine disruption and cholinesterase-inhibition. But we have an opportunity to build upon the legacy of the Healthy Schools Act and make schools even healthier places to learn, teach and play.

Green schools are within reach. To achieve this vision, we suggest the following recommendations:

State government and local school districts should work in partnership to ensure that schools have the training and capacity to create healthy learning environments. Participation in the Department of Pesticide Regulation training School IPM programs is too low. The State and school districts should promote training, and encourage as many school staff to attend as possible. A majority of California schools have adopted at least half of the key practices of green pest management. School staff need the training and support to adopt the remaining half.

Schools should be encouraged to adopt green pest management policies. Schools across the state, from Los Angeles Unified School District to Moraga Unified School District, have found that articulating goals and restrictions is necessary to protect children's health while more effectively managing pest problems. School districts should incentivize green pest management with an eye toward water savings, healthier lawns and landscapes that embrace cost-effective maintenance and healthier children.

State leaders should find ways to remove the worst pesticides from school shelves. Some of the most toxic pesticides are still being used on school campuses, including those linked to hormonal defects, cholinesterase inhibition and cancer. Even in parts per trillion these pesticides can have a profound and adverse impact on a developing child. The Department of Pesticide Regulation and State Legislature should use their full power to keep these pesticides out of schools and away from children.

APPENDIX

Pesticide Use in California Schools, 2007-2009

Over 200 Total Applications

Between 100 and 200 Total Applications

Under 100 Total Applications

Active Ingredients	Number of Applications 2007	Number of Applications 2008	Number of Applications 2009	Prop 65	Applications	Carcinogen	Neurotoxin/ Cholinesterase Inhibitor	Reproductive/ Developmental Toxin	Endocrine Disruptor
ALUMINUM PHOSPHIDE	5277	4351	6149	No	Fumigant, Insecticide	Unclassifiable	No		
LAMBDA-CYHALOTHRIN	2301	3156	2364	No	Insecticide	Unclassifiable	No		Suspected
CYFLUTHRIN	2243	1953	1705	No	Pyrethroid	Not Likely	No		
ABAMECTIN	1946	662	489	No	Insecticide	Not Likely	No	High concern	Suspected
FIPRONIL	1937	2746	2130	No	Insecticide	Possible	No		Suspected
DELTAMETHRIN	1504	1582	1950	No	Insecticide	Not Likely	No		
BIFENTHRIN	1361	883	343	No	Insecticide	Possible	No	High concern	Suspected
BROMADIOLONE	1288	1498	1407	No	Rodenticide		No		
BETA-CYFLUTHRIN	1276	1785	852	No	Insecticide		No		
PIPERONYL BUTOXIDE	1018	372	304	No	Synergist	Possible	No		Suspected
DIPHACINONE	812	379	615	No	Rodenticide		No		
CYPERMETHRIN	668	509	522	No	Insecticide	Possible	No		Suspected
HYDRAMETHYLNON	607	543	461	Yes	Insecticide	Possible	No	High concern	
BORIC ACID	584	770	439	No	Fungicide	Not Carcinogenic	No		
PYRETHRINS	533	461	511	No	Insecticide	Not Likely	No		

Active Ingredients	Number of Applications 2007	Number of Applications 2008	Number of Applications 2009	Prop 65	Applications	Carcinogen	Neurotoxin/ Cholinesterase Inhibitor	Reproductive/ Developmental Toxin	Endocrine Disruptor
PHENYLETHYL PROPIONATE	504	297	184	No	Repellent, Fragrance, Insecticide, Pheromone		No		
PIPERONYL BUTOXIDE, OTHER RELATED	464	204	219	No	Synergist	Possible	No		
STRYCHNINE	417	747	575	No	Avicide, Rodenticide		No		
CHLORFENAPYR	378	555	582	No	Insecticide	Suggestive	No		
PERMETHRIN	348	316	430	No	Insecticide	Likely	No		Suspected
ESFENVALERATE	329	284	383	No	Insecticide	Not Carcinogenic	No		Suspected
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE	301	111	95	No	Synergist	Possible	No		
PYRIPROXYFEN	204	16	62	No	Insecticide	Not Carcinogenic	No		
ISOPROPYL ALCOHOL	203	204	519	No	Microbicide,	Unclassifiable	No		
CHLOROPHACINONE	199	250	717	No	Rodenticide		No		
GLYPHOSATE	189	210	242	No	Herbicide	Not Carcinogenic	No		
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY(OXYETHYLENE)	181	177	194	No	Adjuvant		No		
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE) 340	181	177	194		No	Adjuvant		No	
BORAX	172	282	226	No	Insecticide		No		
TALL OIL	162	148	170	No	Adjuvant		No		
TRICLOPYR, BUTOXYETHYL ESTER	135	39	47	No	Herbicide	Unclassifiable	No		
ZINC PHOSPHIDE	127	102	193	No	Rodenticide		No	High Toxicity	
HYDROPRENE	125	94	83	No	Insect Growth Regulator	Unclassifiable	No		
BRODIFACOUM	124	36	82	No	Rodenticide		No		

Active Ingredients	Number of Applications 2007	Number of Applications 2008	Number of Applications 2009	Prop 65	Applications	Carcinogen	Neurotoxin/ Cholinesterase Inhibitor	Reproductive/ Developmental Toxin	Endocrine Disruptor
ORYZALIN	90	76	230	No	Insecticide	Likely	No		
EDTA	40	57	340	No	Adjuvant		No		
COCONUT DIETHANOLAMIDE	40	56	340	No	Insecticide, Fungicide, Rodenticide, Soap/Surfactant	High Toxicity	No		
DODECYLBENZENE SULFONIC ACID	40	56	340	No	Adjuvant, Microbicide, Insecticide		No		
SILICONE DEFOAMER	40	56	340	No	Adjuvant		No		
SODIUM XYLENE SULFONATE	40	56	340	No	Adjuvant		No		
TETRAPOTASSIUM PYROPHOSPHATE	40	56	340	No	Fungicide, Herbicide, Microbicide, pH Adjustment		No		
TRIETHANOLAMINE	40	56	340	No	Adjuvant, Microbicide, Insecticide	Unclassifiable	No		
TRIFLURALIN	6	103	65	No	Herbicide	Possible	No		Suspected
THYME	0	176	176	No	Insecticide		No		