A Pest Management Survey

Of

North Carolina Public Schools

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Introduction

Pest management in public schools is a topic of prime importance to our school children, their parents, as well as faculty and staff in North Carolina school system. The North Carolina Public Schools Pest Management Survey was conducted by the North Carolina Cooperative Extension Service at North Carolina State University as part of an educational program on the ways pests are managed in North Carolina's public schools. This educational program is designed so that all stakeholders can obtain a better overall picture of the current situation and help generate ideas for the future of pest management in public schools. Surveys were sent to each of 120 school systems in North Carolina. A total of 70 public school superintendents or their designees responded to the survey.

The survey questions were designed to gain insight as to whether public schools in North Carolina use pest management practices associated with Integrated Pest Management. Integrated Pest Management (IPM) is a system that uses a combination of technology and management practices to control pests. The goal of these systems is to achieve long term suppression of targeted pests by way of effective, efficient and environmentally sound methods. For example, the Maryland Pest Control Association lists four basic components of IPM as it applies to schools. They are as follows:

1) Prevention of pest populations
2) Application of pesticides only "as needed"
3) Selecting the least hazardous pesticides effective for control of targeted pests
4) Precision targeting of pesticides to areas not contacted or accessible to the children, faculty or staff (www.ifas.ufl.edu/~schoolipm/).

Other aspects of IPM include "careful inspections, regular monitoring, identifying conditions contributing to pest problems, giving priority to non-chemical techniques, record-keeping to track problems and prevent re-occurrences and evaluating existing pest management actions." The North Carolina public schools survey probed for these IPM practices. The survey also asked about formal and/or written pest management policy in North Carolina public schools.

IPM Usage

Of the 70 North Carolina school superintendents (or designees) that responded to the survey, 87% reported use of pesticides. Out of a total of 67 schools units that responded to the question, 43% reported use of IPM techniques to control pests. Does this mean that 57% of these schools did not use IPM? Not necessarily. The findings show that school systems in North Carolina use many of the practices associated with IPM, but are lacking in other specific areas, like adherence to a written pest control policy. Of

the 69 school units that responded to the question, 89% reported they do not have a written policy for conducting pest control procedures. This indicates a widespread lack of formal pest control policies within public schools in North Carolina.

The National Coalition Against the Misuse of Pesticides (NCAMP) suggests that "a strong IPM definition and policy is one of the best ways to minimize or eliminate children's exposure to pesticides while at school" (*Pesticides and You*, 1998). They note that only "thirteen states define, recommend or require IPM in their state pesticide statutes or regulations. Of these, only five states (Connecticut, Maryland, Oregon, Texas, and West Virginia) require IPM in schools. Four states (Illinois, Louisiana, Maine, and Montana) recommend IPM. Florida, Massachusetts and Pennsylvania have laws which define IPM, but do not require implementation of it in their schools." Based on NCAMP's findings, our survey results regarding a lack of written policies for pest control in North Carolina public schools is not unusual. A model pest management policy statement for Florida Schools and Districts is presented on the School IPM web-site mentioned above. The statement is an important mechanism for state schools to move from a "regularly scheduled chemical-based program to a program that relies on the prevention of pest populations" (Maryland Pest Control Association). Prevention is the first component of any IPM program. Taking steps to ensure adequate sanitation, proper maintenance and modification of school structures can reduce the conditions friendly to pests.

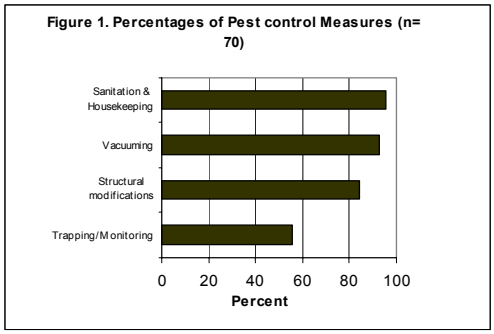
As mentioned previously, 43% of the school systems in the North Carolina Public Schools Pest Management Survey reported using IPM programs to control pests in school buildings. But, large percentages of respondents reported using the following preventative measures often associated with IPM (Figure 1).

Pest Control Decision Making

The measures used under IPM require the cooperation of school administrators, faculty, staff, parents and students to be successful. Decisions about pest management are not left solely to the school administrator, and actions are not the sole responsibility of a pest control operator (PCO) who is often employed to treat any pest concerns.

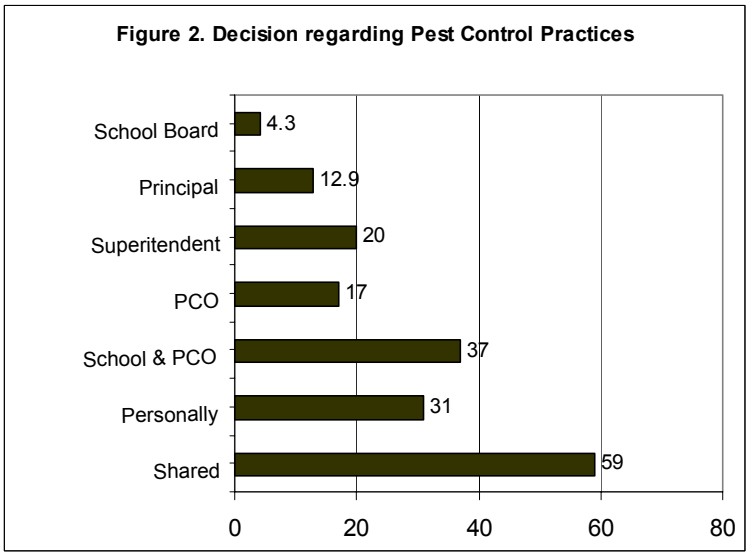
The model policy enacted by Florida public schools establish a school district-wide IPM coordinator, an advisory committee to oversee the progress of actions taken, and a designated staff member in each school to coordinate the IPM program. While North Carolina public schools do not have a state-wide IPM policy, survey results indicate that decisions regarding pest control practices in the sample are most frequently shared with others on the superintendents staff (Figure 2). However, of the 67 North

Carolina schools that responded to the question, 98% reported not having an advisory committee that reviews pest management issues and makes recommendations on policies.



Who Does Pest Control?

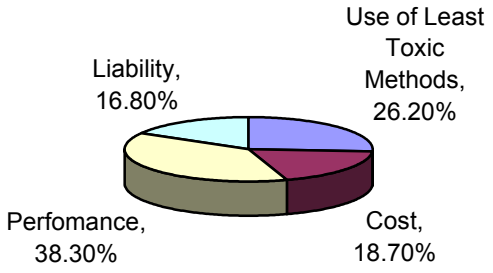
In order to deal with pest problems, the school units in the survey generally maintain year-round contracts with a licensed PCO (64%), followed by use of a combination of school employees and contracted services with a licensed PCO (40%). Other approaches reported were contracts with



a licensed PCO on an as-needed-basis when pest problems occur (23%); use of school employees whose primary duties include pest control (14%); and, use of school employees, such as custodians, whose primary duties are not pest control (1%).

The Maryland Pest Control Association suggests that pesticides should be applied by trained and State Certified personnel knowledgeable in school-based functions, pesticide safety, modern application techniques and IPM procedures (Maryland Pest Control Association (www.ifas.ufl.edu/~schoolipm/). Approximately 96% of the North Carolina public school units surveyed use contracts with licensed pest control companies to perform pest control procedures in their school. School employees were also reported as performing pest control procedures (47%). Of these employees, only 35% are reported as being licensed structural pesticide applicators. However, 77% are reportedly certified structural pesticide applicators. system of pest management, schools would resort to chemical treatment of pest problems only after unsuccessful attempts with non-chemical methods of control. This entails targeted application to pest harborages (like cracks and crevices) and selecting the least hazardous pesticides. The goal is to minimize human contact, particularly child contact, with pesticide residues.

Figure 3. Most Important factor in Selecting a Pest Control Company



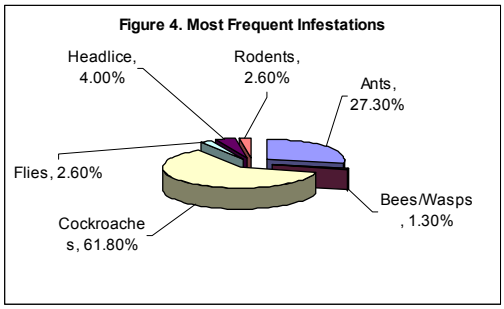
In reality, there are many factors that affect how, when and where pesticides are applied in schools. School administrators have various reasons for the type of pesticides they select as well as the PCO chosen to apply them. School units in the North Carolina survey were asked to rate the importance of cost, performance, liability, use of least toxic pest control methods, and other factors in the selection of a pest control company. Below is a summary of results (Figure 3).

Performance of the PCO selected seems of greatest importance for respondents that answered the question and the PCO's use of the least toxic methods seems to be of second most importance.

Common Pests

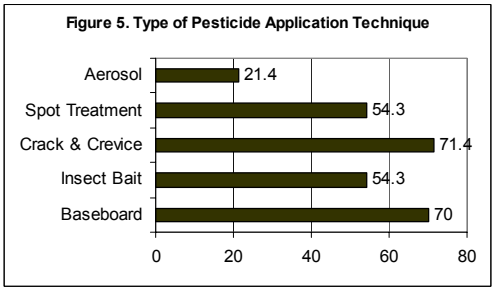
The University of Florida's School IPM web-site notes that cockroaches are the most important pest in schools, homes, restaurants, and other indoor spaces. Cockroaches spread germs and allergens that often become airborne and cause allergic reactions, asthma and other bronchial problems. Pheromone

traps are often used to monitor cockroach infestations and preventative cultural practices like sanitation and structural modifications are emphasized. Not surprisingly, Figure 4 illustrates that for North Carolina schools in the survey, cockroaches made up the largest proportion of most frequent infestations out of all pests reported.



How Are Pesticides Applied?

By applying pesticides to active harborages (areas where pests congregate) only, chemical contamination of other surfaces is reduced. The graph below indicates that crack and crevice application was the most commonly reported type of pesticide application techniques used inside buildings (Figure 5).



Approximately 56% of schools in the North Carolina survey reported using trapping and/or monitoring to control pests. Inspection and monitoring practices allow for early detection of pest infestations in the school unit. Knowing when and where pests invade the school reduces the amount of pesticides required to suppress them.

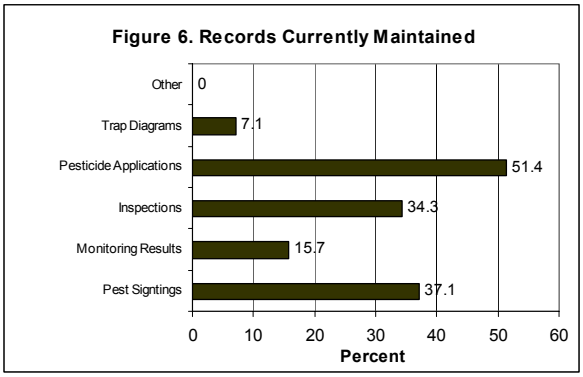
According to the survey, the types of pesticide applied in school buildings are primarily selected based on method of application (50%), product toxicity (45%), recommendations (34%), and formulation (31%). Other reasons for selection included price (21%) and administration- approved products (20%). High proportions for the method of application and product toxicity in the selection process, presumably, reflect concerns for the health and well-being of students and staff. Approximately 63% of all school units

in the sample reported monthly rates of pesticide applications in the school buildings. Approximately 33% reported applications on an as needed basis.

North Carolina schools in the survey reported an overwhelming emphasis on targeted application of pesticides not just in terms of where pesticides are applied, but also time of application. Pesticide applications are generally made in the school buildings after all the students and teachers vacate the buildings in the evening (71%), followed by weekends and/or holidays (47%), early in the morning before school hours (10%), and anytime during the day when school is in session (8%).

Recordkeeping and Scheduling

The Maryland Pest Control Association lists several IPM methods of inspection and monitoring with an emphasis on thorough record-keeping to track problems, prevent re-occurrences and evaluate existing pest management actions(Figure 6).



They include walk-through visual inspections, monitoring devices (like sticky traps), sighting logs and a record of past services. These practices rely on a good system of communication between administrators, staff and PCO's. Approximately 75% of school units in the sample currently maintain records or reports on pest control activities. Below is a graph of the records the school units currently maintain.

It is important to notify everyone at the site when pesticide treatments are necessary. NCAMP notes that ten states require posting of signs for indoor school applications [Arizona, Georgia, Maine Maryland, Massachusetts, Michigan, Montana, New Jersey, Texas, and West Virginia] (Pesticides and You, 1998). There are nine states that require notification of students and/or employees of the school (Arizona, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, Pennsylvania, Texas, and West Virginia).

Under the Maryland Pest Control Association s IPM guidelines, an IPM Advisory Committee would be responsible for the format of notices. As noted, less than 2% of the school units in the North

Carolina survey reported establishing an advisory committee. However, NCAMP points out that states use different approaches in providing school pesticide use information to parents, students and staff. In most instances, the public schools surveyed in North Carolina reported providing notices when pesticides will be or have been applied in school buildings (63%). The most frequent type of notification includes notifying school administration (85%), followed by posting signs in school after pesticide applications (15%), and other types, such as log book or verbal notice (5%). Posting signs several days before pesticide application may be something to consider. NCAMP suggests that prior posting and/or notification enables people to take precautionary actions.

IPM programs also emphasize reducing the amounts and regularity of pesticide use in schools along with educating the customer. This latter point enhances communication between students, parents, school staff and PCO s and increases overall effectiveness of the program. How did schools in the North Carolina survey rate the effectiveness of their current pest control programs? Most schools in the survey (58%) rated their current pest control program as somewhat effective. Approximately 38% reported their program to be extremely effective, followed by approximately 3% reporting their program as somewhat ineffective, and lastly, about 1% reported their program as completely ineffective.

About 22% of the school units in the survey reported they actually received complaints related to the use of pesticides. These were complaints from students, parents, faculty, or staff. Developing and maintaining open lines of communication is important to the success of any pest management program. About 29% of the schools reported establishing programs to address these concerns.

Summary

In summary, there are several issues which should be highlighted. First, the results of the North Carolina survey indicate that school systems that reported tended to use some of the pest management practices associated with IPM, although less than half claimed to use IPM. School systems may not have a good understanding of concepts related to IPM.

Second, not all questions in the survey were answered by the schools that responded. This creates some difficulty in comparing the results among school systems. For some questions, the administrative personnel who completed the survey may not have known the answer (for example, what PCO do you currently contract with?). The different response rates among questions may point to the lack of a clear policy for pest management within the school.

Third, the long-term objectives of IPM programs take into account the safety and health of children, administration and staff by aiming to reduce sole dependency on chemical treatments to control pests. However, this does not necessarily entail cost-savings to the school using IPM. A good system of

communication and well-managed pest control programs take time and investment. It will be important to have good benefit-cost data and management costs.

Finally, laws and requirements pertaining to the use of pesticides in and around schools vary from state to state. Given the level of effectiveness reported by schools in the North Carolina survey, more discussion with regards to a clear policy for pest treatment and pesticide use in public schools should take place in the near future.

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