

Pesticide Policy Changes in California School Districts

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Abstract Details about the use of pesticides in schools are largely unknown. Multiple studies have been carried out in order to gather information about pesticide use in schools. However, these studies have failed to gather the information desired because of lack of cooperation and knowledge by school administrators, but they do illustrate the necessity for pesticide use in schools to be documented and available to the public. In 2001 AB 2260, commonly called The Healthy Schools Act, was enacted in California requiring school districts to document and provide notification of all pesticide use and to make their records available to the public. It has yet to be determined if the Healthy Schools Act has been effective in making school grounds safer by requiring school districts to modify their pest control policies. My study replicated *'P' is for Poison*, a study by Teresa Olle (2000), to determine if the Healthy Schools Act has made school grounds safer. This was accomplished by determining if school districts have changed their use of pesticides and comparing school districts' notification policies of pesticide use before and after the Healthy Schools Act. Data was gathered by sending the fifteen largest school districts in California a survey and a Public Records Act request for copies of their pest management policies and records of their pesticide use. Results indicate that several large school districts in California have decreased both the total number of pesticides used and the number of toxic pesticides used on campuses. School districts have also significantly increased both their written and posted forms of notification of pesticide use. These changes that have occurred since the Healthy Schools Act was passed make school grounds safer for both students and school staff.

Introduction

Pesticides are applied in places children frequent, for example, their homes, playgrounds, parks, and schools (Landrigan *et al.* 1999). Children deserve particular concern when considering pesticide exposure because they are often more sensitive than adults to the chemicals used in pesticides (Goldman and Koduru 2000). Their smaller body size combined with their higher metabolism means that children, when exposed to the same amount of toxin as an adult, absorb more toxin per body mass. The higher concentration of toxin makes the children more susceptible to the effects of the toxin (Buffler 1999). Also, children may be at higher risk for adverse health effects because they are developmentally immature (Eskenazi *et al.* 1999).

While parents can easily monitor their children's exposure to pesticides in their homes, they cannot control their exposure to pesticides used in public places. Because most children attend school five days a week for several hours a day, they are highly likely to be exposed to pesticides used on school grounds. Parents and staff are often unaware of pesticide use in their schools and thus have no reason to encourage school officials to limit pesticide application (Kaplan *et al.* 1998, Olle 2000).

Because of the lack of easily accessible information available to the public regarding pesticide use in schools, non-governmental organizations such as the California Public Interest Research Group (CALPIRG) and Californians for Pesticide Reform (CPR) have attempted to gather information from schools throughout California explaining what, when, and where pesticides are used (Kaplan *et al.* 1998, Olle 2000). Teresa Olle from CALPIRG Charitable Trust has had the most success in obtaining information about pesticide use in schools.

In Olle's (2000) study, "*P*" is for *Poison*, surveys were sent to the fifteen most populous school districts in California asking general questions about pest management policies, particularly pesticide use and notification policies. Because of the school districts' lack of cooperation and/or lack of knowledge, she could not obtain information regarding questions about frequency of pesticide use, where they are used, and the amount of pesticides used. Olle also sent school districts a Public Records Act request for records of pesticide use. Many of the school districts included in the study chose not

to answer her survey questions at all and instead sent a list of some or all of the pesticides used in their district in response to her formal request (Olle 2000).

After intense lobbying from public interest groups, the California State Legislature passed Assembly Bill 2260, commonly called the Healthy Schools Act, in 2000. (CALPIRG, elect. comm.). The Healthy Schools Act requires school districts to annually notify parents and staff about what pesticides they plan to use, notify parents and staff 48 hours in advance of pesticide use, post notices at all entrances of a treated area 24 hours before treatment and leave them up for 72 hours after, and maintain records of all pesticide use at the schools for 4 years and provide them to the public upon request. The bill also requires the Department of Pesticide Regulation to “promote and facilitate the voluntary adoption of integrated pest management programs” and “establish an integrated pest management training program” (AB 2260 2000).

Unfortunately, since the Healthy Schools Act was enacted in January of 2001, there have been no studies done to determine whether or not it has been effective in its goal to make California school grounds safer by requiring school districts to modify their pest control policies. My study replicated Olle’s (2000) *“P” is for Poison* in order to compare data about school districts’ pest control policies before and after the Healthy Schools Act was enacted to determine if the Healthy Schools Act is effective and to report ways pest management policies have been changed. My study asked the fifteen largest school districts in California questions about the Healthy Schools Act in addition to the same questions asked in 2000 by Olle in order to obtain data that could be compared to Olle’s data. The specific goals of my project were to learn if school districts are adhering to the Healthy Schools Act by comparing the number of pesticides used, the amount of school districts that use toxic pesticides, and the notification policies of school districts before and after the Healthy Schools Act was enacted.

I have two hypotheses: (1) since the Healthy Schools Act has been in effect, California school districts use significantly less types of pesticides and (2) a significantly less number of school districts use toxic pesticides now than before the Healthy Schools Act was enacted. I will also report the types of notification school districts use and the way(s) in which school districts claim they are changing their policies in order to be in line with the Healthy Schools Act.

Methods

My methodology consisted of administering a written survey (Appendix A) to the fifteen largest school districts in California (school details in Appendix C). I also requested the school districts' records of pesticide use from January 1, 2001 to January 1, 2002 and for a copy of the districts' pest management policy by submitting a Public Records Act request (Appendix B). The Public Records Act legally requires public institutions to provide all records requested by the public to be available within ten days of the request. These methods of obtaining information from the schools were chosen because they are the same methods used in the study I am replicating, Teresa Olle's "*P is for Poison*" (2000). The surveys and requests were mailed to the school districts in early April 2002. Also included were two self-addressed (to my address) envelopes. One was for the survey and the other was for the records requested. Two envelopes were sent so the school districts could send back the survey even if they hadn't gotten around to gathering the records. Approximately one week after the surveys and Public Records Act requests were sent to the school districts I called each school district to confirm that they had received them.

The survey's questions were designed to meet the goals previously mentioned: to learn if school districts are adhering to the Healthy Schools Act by comparing the number of pesticides used, the amount of school districts that use toxic pesticides, and the notification policies of school districts before and after the Healthy Schools Act was enacted. The Public Record Act requests were included in order to provide specific details about pesticide use that I felt was too complicated to ask for in a survey. The information that I received from the Public Records Act requests also served as evidence either supporting or disproving claims made in the survey by school districts.

The survey is a combination of original survey questions used in "*P is for Poison*", questions regarding the Healthy Schools Act, and a modified question from the original survey. The questions from the original survey (Appendix A: questions 4, 5, 8-11, 13, and 14) were designed to gather basic information about the districts' pesticide policies. They inquire into the types and frequency of pesticides used, written and posted notification policies, training policies for staff working with pesticides, and non-chemical forms of pesticides used. The data from these questions were primarily used to compare

the number of pesticides used and the notification policies of districts before and after the Healthy Schools Act. The questions directly related to the Healthy Schools Act (Appendix A: questions 1-3, 6, and 7) were written to determine the school districts' knowledge of and compliance with the Healthy Schools Act. The modified original survey's question (Appendix A: question 12) was included in order to get a more detailed response about who is notified and when they are notified about the use of pesticides. This question is intended to help with the comparison of notification policies and compliance with the Healthy Schools Act. The data provided by the Public Records Act request served to directly compare the amounts of different types of pesticides and the toxicities of pesticides used now to those used prior to the Healthy Schools Act. The data will also back up the information provided by the surveys.

My data was analyzed by using direct comparisons to Olle's data. The statistical software StatView was used to perform a one tailed wilcoxon signed rank test to analyze the data received regarding how many pesticides are used and how many school districts use toxic pesticides. Chi-squared tests were used to compare school districts' notification practices before and after the Healthy Schools Act was put into effect.

Results

Of the fifteen school districts I contacted, ten (67%) returned the survey and seven (47%) provided records of pesticide use. 100% of responding school districts answered that they are aware of the Healthy Schools Act and seven of the responding school districts (70%) have modified their pest management policy because of it. Five school districts have added maintenance records of all pesticides used on school grounds, four school districts have added to their pest management policies that staff working with pesticides are required to meet training standards, and four school districts have adopted an integrated pest management program. Other modifications reported include a decrease in the number of pesticides used, use of less toxic pesticides, and an increase in notification to the students and staff about pesticide use on school grounds.

The data support my hypothesis that surveyed school districts use significantly less types of pesticides since the Healthy Schools Act has been in effect (Fig. 1; $p=0.021$). Also, the data support my hypothesis that the number of school districts that use toxic

pesticides has decreased significantly since the Healthy Schools Act was enacted (Fig. 2; $p=0.022$).

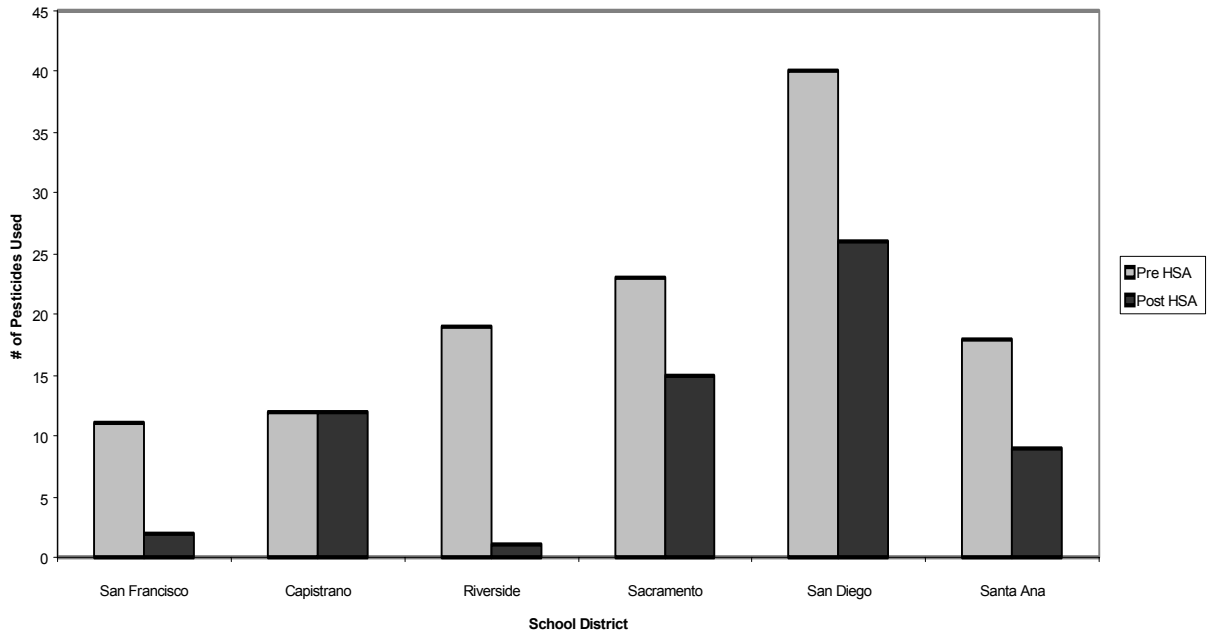


Figure 1. The number of different pesticides used in responding school districts before and after the Healthy Schools Act went into effect.

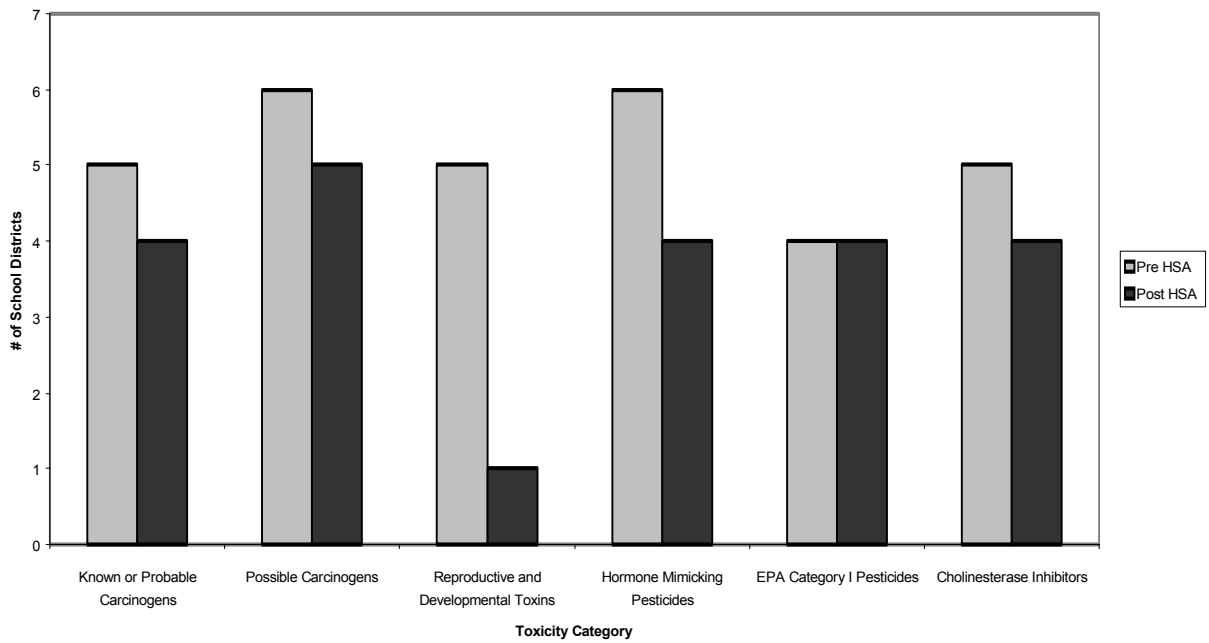


Figure 2. The number of school districts that use toxic pesticides on school grounds before and after the Healthy Schools Act went into effect (Appendix D for categorical information).

My data also revealed that the surveyed school districts have significantly increased the use of both written and posted notification of pesticide use (written notification: $df=1$, $p=0.001$; posted notification: $df=1$, $p=0.0027$). Since the Healthy Schools Act was enacted all but one responding school district provide parents and staff with written notification prior to pesticide use (Table 1). Every responding school district now posts warning signs at each entrance to a treated area before and after pesticide application (Table 2).

School District	Written Notification To Parents/ Teachers (Prior HSA)	Written Notification To Parents/ Teachers (Post HSA)
Fresno	No	Yes
San Francisco	Yes	Yes
Santa Ana	No	Yes
Elk Grove	No	No
Capistrano	No	Yes
San Bernardino	Did not respond	Yes
Riverside	No	Yes
San Juan	No	Yes
Sacramento	No	Yes
San Diego	No	Yes

Table 1. Written notification policy to parents and staff before and after the Healthy Schools Act went into effect.

School District	Posting (Prior HSA)	Posting (Post HSA)
Fresno	No	Yes
San Francisco	Yes	Yes
Santa Ana	No	Yes
Elk Grove	No	Yes
Capistrano	No	Yes
San Bernardino	Did not respond	Yes
Riverside	Yes	Yes
San Juan	No	Yes
Sacramento	No	Yes
San Diego	Yes	Yes

Table 2. Surveyed school districts that provided notification through posted signs before and after the Healthy Schools Act went into effect.

Discussion

Results show that there has been a large decrease of types of pesticides used (Fig. 1) in responding school districts and in the number of school districts using toxic pesticides

(Fig. 2). This data cannot be used to conclude that the total amount of pesticides that are used on school grounds has decreased because it does not take the amount of each pesticide used or the frequency of use into account. However, it does illustrate a trend that many large school districts are using a smaller variety of pesticides. Regardless of whether or not schools use less amounts of pesticides now than before the Healthy Schools Act, using a smaller variety of pesticides creates a safer environment on school grounds. This is because when different active ingredients of pesticides are exposed to each other, the toxicity often increases (Kaplan *et al.* 1998) and with less variety of pesticides being used the possibility of chemical interaction between different pesticides decreases.

As can be seen in Tables 1 and 2, all surveyed school districts now provide posted notification of pesticide use and all but one, Elk Grove Unified School District, notify students and staff of pesticide use via written letters. The increased notification in California school districts is a direct result of the Healthy Schools Act. Each responding school district that has changed its notification policy claims that the change occurred because of the enactment of the Healthy Schools Act. Increased notification of pesticide use on school grounds makes the school environment safer because it informs people of what areas on campus to avoid in order to decrease their exposure.

All of the results are limited by the low response rate and the small initial sample size. Analysis was further hindered by the fact that San Bernardino Unified School District did not respond to Olle's survey or requests for information. Because of this, even though San Bernardino responded to me, I could not include that data in my analysis. The result was a sample size of only six school districts that could be used to analyze both the decrease in pesticide use and the decrease in the number of school districts that use toxic pesticides even though seven school districts provided me with the necessary data. I could also not include San Bernardino in my analysis of changes in notification for the same reasons.

Because of the sample size chosen for this study, the fifteen largest school districts in California, the results cannot be used to make general statements about pesticide use in all California school districts. However, my results strongly suggest trends of decreased types of pesticides used, decreased numbers of school districts using toxic pesticides, and

increased levels of notification in California school districts. I feel that this study's results warrant further investigation into pest management policies in California school districts. A study that randomly samples school districts would be useful in determining if the Healthy Schools Act has had an impact throughout California school districts.

The results of this study indicate that since the Healthy Schools Act was put into effect in 2001, large school districts in California have significantly altered their pest management policies in a way that provides a safer environment for students and staff. The reported changes in pest management policies in surveyed school districts- less variety of pesticides used, the use of less toxic pesticides, and increased notification of pesticide use- indicate that the Healthy Schools Act is impacting pest management policies in California school districts.

Acknowledgements

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References

- AB 2260. <http://www.cdpr.ca.gov>. Accessed Feb. 1, 2002.
- Buffler, P. A. 1999. Carcinogens risk assessment guidelines and children. *Environmental Health Perspectives* 107 (6): A286-A288.
- Eskenazi, B., Bradman, A., Castrina, R. 1999. Exposures of children to organophosphate pesticides and their potential adverse health effects. *Environmental Health Perspectives* 107 (3).
- Goldman, L. R., Kofuru, S. 2000. Chemicals in the environment and developmental toxicity to children: a public health and policy perspective. *Environmental Health Perspectives* 108 (3): 443-447.
- Kaplan, J., Marquardt S., Barber, W. 1998. Failing health: pesticide use in California schools. CALPIRG web site. http://www.calpirg.org/healthy_schools/PDFs/failing.pdf. Accessed Dec. 2001.

Landrigan, P. J., Claudio, L., Madowitz, S. B., Berkowitz, G. S., Brenner, B. L., Romero, H., Wermur, J., Matte, T. D., Gore, A. C., Godbold, J. H., Wolff, M. S. 1999. Pesticides and inner city children: exposures, risks, and prevention. *Environmental Health Perspectives* 107 (3):431-438.

Olle, T. 2000. "P" is for poison: update on pesticide use in California schools. CALPIRG web site. http://www.calpirg.org/healthy_schools/PDFs/healthyschools.pdf. Accessed Dec. 2001.

The Healthy Schools Act. CALPIRG web site. <http://www.calpirg.org>. Accessed Mar. 2002.

Appendix A Pesticide Use Survey

Date:

Your Name:

Your Title:

School District Name:

City:

State:

1. Are you aware of the Healthy Schools Act?

- Yes No

2. Has your school changed its pest control policy since the Healthy Schools Act has been enacted?

- Yes No Don't know

3. If yes, please check the boxes corresponding to the changes made:

We now:

- Maintain records of all pesticide use
 Require staff working with pesticides to meet training standards
 Use an integrated pest management program

Prior to pesticide application:

- Post warning signs
 Send written notification to students and their parents
 Send written notification to staff

4. Does your school district have a written pest management policy?

- Yes No

5. Does your school district use chemical pesticides (including herbicides and insecticides) as a method of pest management?

- Yes No

- If YES, proceed to question 6
- If NO, proceed to question 13

6. Do you keep records of all pesticide use in your school district?

- Yes No

7. Are they available to the public upon request?

- Yes No

8. Is pest control contracted out to a private firm or managed by a school employee?

- Private firm School employee

9. Does your school district require that those applying pesticides in your school district meet any training or certification standards?

- Yes No

• If Yes, briefly describe (if known):

10. Are pesticides applied on a regular basis (weekly, monthly, for example) or as needed?

- Regular basis (please specify interval:) As needed

11. Does your district provide any notification of pesticide applications to faculty, students, or parents?

- Yes No

12. If Yes,

(a) Is notification given before or after the use of pesticides?

- Before After

(b) What form of notification is used?

Posted signs (for how long are they displayed?)

Written warnings sent to parents (how far in advance?)

Written warnings sent to teachers and staff (how far in advance?)

Other (please specify)

13. Does your district use any non-chemical forms of pest management?

- Yes No

14. If Yes,

(a) How long has the district been using these methods?

Months:

Years:

(b) Please describe the non-chemical pest management methods used:

Please return the survey to Krista Lepper, 2600 Ridge Rd., Berkeley, Ca., 94709. A self addressed stamped white letter-sized envelope has been provided for your convenience. Your cooperation is greatly appreciated.

Please see attached for Public Records Act request.

Appendix B: Public Records Act request format.

Date:

Name and Title:

School District:

RE: Public Records Act Request

Dear _____,

Pursuant to my rights under the California Public Records Act (Government Code Section 6250 et seq.), I ask to obtain a copy of the following, which I understand to be held by your agency:

Records of your school district's pesticide use, which you are required to keep under The Healthy Schools Act (AB 2260), from January 1, 2001 to January 2, 2002.

A copy of your school district's pest management policy.

I ask for a determination on this request within 10 days of your receipt of it, and an even prompter reply if you can make that determination without having to review the records in question.

If you determine that some but not all of the information is exempt from disclosure and that you intend to withhold it, I ask that you redact it for the time being and make the rest available as requested.

In any event, please provide a signed notification citing the legal authorities on which you rely if you determine that any or all of the information is exempt and will not be disclosed.

If I can provide any clarification that will help expedite your attention to my request, please contact me at (510) 649-8092 or krista_l@hotmail.com

Thank you for your time and attention to this matter.

Sincerely,

Krista Lepper

Appendix C: Contact Information of Schools Surveyed.

Los Angeles Unified

Gary Pons
Environmental Health and Safety
1449 S. San Pedro St.
Los Angeles, Ca. 90015
(213) 743-5086

San Diego Unified

Eugene Brucker Education Center
4100 Normal St.
San Diego, Ca. 92103
(619) 725-8000
www.sandi.net

Long Beach Unified

Grounds Department
2201 E. Market St.
Long Beach, Ca. 90805
(562) 997-8000 x 1850

Fresno Unified

Fresno Unified School District
C/O Lynn Peters
4600 N. Brawley
Fresno Ca. 93722
(559) 457-3135

San Francisco Unified

Office of Public Engagement
Attn. Jackie Wright
555 Franklin St.
San Francisco, Ca. 94102
(415) 242-2549

Santa Ana Unified

Denis Ziegler
1601 E. Chestnut Ave.
Santa Ana, Ca. 92701
(714) 558-5501

Oakland Unified

Peter Haffner
900 High St.
Oakland Ca. 94606
(510) 879-8352

Sacramento Unified

Communications Office
520 Capitol Mall
Sacramento Ca. 94606
(916) 264-4302

San Bernardino Unified

Bill Clayton
Attn. Environmental Safety Dept.
777 N. "F" St.
San Bernardino, Ca. 92410
(909) 381-1100

San Juan Unified

Bob Tarczy
6135 Sutter Ave.
Carmichael, Ca. 95608
(916) 971-7000

Garden Grove Unified

Alan Trudell
10331 Stanford Ave.
Garden Grove, Ca. 9284
(714) 663-6000

Elk Grove Unified

Lu Dunbarr
Risk Management
9510 Elk Grove-Florin Rd.
Elk Grove, Ca. 95624
(916) 686-5085

Capistrano Unified

Luis Camacho (Operations Manager)
32972 Calle Perfecto
San Juan Capistrano, Ca. 92675
(949) 489-7000

Riverside Unified

Hector Morales
3070 Washington St.
Riverside, Ca. 92504
(909) 788-7508

Stockton Unified

Mr. Matsuoka
701 N. Madison St.
Stockton, Ca. 95202
(209) 953-4080

Appendix D : Sources used to define categories of pesticide toxicity.

Sources (Olle 2000)

- A. *List of Chemicals Evaluated for Carcinogenic Potential* (Category A,B1 and B2) (U.S. EPA Office of Pesticide Programs, 26 August 1999); *Proposition 65 List of Chemicals Known to the State of California to Cause Cancer* (Sacramento: California Office of Environmental Health Hazard Assessment, 29December 1999).
- B. *List of Chemicals Evaluated for Carcinogenic Potential* (Category C) (U.S. EPA Office of Pesticide Programs, 26 August 1999).
- C. *Proposition 65 Chemicals Known to the State to Cause Reproductive and Developmental Toxicity* (Sacramento: California Office of Environmental Health Hazard Assessment, 29 December 1999), [http:// www.oehha.ca.gov/prop65.html](http://www.oehha.ca.gov/prop65.html).
- D. *Report on Endocrine Disrupting Chemicals* (Illinois EPA, 1997); L. H. Keith, *Environmental Endocrine Disruptors: A Handbook of Property Data* (New York: Wiley Interscience, 1997); T. Colburn *et al.*, *Our Stolen Future* (New York: Penguin Books 1996), 253; C. M. Benbrook, *Growing Doubt: A Primer on Pesticides Identified as Endocrine Disruptors and/or Reproductive Toxicants* (Washington, DC: National Campaign for Pesticide Policy Reform, September 1996).
- E. U.S. EPA categorizes pesticide products according to acute (immediate) toxicity. Categories range from I to IV, Category I being the most toxic. Only Category I pesticides bearing the label “Danger/ Poison,” the designation reserved for highly toxic systemic (toxic through ingestion, absorption, or inhalation) toxins, are included. The same active ingredient may have several different classifications, depending on its concentration in the product formulation.
- F. *Summary of Pesticide Use Reporting Data, 1998* (Sacramento: California Department of Pesticide Regulation, November 1999).