# Pesticide Use in Alameda County Private Schools

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**Abstract** Pesticides are hazardous to everyone's health, but particularly to the health of children. Therefore, pesticide use in schools is a major concern. California's Healthy Schools Act of 2000 regulates aspects of public school pesticide use, but pesticide use in California's private schools is entirely unregulated. The purpose of this study was to gather information on how private schools currently control their pests, as the first step toward determining whether regulation of private school pesticide use is necessary. All 224 private schools in Alameda County, California, were surveyed by mail with regard to their pest control policies, in particular their use of integrated pest management and the extent to which they are in compliance with the Healthy Schools Act, even though the Act does not apply to them. Forty schools returned the survey. Neither school size nor budget was found to have a significant effect on integrated pest management use or Healthy Schools Act compliance. Results indicate that a relatively large proportion of private schools use no pesticides at all, even when compared with public schools after the Healthy Schools Act was implemented. Among private schools, small schools were found to be less likely to use pesticides than large schools. There is much that private schools could do to reduce the risk of harm to children, including increasing the use of integrated pest management strategies and, if pesticides are used at the school, notifying students' parents of this use.

## Introduction

Pesticides pose a variety of threats to human health. Various pesticides are known or suspected to cause cancer, reproductive and developmental disorders, and disruption of the nervous system (McKendry 2002). This is unsurprising, considering pesticides' function; according to the Environmental Protection Agency's Office of Pesticide Programs (2002), "by their very nature, most pesticides create some risk of harm to humans, animals, or the environment because they are designed to kill or otherwise adversely affect living organisms."

Children may be at higher risk than adults of being harmed by pesticide exposure, due to both their behavior and their physical makeup. Pesticides enter children's bodies primarily through inhalation, ingestion, and skin absorption (NRC 1993). Young children tend to spend more time that adults on or near the ground, where the concentration of pesticides is relatively high (Mott 1997). Physically, not only do children have higher skin surface area per body weight than adults, they also differ from adults in terms of maturity of biochemical and physiological functions, body composition, and anatomy, all of which may influence their susceptibility to pesticides (NRC 1993). Pesticide exposure may alter a child's growth and development, leading to irreversible damage (NRC 1993). Several studies have found a correlation between pesticide exposure and an increased risk of childhood leukemia and brain cancers (Zahm and Ward 1998). Other studies suggest that children are more susceptible than adults to organophosphate pesticides, a class of pesticides that affect the functioning of the nervous system (Eskenazi *et al*. 1999).

Children are exposed to pesticides in many settings, including in and around their schools. Between 1993 and 1996, the American Association of Poison Control Centers reported 2,300 cases of pesticide-related exposure at schools; and this number is probably an underestimate of the true figure as a result of misdiagnoses and underreporting (USGAO 1999). Nationwide, 33 states regulate school pesticide use in some way, but only one (Massachusetts) prohibits the use of even the most dangerous pesticides in schools (Owens and Feldman 2002). California began regulating school pesticide use in 2000, with the passage of the Healthy Schools Act (HSA). The HSA applies to public daycare, kindergarten, elementary, and secondary schools. It requires all these schools to do three things: (1) notify parents at the beginning of each school year regarding the pesticides that will be used at the school that year, and give parents the option of registering to be notified in advance of each pesticide application; (2) post signs in areas where pesticides

are applied; and (3) keep records of pesticide use. It also encourages school districts to use least-toxic integrated pest management (IPM) methods. IPM is "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, establishing threshold levels at which treatment should begin, using non-chemical pest-control methods whenever possible, and, if a pesticide is necessary, using the least-toxic one that will be effective (CDPR 2000).

A number of California public school districts have adopted IPM methods, and most of the largest districts have made some progress toward complying with the other requirements of the Healthy Schools Act (McKendry 2002). Ten percent of all children in California attend private schools, however (US Dept. of Ed., NCES 2001), and their schools are not regulated by the HSA. The state could regulate private school pesticide use; it regulates private schools in many other ways, including prohibiting them from allowing elementary-aged children to use toxic art materials (US Dept. of Ed., ONPE 2000). At present, however, it is simply unknown whether regulation of pesticide use in private schools is needed – there have been virtually no studies done on private schools' pest control practices.

The purpose of this study was to discover how private schools are currently controlling their pests – in particular, the extent to which they are using IPM methods – and to determine which factors affect their pest control strategies. I also examined whether private schools are for the most part "complying" with the regulations of the HSA, even though it does not apply to them. Finally, I examined how much schools know about their own pest-control practices. I hypothesized that both the degree to which a school uses IPM methods and the degree to which it "complies" with the HSA are correlated with (1) school size (number of students) and (2) school budget per student. My reasoning for these hypotheses was that larger schools and schools with higher budgets per student tend to have more resources and/or more organizational structure than smaller schools and schools with lower budgets, respectively, and the former are therefore more likely to have the opportunity to practice IPM and to "comply" with the HSA.

Testing these hypotheses is the first step toward determining whether regulation of private school pesticide use is necessary, and if so, what kind of regulation would be appropriate. To test my hypotheses, I sent surveys to 224 private schools in Alameda County, California, regarding their pest control practices.

**Methods**

Surveys were sent to the 224 private schools in Alameda County that include at least one grade level between kindergarten and 12th grade. The schools were identified through two online databases: the US Department of Education, National Center for Educational Statistics' *Private School Universe Survey* data (2000), and the California Department of Education's *California School Directory* (2003). The data on the former are from the 1999-2000 school year, and the data on the latter are updated frequently. Neither of these databases is entirely comprehensive, and thus I used both in order to obtain as complete a list as possible.

My survey (see Appendix) consists of 17 questions, some of which have multiple parts. Questions 1-3 regard school characteristics; 4-10 regard general pest-control policies; 11-13 regard integrated pest management; and 14-17 regard compliance with the Healthy Schools Act. My rationale for including each of these questions is explained below.

Questions 1 and 3 (see Appendix for the questions themselves) directly address the two independent variables I am studying: school size and budget. The purpose of question 2 was to ensure that surveyed schools include at least one grade between kindergarten and 12th; schools that did not were not included in my analysis. Question 4 requests a copy of schools' pest-control policies, for the purpose of supplementing the information received from the surveys. The purpose of questions 5 and 6 was to get an idea of how many different pest-control contractors are used. Question 7 was used to divide the schools into two groups: those that use pesticides (and so received a HSA compliance score as well as an IPM score; see below), and those that do not (and so did not receive a HSA compliance score). The purpose of questions 8, 9, and 10 was to determine whether schools were at least making an effort to use IPM; and if not, why not.

Questions 11-13 were used to give each school an integrated pest management score (Table 1). These questions asked schools whether they practice certain pest-control strategies that I determined, through the use of the California Department of Pesticide Regulation's School IPM Model Program Guidebook (2000), to be the most important elements of a school IPM program. This guidebook was designed to be used by public school districts that want to adopt IPM programs. I divided IPM methods into three categories: prior to pest-control; non-pesticide control; and pesticide policies. Each school received an IPM score out of eight possible points.

The three categories were weighted nearly equally, though the first was weighted slightly less than the other two because it contributes slightly less directly to student health and safety.

| Question number | Topic | Points possible | Point breakdown |
|---|---|---|---|
| 11 | Prior to pest-control | 2 | 1 for monitoring<br>1 for setting threshold levels |
| 12B | Non-pesticide control methods | 3 | 1 for each policy, up to 3 |
| 13 | Pesticide policies | 3 | 1 for using pesticides as last resort<br>1 for using least-toxic pesticides<br>1 for spot-treating |

Table 1. Point breakdown of integrated pest management score. Total points possible = 8.

Most schools that left question 11, 12B, or 13 blank, or checked "don't know" for any of these questions, received zero points for the blank or "don't know" responses. However, schools that do not use any pesticides were not requested to answer question 13, but nevertheless received the full three points for this question. My reasoning for this was that using no pesticides at all is at least as safe as the most responsible pesticide policy.

Finally, questions 14-17 were used to give each school that uses pesticides a Healthy Schools Act compliance score (Table 2). These questions were designed through an examination of the Healthy Schools Act itself. The HSA requires public school districts to do three things: (1) notify students' parents annually regarding the pesticides that are used at the school, and give parents the option of registering to be notified at least 72 hours prior to each pesticide application; (2) post notices in areas of pesticide application, putting them up at least 24 hours before the application and removing them 72 hours after the application; and (3) keep records of pesticide use, available to the public upon request, for four years. Schools that use pesticides were given a HSA compliance score out of 12. Schools that do not use pesticides did not receive a score, since the HSA is concerned solely with issues relating to pesticide use. Each of the three areas covered by the HSA – notification, posting signs, and record-keeping – were weighted equally, at four points each. Within each category, three points were given for basic compliance – for example, posting signs – and one point was given for doing so within the time constraints or in the manner described by the HSA. My rationale for this is as follows: I believe that a school that (for instance) posts signs in areas of pesticide use is doing much to comply with the

HSA, and thus should receive most of the credit for compliance, even if signs are not left up for the full duration mandated by the HSA.

| Question number | Topic | Points possible | Point breakdown |
|---|---|---|---|
| 14 | Notification – general | 2 | 1.5 for any notification<br>0.5 if notification is at least annual |
| 15 | Notification – prior to application | 2 | 1.5 for any prior notification<br>0.5 if notification is ≥ 72 hours prior |
| 16 | Posting signs | 4 | 3 for any posting<br>0.5 if posting is ≥ 24 hours in advance<br>0.5 if signs are removed ≥ 72 hours later |
| 17 | Record-keeping | 4 | 3 for keeping records of any sort<br>0.5 if records are kept for ≥ 4 years<br>0.5 if records are available to public |

Table 2. Point breakdown of Healthy Schools Act compliance score. Total points possible = 12.

As with the IPM score, schools that left questions blank, or chose the "don't know" response, received zero points for these questions. Points were given only for affirmative responses.

The United States mail was used to send a survey to each school. School addresses were obtained from the online databases. Included with each survey was a cover letter explaining my project and including the elements of informed consent. Also included with each survey was stamped return envelope.

I requested that schools return the surveys within two weeks of the mailing date. Two weeks after mailing the surveys, I sent postcards to those schools that had not yet responded. These postcards requested that surveys be returned as soon as possible, and explained the correct interpretation of question 7. This question was ambiguous; it had been intended to mean "Are any pesticides used at your school, including pesticides used by contractors?" but could also have been interpreted "Do school employees apply any pesticides, apart from pesticides used by contractors?" The correct reading was given in the reminder postcards.

A number of the returned surveys were incomplete or needed clarification. However, many responding schools had not provided contact information, and so I was not able to follow up with them. Phone calls were made to those schools that had provided contact information and returned incomplete surveys.

**Statistical Techniques** Regression analysis was done on the following four pairs of variables: (1) IPM score and school size; (2) HSA compliance score and school size; (3) IPM score and budget per student; and (4) HSA compliance score and budget per student. In addition,

chi-square analysis was used to test for a relationship between the size of a school and whether the school uses pesticides.

**Results**

Forty schools, 18% of my sample, returned the survey. This number does not include one responding school that was ineligible because it did not include at least one grade level between kindergarten and 12th grade. Figure 1 characterizes the 40 eligible responding schools in terms of school size and budget.

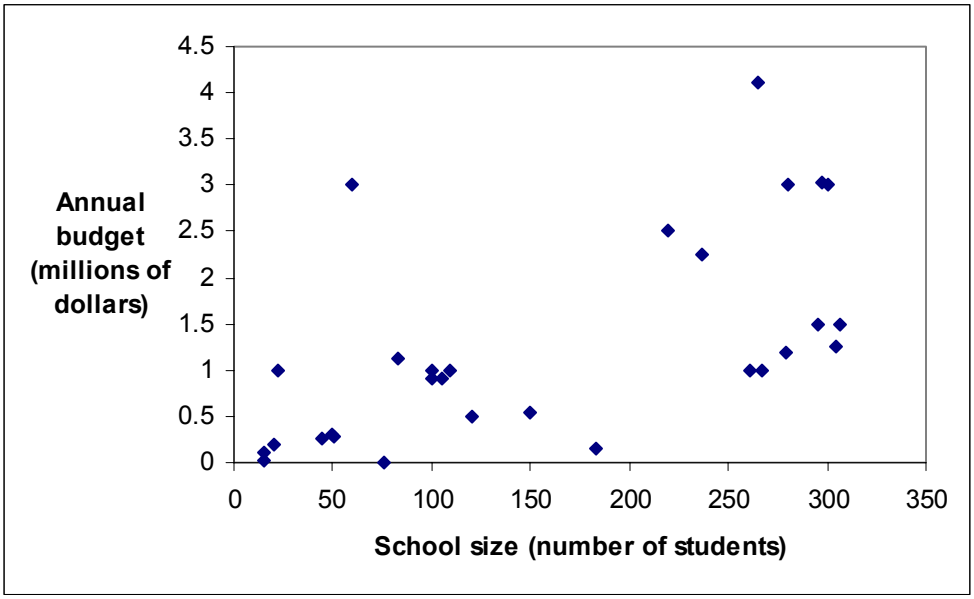


Figure 1. School size and annual budget of responding schools (n=29). This figure does not include data from eleven schools that did not report budgets. The mean size of these eleven schools is 160 students, with a standard error of 45 students.

Compiled results for most survey questions are displayed in Table 3. The average IPM score was 4.3 out of 8 (range: 0 to 7), and the average HSA compliance score was 2.7 out of 12 (range: 0 to 11.5). See questions 14-17 in Table 3 for a breakdown of the HSA compliance scores. Figures 1, 2, and 3 display the results for the three categories of the IPM score: prior to pest-control, non-pesticide control methods, and pesticide policies.

| Topic | Question Number | Question | Number Responding | Yes | No | Don't know | Notes |
|---|---|---|---|---|---|---|---|
| **General** | 4 | Written policy? | 39 | 1 | 38 | | |
| | 5 | Private firm or school employee? | 32 | | | | Private only: 17<br>School only: 8<br>Both: 7 |
| | 6 | Contractor information | 19 | | | | # Different contractors: 15<br># Schools employing most common contractor: 5 |
| **IPM Knowledge** | 8 | Familiar with IPM? | 40 | 3 | 37 | | |
| | 9 | Practice IPM? | 3 | 2 | 1 | | |
| | 10 | Why not? | 1 | | | | Reason: Don't know enough about it |
| **HSA Compliance** | 14A | Notify parents? | 18 | 1 | 16 | 1 | |
| | 14B | How often? | 1 | | | | Response: Annually |
| | 15A | Advance notification? | 17 | | | 1 | Notify all in advance: 4<br>Option to register: 0<br>Neither: 12 |
| | 15B | How far in advance? | 4 | | | | ≥ 72 hours: 2<br>< 72 hours: 2 |
| | 16A | Post notices? | 18 | 5 | 12 | 1 | |
| | 16B | How long before/after? | 3 | | | | ≥ 24 hours before: 2<br>≥ 72 hours after: 3 |
| | 17A | Keep records? | 18 | 7 | 8 | 3 | |
| | 17B | How long? | 6 | | | 1 | ≥ 4 years: 4<br>< 4 years: 1 |
| | 17C | Publicly available? | 6 | 3 | | 3 | |

Table 3. Partial survey results. See Appendix for complete survey questions.

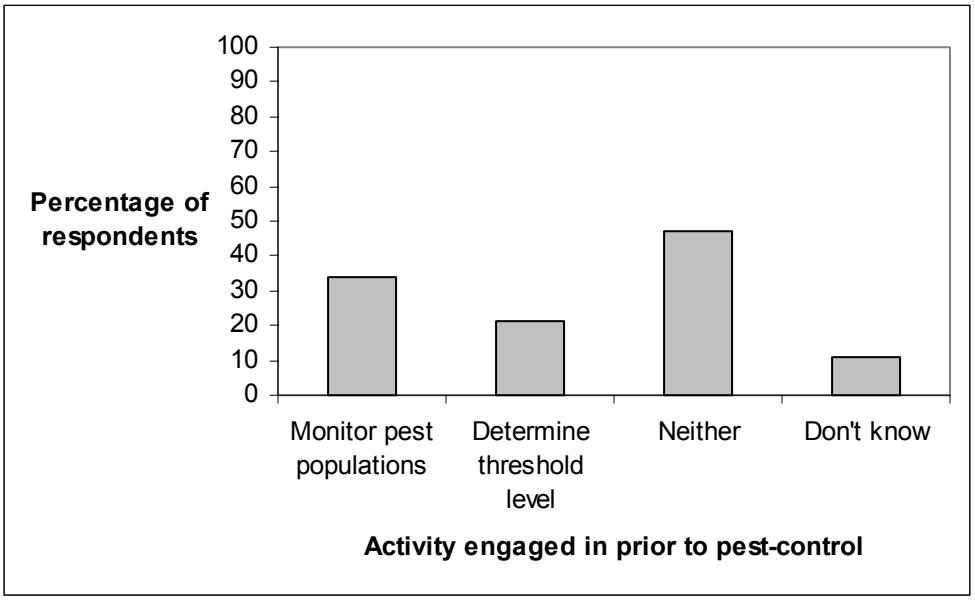


Figure 1. Frequency of "prior to pest-control" IPM strategies (n=38). These data were taken from responses to survey question 11, which read, "Before deciding on a pest-control strategy, does your school…?"

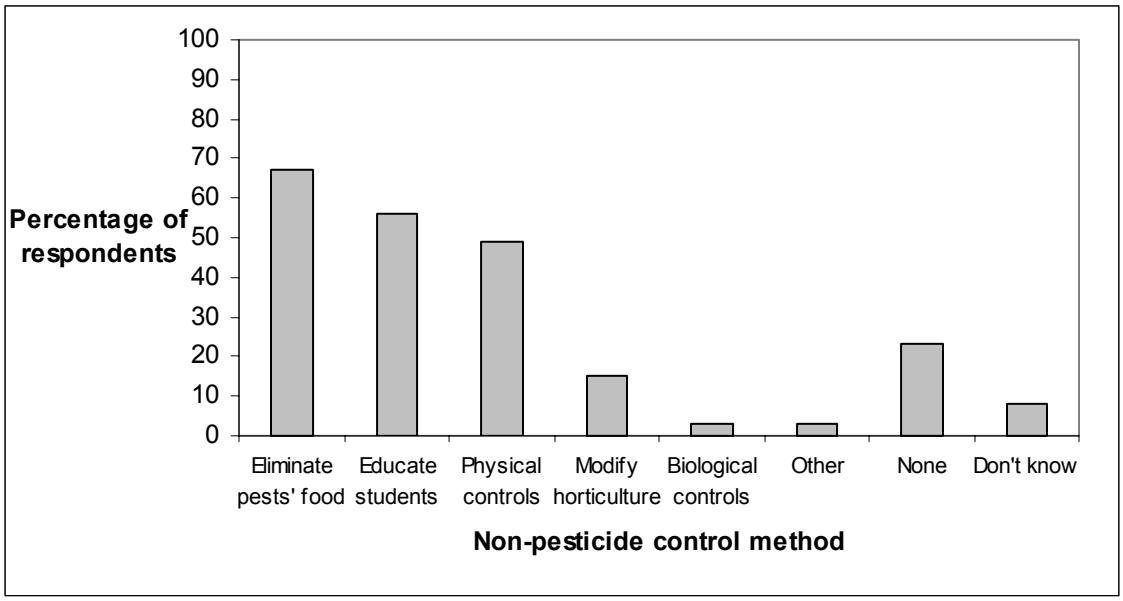


Figure 2. Frequency of non-pesticide control methods (n=39). These data were taken from responses to questions 12A and 12B, which read, "Does your school use any non-pesticide control methods? If so, which of the following methods are used?"

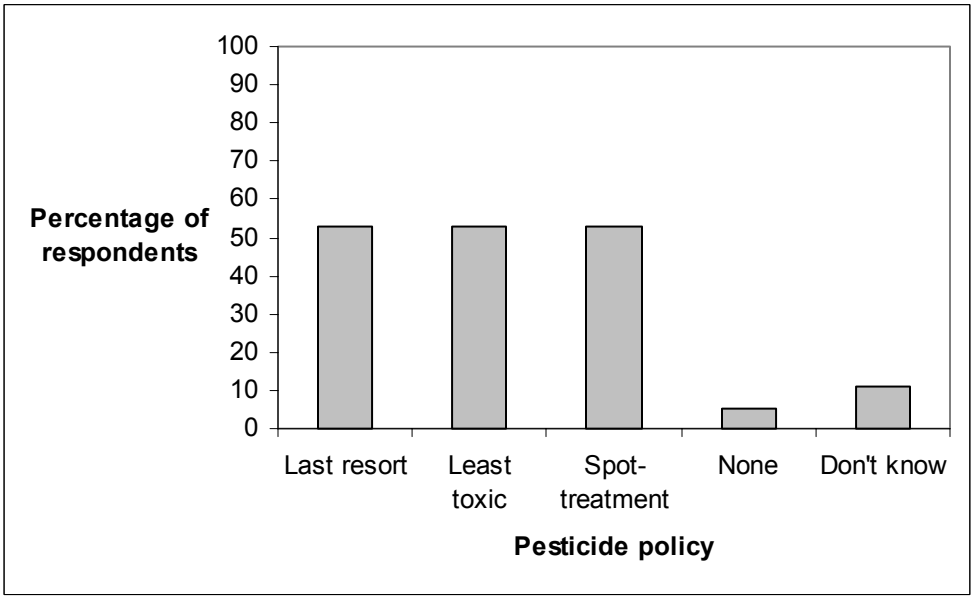


Figure 3. Frequency of IPM pesticide policies (n=19). These data were taken from responses to question 13, which read, "Which of the following are true of your school's use of pesticides?" This question was only answered by respondents who reported using pesticides.

Regression analysis revealed no significant relationship between IPM score and school size ($R^2$=0.004; df=1,32; F=0.14; P=0.71), HSA compliance score and school size ($R^2$=0.03; df=1,17; F=0.56; P=0.47), IPM score and budget per student ($R^2$=0.08; df=1,21; F=1.8; P=0.19), or HSA compliance score and budget per student ($R^2$=0.05; df=1,10; F=0.49; P=0.50). Omitting one large outlier did not affect the significance of these results. However, chi-square analysis revealed a relationship between school size and pesticide use (Fig. 4): small schools were less likely than large schools to use pesticides ($X^2$=9.66, n=34, P=0.0019). Schools with ambiguous responses regarding pesticide use were not included in this analysis. Schools that answered survey questions 13-17 were categorized as using pesticides, regardless of their answer to question 7.

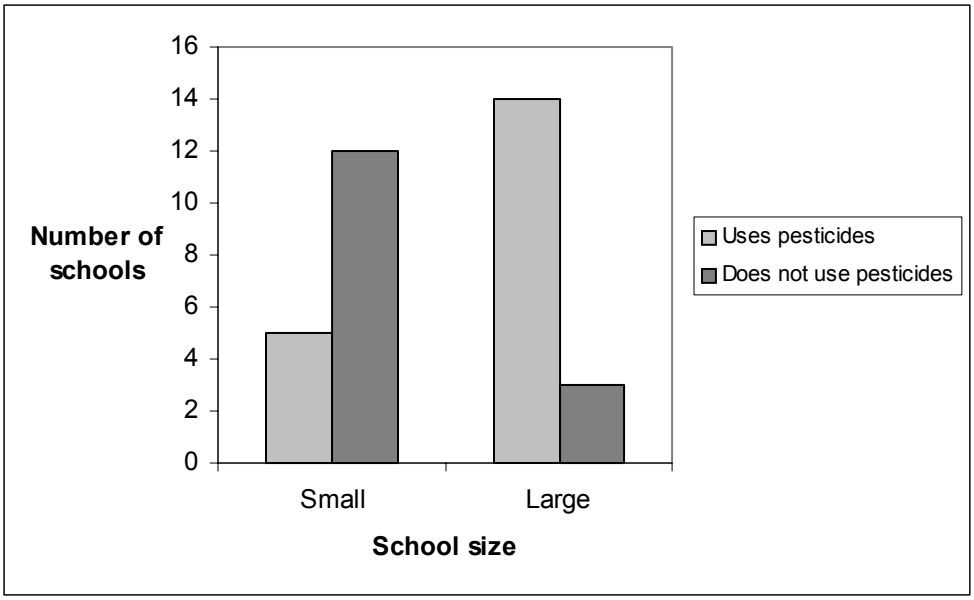


Figure 4. School size and pesticide use. Small schools range in size from 14 to 109 students, large schools from 120 to 430 students.

**Discussion**

The response rate for this study was only 18%. Bernard (1994) writes that response rates for mailed surveys in non-highly industrialized nations are likely to be as low as 20-30%; in highly industrialized nations, presumably, response rates should be higher. My low response rate was probably the result of a number of factors. The survey might have appeared threatening to some recipients, particularly those (if any) that feel defensive about their school's pest-control policies. Other recipients may have failed to respond simply because they were ignorant of their school's

policies. The response rate might also have been a result of inadequate follow-up; but the fact that response did not increase much after reminder postcards were sent indicates that more follow-up might not have been particularly helpful. Low response rate is problematic for two reasons: it decreases the power of the results, and it may result in a non-representative sample of the population (bias). In this study, bias could have arisen in that schools that are particularly proud of their pest-control policies may have been more likely to respond than those that were not, thus leading me to conclude that private schools have better pest-control policies than is in fact the case.

Results were affected not only by the response rate, but also by the fact that some survey responses were ambiguous. In a number of cases, the person who filled out the survey had incomplete information about their school's pest-control policies. Some private schools use the facilities of another organization, such as a church, which is responsible for pest-control on the premises. In addition, three-quarters of schools surveyed employ contractors for at least some of their pest-control (Table 3), and some of these schools are not aware of their contractors' methods. Finally, survey question 7 was ambiguous; I had intended to ask whether any pesticides were used at the school, but the question could be interpreted as asking whether school employees themselves apply any pesticides, apart from pesticides used by contractors.

Despite the problems of low response rate and ambiguity of responses, a number of interesting conclusions can be drawn from my study. First of all, more than 40% of responding schools use no pesticides at all. This is in sharp contrast to public schools. A study of 46 California public school districts, conducted before the Healthy Schools Act, found that 93% of districts used pesticides (Kaplan *et al*. 1998). And since the HSA was passed, most districts continue to use pesticides; a 2002 survey of the fifteen largest public school districts in California found that all but two of these – Oakland Unified and San Francisco Unified – use pesticides in significant quantities (McKendry 2002). This indicates that pesticide use is less of a concern in private than public schools, simply because pesticides are less likely to be used. However, the comparison may be misleading, since a district that uses pesticides may not use them at each school site. Unfortunately, data on pesticide use at individual public school sites have not been collected.

A possible explanation for the difference between private and public school pesticide use becomes apparent when we consider the difference between small and large private schools. As

Figure 4 illustrates, pesticides are more likely to be used in large private schools than small private schools (measuring school size in terms of number of students). Since public schools, and especially public school districts, tend to be larger than private schools, the difference between private and public schools may just be a reflection of these size differences. School size may influence pesticide use for a variety of reasons, one being that schools with fewer students have smaller facilities, and thus are less likely to be faced with pest problems. If there are no pests, then there is no motivation for using pesticides.

Even if private schools are less likely than public schools to use pesticides, there is still much progress that could be made to ensure the safety of private school students. The vast majority of private schools are not familiar with integrated pest management (Table 3). Clearly, it is important for schools that currently use pesticides to become familiar with IPM in order to decrease the risk of harm pesticide application poses to students and staff. In addition, since a number of schools probably do not use pesticides simply because they do not have pests, even schools that do not currently use pesticides should be familiar with IPM strategies. If they are faced with pest problems in the future, these schools may turn directly to pesticides unless they know of alternative pest-control methods.

Interestingly, despite the fact that so few schools claimed familiarity with IPM, the average IPM score was more than 50%. In particular, well over half of respondents use one or more non-pesticide control method, the most common being eliminating pests' sources of food, water, and shelter, and educating students and staff about ways to avoid pest infestation (Fig. 2). In addition, just over half of respondents who use pesticides reported spot-treating, using the least-toxic effective pesticides, and using them only as a last resort (Fig. 3). This indicates that these elements of IPM are more matters of common sense than strategies that must be learned. On the other hand, most schools do not monitor for pest presence or determine threshold pest population sizes before deciding on a pest control strategy (Fig. 1). These elements of IPM are perhaps less obvious, and need to be taught.

The average Healthy Schools Act compliance score of 22% indicates that those private schools that use pesticides are not, for the most part, "complying" with the HSA. Private schools are currently posting notices and notifying parents of pesticide use at approximately the same rate that public schools were doing these things before the HSA. My data indicate that 28% of responding private schools post notices of pesticide use, and 24% provide advance notification of

this use (though only 1 school provides regular annual notification). Olle (2000) studied 13 public school districts in California just before the HSA was passed, and found that 38% posted notices of pesticide use and 15% provided prior written notification to parents and teachers. Public school districts have increased their rates of these activities since the HSA (McKendry 2002), and it is likely that that same would happen in private schools if they were regulated as well. Table 3 reveals that private schools are currently more likely to keep records of pesticide use (39%) than to post notices or notify parents. The reason for this may simply be that one who is not familiar with the Healthy Schools Act is more likely to think of keeping records of pesticide use, and possibly of posting notices, than of notifying parents.

Table 3 reveals that only one school reported having a written pest-control policy. Interestingly, this school also received the highest Healthy Schools Act compliance score: 11.5 out of 12, far above the average score of 2.7. Although there is probably not a causal relation between having a written policy and complying with the Healthy Schools Act, developing a written pest-control policy forces a school to examine how it controls its pests, and this may result in more responsible pest-control methods than the school had before developing the written policy.

Overall, my results indicate that a smaller proportion of private schools than public schools use pesticides, but this may simply be due to the fact that private schools tend to be smaller than public schools, and small schools are less likely than large schools to have pest problems. Regardless, private schools still have much to accomplish in the way of pest-control. Many private schools are unaware of how pests are controlled on their premises. Very few have written policies or are familiar with IPM strategies, and most are not "complying" with the Healthy Schools Act, particularly in the area of parental notification. Private schools should be educated about integrated pest management strategies and encouraged to develop written pest-control policies incorporating elements of IPM. If the Healthy Schools Act is not expanded to include private schools, these schools should at least be encouraged to comply with it voluntarily. Improvement in these areas is crucial in order to ensure the health and safety of private school students.

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**Appendix: Pest-Control Survey**

Your name:
Job title:
Telephone number:

1. How many students currently attend your school? _____

2. Please circle the grade levels that your school includes:

Pre-K K 1 2 3 4 5 6 7 8 9 10 11 12
If your school is ungraded, check here: □

3. What is your school's annual budget? _____

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NOTE: Please keep the following definitions in mind while completing the survey:
The term **pest** refers not only to insects, but also to mice and other animals, unwanted plants (weeds), fungi, and microorganisms like bacteria and viruses.
A **pesticide** is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. This includes not only insecticides, but also herbicides, fungicides, and various other substances. (EPA Office of Pesticide Programs, www.epa.gov/pesticides)

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4. Does your school have a written pest control or pesticide use policy?
□ Yes
□ No

IF YES, please enclose a copy of this policy. I will be happy to reimburse mailing costs.

5. Is pest control contracted out to a private firm or managed by school employee(s), or both? Check all that apply.
□ Private Firm
□ School Employee(s) (Job title(s) _____)

IF YOU DO NOT EMPLOY A PEST-CONTROL CONTRACTOR, skip to question 7.

6. Please provide the following information about your pest-control contractor:
Name:

Address:

Phone:
□ Check here if you prefer that I do NOT contact your contractor for further information.

7. Does your school use any pesticides?

- ☐ Yes
- ☐ No
- ☐ Don't know

8. Are you familiar with integrated pest management (IPM)?

- ☐ Yes
- ☐ No

IF NO, skip to question 11.

9. Are any IPM methods currently practiced at your school?

- ☐ Yes
- ☐ No
- ☐ Don't know

IF YES or DON'T KNOW, skip to question 11.

10. What is the most important reason that IPM is not practiced at your school? Check only one box.

- ☐ Lack of sufficient funds
- ☐ Don't know enough about it
- ☐ Don't believe it's effective
- ☐ IPM would not be appropriate for this school

  Why? _____

  _____

- ☐ Other _____

11. Before deciding on a pest control strategy, does your school…(check all that apply)

- ☐ Monitor pest populations to determine pest identities and behavior, and extent of problems?
- ☐ Determine, for each pest type, the threshold population size at which pests become unacceptable?
- ☐ Neither
- ☐ Don't know

12A. Does your school use any non-pesticide control methods?

- ☐ Yes
- ☐ No
- ☐ Don't know

12B. IF YES, which of the following methods are used? Check all that apply.

- ☐ Students and staff are educated about ways to avoid pest infestation
- ☐ Pests' sources of food, water, and shelter are eliminated
- ☐ Horticultural activities are modified
- ☐ Physical controls are used, such as vacuuming, trapping, and barriers
- ☐ Biological or microbial controls are used
- ☐ Other _____

IF NO PESTICIDES ARE USED AT YOUR SCHOOL, PLEASE STOP HERE.

13. Which of the following are true of your school's use of pesticides? Check all that apply.

- ☐ Pesticides are only used as a last resort
- ☐ The least toxic pesticide that will be effective in the situation is used
- ☐ Pests are spot-treated; pesticides are only used where pests are present
- ☐ None of the above
- ☐ Don't know

14A. Does your school notify students' parents regarding the types of pesticides that are used at the school?

- ☐ Yes
- ☐ No
- ☐ Don't know

14B. IF YES, how often are parents notified? _____

15A. Does your school … (please check one)

- ☐ Notify all parents in advance of each pesticide application?
- ☐ Give parents the option of registering to be notified in advance of each pesticide application?
- ☐ Neither
- ☐ Don't know

15B. IF SOME OR ALL PARENTS ARE NOTIFIED, how far in advance of each pesticide application are they notified? _____

16A. When a pesticide is applied in school buildings or on school grounds, are notices posted in the area?

- ☐ Yes
- ☐ No
- ☐ Don't know

16B. IF YES, how long before or after pesticide application are notices posted, and how long after application are they removed? _____

_____

17A. Does your school keep records of pesticide use (including records of contractors' use)?

- ☐ Yes
- ☐ No
- ☐ Don't know

17B. IF YES, for how many years are these records kept? _____

17C. IF YES (TO 17A), are these records available for public inspection upon request?

- ☐ Yes
- ☐ No
- ☐ Don't know