

School IPM Outreach and Research Activities, NYS IPM Program, 2005

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Locations: Erie, Hamilton, Herkimer, Jefferson, Lewis, Orange, Suffolk, and Westchester Counties

Abstract: Integrated pest management in schools is needed to reduce risks to children and others from both pests and the overuse of pesticides. The NYS IPM Program was involved in several extension and applied research activities at schools in 2005. In the lower Hudson River Valley, we continued with a “learning community” approach. Three school districts are working with extension and school peers to assist each other in the development of model IPM programs. NYS IPM Program staff assisted a Long Island school district in bringing a significant cockroach problem under control. Completion of on-site interviews of schools on their pest management policies and practices brought the total number of interviews to 38. We organized a meeting of the Statewide School IPM Committee and interacted with numerous school districts and others about school IPM via presentations and site visits.

Background and Justification: Pest management in schools has received increased attention in New York State and nation-wide. This is due to the critical need to decrease pesticide use to protect our children, who, by nature of their size and developmental stage, are at greater risk than adults. Yet, at the same time, we cannot compromise the quality of pest control because pests represent an equally important health hazard. Schools are especially challenging to manage because they include such varied settings as classrooms, cafeterias, laboratories, auditoriums, theaters, playing fields, playgrounds, and gardens. These areas are heavily used for a variety of purposes, including after-hours public meetings. Visitors, staff, and students are frequently in direct contact with the lawns, athletic fields, flowers, trees, playgrounds, and buildings on the school grounds. Recent passage of a New York State (NYS) pesticide notification law has resulted in additional pressure on schools to reduce pesticide use.

Learning Community Project: Great strides have been made by NYS school pest managers within the past decade in reducing risks associated with “conventional” pest control. However, much work needs to be done. Persistent challenges to IPM programs in schools include the need for written pest management policies, classroom sanitation, pest proofing buildings, and heavy use of facilities. School pest managers stress the need to improve communication concerning safe and effective pest control with their diverse constituencies, from school administrators to community sports programs. At least 30% of NYS public school districts are applying pesticides in school buildings and on school grounds on a regular, prescheduled basis – a practice that is antithetical to IPM.

School decision-makers often look to other schools for insights on successful programs. This underlines the importance of establishing model IPM programs at schools. Even schools that are practicing IPM need assistance to further develop their programs. With this project, we are utilizing a "learning community" of school district personnel, peer mentors, and cooperative extension educators to develop four district-level model school IPM programs.

The geographical target region for the project is the lower Hudson River Valley immediately north of New York City. This region was chosen because of the high human population density, strong community concerns about pesticide use, and the availability of extension IPM specialists and peer mentors to help facilitate the project.

The project is funded by a Northeast IPM Partnership Grant and has the following objectives.

- 1) Organize the "learning community" team that will develop the three model programs.
- 2) Utilize the IPM Institute's "IPM Standards for Schools" to assess the current status of the pest management programs of the cooperating schools.
- 3) Develop and pursue individualized IPM improvement plans via collaborative interaction among the three cooperating school districts, extension IPM specialists, and peer mentors. The goal will be qualification for the IPM Institute's STAR school certification.
- 4) Evaluate the success of the cooperating districts' IPM development plans.
- 5) Communicate the results of the three model programs locally, statewide, and throughout the Northeast.

In 2004, we organized the "learning community" team, established a listserv for the team, and conducted the initial assessment of the four school districts. The team includes NYS IPM Program staff (Lynn Braband, Gary Couch, Jody Gangloff-Kaufmann), Cornell Cooperative Extension staff from Orange County (Rose Baglia) and Westchester County (Rick Harper), two "peer mentors" (Dan Dickerson, New York City Board of Education, and Kevin Trotta, North Rockland School District), and three schools districts (Minisink Valley, Monroe-Woodbury, and Scarsdale).

Comprehensive, day-long on-site assessments were made of the pest management programs of the three cooperating school districts. The IPM Institute's format associated with their STAR certification program was utilized as the guide for these assessments. Throughout 2005, the school districts have been implementing their IPM improvement plans. These plans are based, to a large extent, on the results of the initial assessments.

In August 2005, the project team met for a mid-point evaluation of the project. The status of the school districts' pest management development plans were reported and discussed. Plans were made for the team to assist the districts as they continued to implement their plans. In addition to (and overlapping with) the individual details of each plan, the project team will focus on two major projects. Each project will be highlighted by a workshop next spring. One project will focus on IPM-related improvements to athletic fields in the cooperating districts. The second project will address classroom sanitation and incorporate teacher/student outreach via IPM curricula.

Using the IPM Institute's STAR certification audit form, the school districts will have their final assessment in April 2006. Since the focus will be on areas highlighted by the

initial assessment, this audit is anticipated to only take a half-day per district. The entire team will then meet to discuss the results and the over-all success of the project.

In May 2006, the school districts will host a demonstration workshop that will highlight IPM-related improvements to the districts' athletic fields. The focus on classroom sanitation and teacher/student outreach will continue into the fall of 2006.

A NYS IPM Program writer will document the project as case studies for selected educational and pest management publications.

Cockroach IPM Demonstration: In late spring of 2005 the Facilities Director of South Huntington Unified School District contacted the IPM Program about an infestation of cockroaches at two of the district's schools, an elementary and a 6th grade-only school. The elementary school was much worse than the other, so efforts were focused there. Efforts began in July, after the end of the 2004-05 school year. Cooperating with the Facilities Director and the head custodians, an evaluation of the pest problem was conducted at both schools.

Dozens of German cockroaches could be found in door jambs, under posters on the walls, under kitchen equipment, in crevices of cafeteria tables, in and around kitchen equipment wrapped in black plastic bags, and many other places at the elementary school. The cafeteria, kitchen, and a food storage closet appeared to be the main source of the infestation. Additionally, cockroaches had spread into several classrooms of the two story structure, the stage and adjoining music room, and the administration offices. Each classroom has a working sink and cabinet, which provided harborage for cockroaches.

Inspection also revealed a large amount of cardboard stored in the custodians' area, kitchen, pantries, and the basement. In the pantry, open and spilled foods were found, such as pudding mix, spices, and cereal. A moveable ice cream freezer was also being stored in one pantry, and it contained water that was attracting roaches. There were fold-up cafeteria tables not in use, that created areas inaccessible to routine cleaning, but that could collect food particles and attract and harbor cockroaches. A cluttered PTA closet in the cafeteria was found to have spilled snack food. However, the major concern was that the district was using this cafeteria as an organization and distribution point for boxes of classroom handouts, supplies, and books that would be sent throughout the school district before the start of the school year. Many boxes contained cockroaches of all life stages. The entire school district was at risk of a massive cockroach invasion.

In the 6th grade school, inspection revealed that the cockroach problem was localized in the cafeteria around a wall with loose boards and moldings. This area was right next to two soda vending machines. All stages of cockroaches were found behind vinyl molding along this wall. Folded cardboard boxes were being stored nearby. In addition, the school district's policy is to clean the kitchens and cafeterias last before the school year begins, which may have encouraged cockroach activity.

After a thorough inspection of the elementary and 6th grade schools, sticky traps were placed in strategic places in storage rooms, around the kitchens and cafeterias. After one week, many traps had 20 or more cockroaches. With use of sticky traps, the sources and hot spots for cockroaches were quickly confirmed in each school.

Many recommendations were made to the facilities managers with regard to conditions favoring cockroaches. Workers in these schools responded immediately. The following

tasks were accomplished within two weeks of the initial inspection: removal and recycling of stacks of cardboard, removal of plastic bags around kitchen equipment, removal of signs and posters on kitchen walls, cleaning inside folding cafeteria tables, and disposal of cardboard lunch trays on kitchen shelves. Additionally, we sorted through all the items in two pantries to look for cockroaches. One pantry held mostly paper goods, and was found to be clean. The other held food items, many open packages, and the old freezer, and was found to be infested with cockroaches.

To deal with the infested boxes of materials being sent throughout the district, we decided to experiment with heat. Large black plastic trash bags were wrapped around boxes and everything was placed in the parking lot in full sun on a 95°F day. Temperature readings were taken periodically to determine whether the materials reached temperatures lethal to cockroaches. Unfortunately, even at the warmest time, cool spots could be found in each bag of materials. Instead, each box was carefully sorted through by staff working outside, to try and prevent the spread of cockroaches into other school buildings.

In addition to the food areas of the elementary school, administration offices were badly infested. Files, desk drawers, phones, and the mailboxes all contained various ages of cockroaches. It was not evident that workers in these offices were leaving food out, but they were advised against eating at their desks. Only a few sticky traps were placed on the floors around the offices, and they were not effective as a monitoring tool because cockroaches were not crawling on the floor.

A baiting program was instituted in each school immediately after inspection. MaxForce Professional Cockroach Bait with hydramethylnon was chosen due to its quick action and good acceptance for German cockroaches. Hot spots were baited thoroughly. Other areas were baited more sparsely and bait applications were monitored for feeding activity. Any bait beads that showed no signs of feeding were removed. Most bait beads disappeared quickly, indicating that cockroaches were feeding readily.

Within one week of the start of IPM efforts and baiting, cockroach numbers were noticeably higher. Sticky traps were loaded with all life stages, possibly as a result of IPM efforts, which included removing cardboard and plastic bag harborage. Once two weeks had passed, the numbers of roaches seen and caught declined in the kitchen and pantry. The administration office staff continued to report problems, as well as the faculty room, where employees of the school eat their meals.

The focus of the cockroach program switched from the kitchen and cafeteria to the offices and faculty room by week three. In the administration office, removal of harborage (paper, files, desk drawers) was not an option. Bait beads were placed in inaccessible spots throughout the offices. The office workers were asked to kill cockroaches on sight, and many did. In the faculty room, it was discovered that food residues were a major problem and attractant for cockroaches. Two microwave ovens were caked with food particles. The stove and refrigerator contained crumbs and spills. Sanitation was certainly an issue and recommendations were made for cleanup. Bait beads were placed in inaccessible areas, and a fine dust of boric acid powder was placed under the refrigerator.

By early September, it appeared that the cockroach infestation was under control. No new complaints were made by staff by the end of the first week of school. Occasional sightings declined. The beginning of the school year was considered a test of the success of the cockroach IPM program, because with children and food in every classroom there

would be an opportunity for cockroaches to make a comeback. However, this did not happen. Although cockroaches were probably not eliminated, as of January of 2006 the cockroach problem is still under control. The future of this work will involve training school district employees, who are certified NY State pesticide applicators, to take over the cockroach IPM program.

School Interviews: To supplement a 2001 statewide survey of NYS public school pest management policies and practices, we initiated on-site school interviews in 2002. In 2005, six school districts from Hamilton, Herkimer, Jefferson, and Lewis counties were interviewed. This brings the total to 38 school districts. Combined with the statewide survey, the results of these interviews are providing valuable input for school IPM research and extension activities.

Some highlights of the interview results follow. Most of the districts considered their pest management programs successful. The most common reasons given were fewer pest problems and pesticide reductions. When asked why their district was practicing IPM, the most frequent responses included meeting legal requirements, better pest management, health concerns, environmental concerns, and good citizenship. When asked about the impact of the state notification law on their pest management, the most frequent responses were little or no impact, reduced pesticide applications, and costly increase in paperwork. District 48-hour notification lists ranged from 0 to thousands of people. The respondents listed 24 different obstacles to practicing IPM in schools. The most frequent responses were food in classrooms, constituency apathy/resistance, funds, and heavy use of facilities. Several questions were asked concerning assessing needs. The most frequent responses indicated the need for improving communication and education among all of schools' diverse constituencies.

General Outreach: The NYS IPM Program organized a Statewide School IPM Committee in 2002. In October 2005, we held a fourth meeting of the committee. In addition to the diverse membership updating each other on their school IPM activities, we had special presentations by invited representatives from the NYS Education Department (proposed High Performance Schools guidelines for facilities) and BOCES (pest management challenges of small, rural school districts). The committee also discussed possibilities for future outreach including IPM coordinator training, utilization of the IPM Institute's STAR certification program, and workshop on steam/hot water machines for weed control.

NYS IPM Program staff visited South Huntington Schools (Countrywood Elementary School) to inspect the playground for wasps. This playground was made of wooden logs and was scheduled to be torn down and replaced with new plastic materials. This will eliminate recurring problems with wasps and bees on the playground.

In April of 2005, the NYS IPM Program participated in a ceremony where the City of Buffalo Schools received the IPM Institute's school IPM STAR certification. This award recognizes a high level of IPM implementation and involves rigorous on-site audits. The City of Buffalo Schools also received a Recognition Award from the US EPA's Office of Children's Health Protection. This is presented to groups or individuals who demonstrate commitment to protecting children from environmental health risks.

Throughout 2005, NYS IPM Program staff made presentations on school IPM related topics. Audiences included landscapers, school facilities staff, teachers, BOCES health and safety officers, and pest control operators.

In September 2003, we initiated IPM curricula development projects. During 2005, these efforts continued and are described in a separate report. In 2006, the NYS IPM Program staff will be working with the Ithaca school district to build collaborative teams of school facilities staff, teachers, and students to address specific pest management challenges.