Florida School IPM Best Management Practices
Aug 17, 2012
FINAL DRAFT
OPEN FOR COMMENT UNTIL SEPT 15, 2012

INTRODUCTION AND BACKGROUND

The "Florida School IPM Best Management Practices" represents work that began in 2004 by the Florida School IPM Work Group. The Working Group is comprised of members representing Florida's School Districts, the pest control industry, IFAS Extension and regulators in the Department of Agriculture and Consumer Services and the Florida Department of Health who have worked toward the implementation of integrated pest management practices in Florida schools. In 2004, the Florida School IPM Work Group changed the focus of its mission from an instructional model to a demonstrational model because a number of site visits indicated that only 5 to 7% of Florida schools were actually implementing IPM to control pests. There are numerous constraints that may impact the effectiveness of a SIPM program such as the responsibility for sanitation, pest pressures and budget. One of the reasons for low implementation of IPM in schools was the lack of uniform baseline practices applicable in Florida's unique pest environment. In addition, Florida statutes that govern pest management delineate general requirements for applications of pesticides, but do not address the regulation of pest management processes, which inherently define IPM programs.

Shifting to a demonstration model helped to identify weaknesses and strengths in pest management programs implemented in Florida schools. The Work Group also identified what IPM processes were actually "working" and what processes needed improvement. Out of these observations, three predominant models were identified based on who provided the IPM service. Depending on the provider, which could be a PMP, school staff or a combination of the two, there were varying degrees of success in the management of pests. Each of the observed models appeared to be practiced on a *continuum* (refer to section on "Practicing IPM on a Continuum", below). Also, in each of these models, grounds and athletic field maintenance is typically considered a separate service when they should be included in the maintenance of these areas as a part of the overall IPM program.

The "Custodian Model"

- Limited certification in structural pest control may be required
- Some outsourcing may be needed because a limited certification will not allow for all applications
- Custodial staff and pest management professionals have different skill sets. Expecting custodial staff *with no training in pest management* to also perform pest control has resulted in high rates of

failure in most school IPM programs. Another cause of failure can be attributed to shifting priorities within the school district administration. The largest disadvantage of an in-house model is that it relies on untrained individuals that lack authority to coordinate all aspects of a pest management program. In addition, once a school district employee is reassigned or removed, a replacement may not be readily available, allowing for lapses in IPM service. An advantage to outsourcing is that a professional pest management company will have a trained and knowledgeable replacement technician in order to avoid a lapse in service.

The “Certified Operator Model”

- School districts that choose to employ a certified operator who has the background, extensive training and certification in pest control appear to have the most effective and sustainable IPM programs.
- Certified operators trained in IPM understand how to
    - Prioritize, route and schedule their technicians for IPM service
    - Train their technicians in IPM, particularly in the area of documentation
    - Evaluate the effectiveness of a treatment strategy
- Certified operators and staff engaged with the consortium take pride in their work at the schools and feel an obligation to do a good job for the staff and students who spend many hours a day in school facilities.
- The Manatee County School District serves as the benchmark of this model and has operated a sustainable and verifiable IPM program since the mid-1990s.

The “PMP Model”

- Need cooperation from in-house custodial, lawn maintenance, landscape and kitchen staff which requires pest control technician have communication skills and for school employees to understand the pest reporting process.
- In order for this model to be successful, the school (district) must have a designated IPM coordinator responsible for communicating pest problems to the pest control operator. The pest control operator must also communicate pest related problems to the IPM coordinator.
- An advantage to this model is if a pest control technician leaves, a company will have an immediate replacement so that IPM services do not lapse.
- A more difficult variation is when custodial and kitchen duties are outsourced along with pest control. Communication across different employers on responsibilities for sanitation, a key component to IPM, can be unclear, causing IPM program failures.

Variations of these models include having school personnel take care of the grounds and athletic fields, while outsourcing indoor pest control or outsourcing the kitchen and cafeteria pest control responsibilities

while school personnel maintain responsibility for the rest of the school. *In all cases, understanding the line of communication to report a pest problem and evaluation of its subsequent resolution is a key factor in successful IPM programs*.

For almost 20 years, the U.S. Environmental Protection Agency (EPA) has officially encouraged schools to adopt IPM, although implementation of this practice has been slow to be adopted. Active enforcement and training in existing regulations regarding pesticide applications significantly increase program sustainability, particularly on a state-wide level. However, Florida State regulations were not written to specifically address integrated pest management programs. For this reason, the Florida School IPM Task Force volunteered to develop a set of Best Management Practices (BMPs) in recognition of these working models, their advantages, constraints, and the sincere desire to control pests in schools. The Task Force considers the reduction of pests a paramount concern and has developed practices for IPM practitioners which are designed to improve the effectiveness of IPM programs in Florida schools. These BMPs are science-based pest management strategies that balance risks of both pests and pest control practices, thereby improving school environmental health. *The goal of any School IPM (SIPM) program is to reduce children's exposure to pests*. When this is accomplished, children's risk from exposure to pesticides is also reduced. The need for IPM programs in school facilities, indoors and out, is based on two concerns: (1) health and safety effects that result from pest infestations in school facilities; and (2) any unintended effects resulting from pest management tactics used to control pests.

INTEGRATED PEST MANAGEMENT

Integrated pest management is a dynamic process that leads to effective, verifiable and sustainable pest management. IPM is best defined as *an approach to pest management that employs a problem solving process that balances the risks inherent from pests and pesticides to achieve long term pest suppression* (see technical definition of IPM at the end of this document). A successful School IPM program relies on 1) support from the school district's administration, school staff and teachers and 2) communication between the pest management professional (PMP) and the designated school contact. The designated school contact will be called the "IPM coordinator" for the remainder of this document.

The process of IPM includes devising and implementing management strategies based on pest identification that are integrated into a comprehensive plan that is not limited to:

- Providing the faculty and staff with information about behaviors, conditions, and policies that allow pests access to the site, food, water and habitat

- Inspection and identification of pest problems
- Cultural practices:
    - Sanitation and pest harborage removal. Avoiding clutter is the most important factor in achieving pest control. The term "De-cluttering" is commonly used by IPM practitioners to describe the intent to better organize storage of articles, food staples and other items. The advantage of de-cluttering is that it allows for effective inspections and monitoring
    - Appropriate plant selection and placement, pruning, irrigation, mowing and removal of plants attracting pests and/or providing access to structures and sites
    - Providing information that educates school facility users and managers on the behaviors and conditions that started the pest problem and the behavioral changes that are needed to eliminate and avoid future pest problems
- Physical and mechanical control practices, which include exclusion methods that prevent pests from entering as well as other non-chemical interventions such as traps, vacuuming, steam cleaning, or physical barriers
- Biological control or the use of an organism to control another organism generally through predation or parasitism
- Chemical control, which includes the judicious use of pesticides according to the label
- Evaluation of the control strategy
- Continuous monitoring using various traps and pest sighting logs
- Documentation and record keeping
- DEP GI-BMPs are followed by PMPs and schools

IPM programs in schools succeed when the school population understands the process of IPM, how their behavior contributes to avoiding pest problems and where to report a pest in the event that there is a sighting so that appropriate action can be taken.

PRACTICING IPM ON A CONTINUUM

Every school is unique. Every IPM program should contain similar components (inspection, pest identification, treatment strategy implementation, evaluation and documentation). The details of a program will be particular to each school's resources and commitment to pest management. IPM is a process with the goal of proactively preventing pest infestations ("sustainable IPM"). IPM program development usually goes through three major phases (see sections on "Verifiable IPM" and "Sustainable IPM"), which can overlap and build on a continuum:

- Basic IPM: Using an IPM approach to resolve a single pest problem. Implementation of control strategies may be the first action of an IPM program that is just beginning because they know they

have a pest infestation but have not yet put the monitoring phase in place. For example, the IPM coordinator may select sanitation and baiting to take care of a cockroach problem. This action is basic IPM.

- Verifiable IPM: A maturing program will elect to proceed to "verifiable IPM" because it builds a system to hold people accountable by communicating with each other and through documentation of the basic IPM components, described in the "Integrated Pest Management" section above.
- Sustainable IPM: A mature program that has incorporated IPM into the school's daily operational activities. A PMP together with a few key school people can develop a "verifiable IPM" program; however, in order to be a "sustainable IPM" program, education and communication to the entire school population is required so that they are aware of how their behavior contributes to the introduction of pests and pest infestations. A benchmark of a sustainable IPM program is when the behavior of the school population changes in support of a pest-free environment.

It can take years to develop a sustainable IPM program. The level of IPM practiced at each school depends on staff training and expertise, the level of funding provided for pest management and building maintenance, and the commitment of school administrators and school boards within the school system. Some schools are able to afford major facility renovations which result in exclusion as a main tactic of pest control (i.e., preventative) with very little pesticide usage while other schools are limited to intensive monitoring and more treatment (i.e., reactive) instead of being able to execute major exclusion projects. Where an IPM program is clearly "verifiable" and eventually "sustainable", schools have individuals with pest management knowledge in leadership positions.

VERIFIABLE IPM

For the purposes of these BMPs, at a minimum, a successful verifiable IPM program will be defined as

- The absence of pest infestations (the occasional pest does not indicate an infestation)
- The presence of monitors, such as glue boards and pheromone traps
- Faculty and staff knowing where to report a pest before it becomes a problem (communication)
- Documentation, including but not limited to
    - Pest sighting logs
    - Work requests for pest management
    - Actions taken to resolve the problem, including identification of pest
    - Record of pesticide use, if needed

Verifiable IPM is practiced on a continuum that varies from reacting to pest problems to proactively managing and preventing pest problems. Verifiable IPM does not eliminate the use of pesticides, but it also does not mean routine or regularly scheduled spraying or treatment without a reason. A PMP together with a few

key school people can develop a “verifiable IPM” program; however, in order to be a “sustainable IPM” program, education and communication of the entire school population is required so that they are aware of how their behavior contributes to the introduction of pests and pest infestations. A verifiable IPM program is a required part of a sustainable IPM program.

SUSTAINABLE IPM

Pest outbreaks often take schools by surprise. Staff is pulled from other scheduled duties to take care of a pest complaint and this can be a pattern that begins an unsustainable cycle that leads to reacting to pest problems and disrupting schedules for preventative maintenance. Often when there is a pest outbreak at a school, it takes many more resources to resolve the pest issue than it would have taken to simply prevent it. A sustainable IPM program will help to prevent pest problems from occurring and protecting the building and landscape investment. Thus, for the purposes of the BMPs, *we define sustainable IPM as a set of practices committed to long-term pest prevention as a first line of defense and avoiding pest infestations through continual education and a systematic monitoring and notification system should pests be introduced into the school*.

The most successful sustainable IPM programs have incorporated pest management activities into daily operational activities of the school population. No school employee is looking for another duty. It is important to emphasize that IPM is a matter of “just do what you are doing now, just think pests.” This shift in attitude reduces resistance to implementation. For example, the school staff is responsible for security of the students. In order to carry out this responsibility, people are assigned to monitor property for any unauthorized personnel. If they monitor school property for people who do not belong on site, they can be asked to expand their monitoring for pests that do not belong on site. Spotting one cockroach and taking action is pest prevention; not knowing the cockroach has invaded and allowing the pest population to build over time is a pest problem. Another example involves energy conservation. Many schools are tasked with sealing buildings as part of energy conservation efforts. If buildings are properly sealed, pests will also be excluded and prevented from gaining access. Building and landscape maintenance are an important and often overlooked component of pest management. However, there are instances when the “do what you’re doing now” rationale is not enough to motivate people. At times, clients in an IPM program are resistant to decluttering and doing the sanitation necessary for sustainable pest control. Likewise, pest control technicians are not authorized to re-organize or throw away customer property. In such cases, sanitation as a principle component of the IPM program is greatly compromised and thus, so is program sustainability.

A sustainable IPM program will help to conserve resources. Pest control becomes unsustainable due to lack of personnel or high costs if pest populations are allowed to increase to a point where it takes numerous visits or call-backs to control a problem. Additionally, if no IPM program is in place, staff may not under-

stand how IPM can work to provide more complete relief from pests and they pressure pest control technicians to “spray everything” whether it is warranted or not. Spraying everything is not IPM.
The goal of long-term pest prevention implies that there is a system in place to deal with preventative maintenance and the introduction of pests before they become infestations as well as communication and education of the school population on pest management issues. Sustainable IPM requires that monitoring be viewed as a key part of the pest control plan. All too often, pest control services are suspended when there is not an active infestation due to the false belief that pest control is no longer needed. The absence of pests means that the IPM program is successful and the program is meeting its primary goal.

Components in a sustainable IPM program:

- **Incorporating** pest management into existing operational activities.
- **Intercepting** a pest introduction before it becomes an infestation by an active monitoring program. An infestation can be defined as the presence of more than one stage of the life-cycle (e.g., eggs, nymphs and adults) or the presence of certain difficult weeds such as goosegrass.
- **Communication system.** Staff must know who to contact if there is a pest sighting. Pest sighting logs are present to help create a documentation trail.
- **Setting expectations**. IPM is a process, not miracle. The school population must understand that IPM does not mean that the school will never have pests. In fact, in Florida, it is not if, but when the school will have pests again.
- **Changing behaviors**. Successful programs have school populations willing to change the behaviors that cause the pest infestation in the first place. Behavioral changes only happen with regular communication and education on pest management matters.
- **Engaging** the school population in activities such as de-cluttering is a way to include the school community in a common goal. De-cluttering by staff and students also makes them part of the problem solving process. A clean, clutter free environment reduces pest pressure.
- **A system for continual training and reiteration of expectations to the school population.** School populations are transient by definition. Student populations are constantly in flux as some students graduate from one grade to another and new students enter into the school population. Student and staff turn-over will mean that at a minimum, annual training is required to maintain school population participation in the IPM program.
- **Irrigation maintenance, aeration and mowing** are examples of ongoing practices that cannot be allowed to lapse

Finally, because IPM is practiced on a continuum, the sustainability of IPM programs is also on a continuum. If a school cannot afford to fix its building envelope to exclude pests from entering, but they are monitoring for pests as well as the other components for a verifiable IPM program, they are doing what they can to achieve sustainable IPM. It is important to understand what goals are attainable for various schools and

work with them as a starting point. Unrealistic goals will discourage staff from trying. A basic level of IPM is better than no IPM at all.

SCHOOL IPM PRACTICES

A school IPM program emphasizes three fundamental elements:

1. **Pest Prevention:** IPM is a preventive maintenance process that seeks to prevent pests from entering structures or to suppress pest reproduction if there is an introduction. Pest prevention is most effectively achieved by inspection and monitoring on a continual basis for pests and pest conducive conditions, particularly in pest vulnerable areas. **Expect to Inspect!**

   Pest management professionals (PMPs) should use management practices which include, but are not limited to:

   a. Removing pest habitat, sources of food and water, and breeding areas where possible
   b. Preventing access to structures
   c. Managing environmental factors, such as temperature, light, humidity, atmosphere, irrigation and air circulation, to prevent pest reproduction and serve as a deterrent to pest infestation.
   d. Faculty, staff and student education by working with the IPM coordinator. Education includes, but is not limited to how faculty and staff can contribute to the IPM process by decluttering, preventing access to structures and managing environmental factors within their control

- **Multiple Management Strategies and Tactics**. The process of IPM includes devising and implementing management strategies based on pest identification that are integrated into a comprehensive plan that is not limited to:

   a. Providing faculty and staff with information about behaviors, conditions, and policies that allow pests access to the site, food, water and habitat
   b. Inspection and identification of pest problems
   c. Cultural practices
      i. Sanitation and pest harborage removal. De-cluttering is the most important accomplishment toward achieving pest control. It allows for effective inspections and monitoring

ii. Appropriate plant selection and placement, pruning, irrigation, mowing and removal of plants attracting pests and/or providing access to structures

iii. Providing information that educates clients on the behaviors and conditions that started the pest problem and the behavioral changes that are needed to eliminate and avoid future pest problems.

d. Physical and mechanical control practices, which include exclusion methods that prevent pests from entering as well as other non-chemical interventions such as traps, vacuuming, steam cleaning, or physical barriers

e. Biological control or the use of an organism to control another organism generally through predation or parasitism

f. Chemical control, which includes the judicious use of pesticides according to the label

g. Evaluation of the control strategy

h. Continuous monitoring using various traps and pest sighting logs

i. Documentation and record keeping

- **Systems Approach**. IPM must be incorporated into the daily operational activities of the school population. A pest management perspective should be incorporated in procedures and plans involving cleaning, waste management, food service and handling, storage, repair and alteration, landscape maintenance practices and design and construction. In order to integrate daily operational activities and pest control, the PMP must form a partnership with administrators, staff, students, custodial and kitchen staff, grounds maintenance personnel and all other PMPs.

HOW TO IMPLEMENT THE PROGRAM

The PMP shall adopt the following practices at each site:

1. Establish a partnership with the IPM coordinator who facilitates education, participation in problem solving, and feedback. Other designated representative(s) may also be included such as administrators, facilities managers and kitchen managers. The PMP should take all opportunities to continue communication and provide on-going education.

2. The PMP and IPM coordinator must establish the responsibilities of the faculty, staff and students.

3. The PMP and IPM coordinator must discuss the recommended management strategies including

the relationship that will be necessary to solve the pest problem

4. The PMP, IPM coordinator and other school officials must set expectations for the program by discussing the fundamentals of IPM (e.g., using knowledge of pest biology, plant biology, monitoring, trapping, baiting, pest exclusion, partnership with PMP, all of which lead to effective, long-term pest control and minimal pesticide use)
    a. If appropriate, discuss pest tolerance levels and thresholds that will trigger an inspection by the PMP or the application of a pesticide
    b. Discuss with the customer all IPM tools used by the company
    c. Consult with the customer on the products that may be used on that site and how they fit into the treatment process based upon formulation and use patterns
    d. Discuss options for management and the PMP's recommended treatment strategies. Review a possible course of action to be taken throughout the treatment process based upon the individual tolerances of that account
    e. Discuss the possible outcomes (if known) of the treatment methods, how long they might take to impact the pest, what they may expect and the estimated costs of additional services

5. Thoroughly inspect the property. The initial site assessment and subsequent inspections must be performed by an individual trained in the appropriate category of pest control as delineated in Chapter 482, FS. It is recommended that key personnel (administration, facilities managers and kitchen managers) be involved with the inspection. At a minimum, inspections must include the following: (Appendix A of the welcome package on UF IPM website at http://schoolIPM.ifas.ufl.edu)
    a. Identify pest(s). Understand the pest's biology, behavior and habitat areas
    b. Prepare a written list/map of all pest(s) (using common names), where they were discovered and their locations and the dates of pest sightings
    c. For each pest, identify:
        i. Extent of problem, and/or amount of damage
        ii. Conditions conducive to pest infestations
        iii. Habitat modifications required
    d. Pest-proofing/repairs needed inside and outdoors

6. Record a detailed history about the pest problem(s):
    a. Type of problem(s) and/or pest(s),
    b. Evidence of problem(s) and/or pest(s),
    c. Location of problem(s) and/or pest(s),

d. Actions already taken by the customer (or prior PMP) and results, and
e. Incidents, actions, weather conditions, etc. that occurred prior to or around the time the pest problem was first noticed that might be linked to the pest infestation

7. Discuss the written report of inspection findings with the IPM coordinator including pest/problem, location, and severity
    a. Document the findings of the inspection
    b. Make recommendations on how to correct the problems at the site. These include:
        i. Eliminating sources of food, water, and shelter, and conducive conditions, such as improper mowing, plant selection, irrigation, etc.
        ii. Repairs that need to be made or modifications to the structure
        iii. Modify behavior of the students or staff that contribute to pest infestations

8. Develop a written site-specific IPM Plan
    a. Focus on solving pest problems using prevention, long-term solutions, treatment strategies and products
    b. Select, integrate, and apply appropriate IPM strategies to limit availability of food and habitat, reduce pest reproduction, limit pest access to the structure, encourage healthy plant growth and directly suppress the pest
        i. Choose treatment tactics that are appropriate to the pest and the site. These tactics may include customer education, sanitation, physical/mechanical controls, horticultural methods, biological controls, and when appropriate product applications
        ii. Customize treatments to meet the customer's needs, the site condition, and the surrounding environment
        iii. The plan, coupled with pest problems encountered, will be used as a guide for product selection
    c. The site plan must be evaluated on an annual basis and modified as deemed appropriate

9. Provide customer with inspection records and recommendations in accordance with the service agreement

10. Establish a monitoring program appropriate to the site. Monitoring shall cover the following:
    a. Evaluation of the success of actions taken by the customer and the PMP
    b. Reinspection of problem areas to determine if recommendations addressing conducive conditions have been completed
    c. Replacement of monitors, if necessary

d. Inspection for new problems
e. Communication to update the customer
f. Assessment of customer's satisfaction with program
g. Education of school staff on how to "read" a pest monitor

11. Maintain written records of the pest management process (Refer to the "Recordkeeping Standard").

12. Evaluate effectiveness of the program on a regular basis as agreed upon with IPM coordinator

TREATMENT STRATEGIES

Non-chemical options

1. Sanitation (including harborage reduction), behavioral, physical and mechanical issues:
    a. Identify conditions that contribute to pest problems
    b. Document those conditions and make recommendations for improvement
    c. Report to the IPM Coordinator or designated school representative

2. Biological Controls
    a. Identify the use and benefit of biological control agents such as release of parasitic wasps to control Pink Hibiscus Mealy Bug
    b. Coordinate the release of biological control agents with the IPM Coordinator or the designated school representative as this may alter pest management strategies in the management plan

Product control options

Numerous products are available for pest control in schools. In general, risk is related to exposure and application method. Thus, the product application methods should be selected based on use of the most appropriate product that considers pest identification, infestation level, and product efficacy. Product applications may include but are not limited to containerized baits, targeted gel bait applications, insect growth regulators (IGR), desiccants, synergists, broadcast baits, crack and crevice, and spot applications. In addition, use of pre-emergent broadcast applications to control reoccurring infestations of pests such as fire ants, mole crickets, grubs, goosegrass, crabgrass, annual bluegrass, broadleaf and other weeds. The proper use of a pre-emergent can reduce overall pesticide usage when the timing of the applications and irrigation are performed correctly. Trunk injections are another example of a pre-emergent strategy.

Appropriate fertilization is an integral part of an IPM program for turfgrass and ornamentals using the DEP Green Industries Best Management Practices as a guide.

Product application

If using a control product, the following apply:

1. Product shall be applied in accordance with label directions and according to need. (Note: this does not in any way preclude monitoring or other interactions with the customer that may occur on a regularly scheduled basis.)
2. Products shall be applied in such a way as to minimize the risk to non-target organisms and the environment.
    a. A product application shall be made in a precise manner, in the smallest area to be effective, using the minimum quantity of product necessary to achieve control.
    b. An applicator, prior to and while applying a product, shall evaluate the application to minimize the likelihood of harm or damage to non-target species. No product application shall be made or continued when the application will unnecessarily:
        i. Expose persons or clothing of persons not involved in the application process; or
        ii. Cause damage to, or contamination of, non-target plants, animals, or other public or private property.
    c. Rodenticides must be used in accordance with label directions

RECORDKEEPING

1. Records should be retained by the pest management company for a minimum of 2 years, or according to internal company policy if longer than 2 years or the term of the service agreement.

2. Records should be maintained in sufficient detail and in a manner to be readily understood and to demonstrate compliance with the School IPM BMPs.

3. Records covering pest management must document the practices taken along with any additional information the certifying agent deems necessary. Type and number of pest control devices (e.g., snap traps, glue boards, insect light traps) with these locations marked on a site map.

4. All records for product application must include common name of the product used, target pest, rate applied and approximate quantity used, location of application, method of application, date and time of application, and name of the applicator.

5. Copies of inspection records and recommendations must be provided to customers in accordance with service agreements.

6. Approvals and other documentation must be retained in accordance with state and/or federal requirements.

DEFINITIONS

Bait: A product that combines an active ingredient with a palatable food source, attractant, or pheromone and formulated as pellet, gel, containerized, liquid, dry and block products.

Conducive conditions: An attribute of a given localized condition that can lead to a pest presence; and/or structural conditions that contribute to and infestation (e.g., broken or missing window screens, scalping turf, improper irrigation, incorrect plant, excessive moisture, unsanitary conditions).

Crack and crevice, or void treatment: Directed application of a product into an area where the product is not accessible (or visible) to people. The product must be applied in such a way as to prevent leakage from the crack and crevice or void. Crack and crevice and void openings commonly occur at expansion joints in a structure, between different elements of construction, between equipment and floors, and deficiencies on the interior and exterior of a building (i.e. cracks in the foundation and walls and building materials separating due to deterioration over time).

Directed treatment: the use of equipment and techniques to limit pesticide applications to a defined target area.

Insect growth regulator (IGR): a substance effective in disrupting normal insect growth processes.

Integrated pest management (IPM): integrated pest management (IPM) means an approach to pest control that employs a problem solving process that balances the risks inherent from pests and pesticides to achieve long term pest suppression. IPM uses a wide variety of technological and management practices. Control strategies in an IPM program extend beyond the application of pesticides to include structural and procedural modifications that reduce the food, water, harborage, and access used by pests. For the exterior, IPM practices include plant selection and placement, pruning, irrigation, and mowing.

Pest(s): any living organism or plant that causes damage or economic loss or transmits or produces disease.

Pest management: a comprehensive approach to dealing with pests that strives to reduce pest status to tolerable levels by using methods that are effective, economically sound, and ecologically compatible often involving multiple strategies.

Pesticide: any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.

Perimeter treatment: a treatment to the exterior perimeter of a building where the structure is completely or nearly completely encircled by a continuous pesticide application.

Pest management professional (PMP): an individual licensed or certified under Chapter 482, Florida Statutes, to provide commercial pest management services.

Pheromone: a substance produced by one animal used to communicate with another animal of the same species. These may also be synthetically produced to mimic the naturally occurring compound and used in both control and monitoring of a pest population.

Records: any and all communication or documentation (i.e. site plans, contracts, recommendations, application log, site map, sanitation reports, invoices, etc.) generated, received, or used throughout the service life of the account.

Scheduled (or calendar) treatments: treatments preformed on a regularly scheduled basis regardless of the data generated through monitoring or other surveillance activities

Spot treatment, structural: "application to limited areas on which insects are likely to occur, but which will not be in contact with food or utensils and will not ordinarily be contacted by workers. These areas may occur on floors, walls, and bases or undersides of equipment. For this purpose, a 'spot' will not exceed 2 square feet.

Spot treatment, exterior, see "zone application"

Tamper-resistant bait station: (for rodents): rodent bait stations that meet the criteria established by the U.S. Environmental Protection Agency

Zone application: Zone applications are in contrast to broadcast treatments where the entire lawn or landscape is treated with a pesticide. Zone treatments are done on an active pest population that is confined to one section of the lawn or landscape.

Contacts

Faith M. Oi, Ph.D.
Director, Florida School IPM Program
University of Florida
Entomology and Nematology Dept.
Box 110620
Gainesville, FL 32611-0620
PH: 352-273-3971
FAX: 352-392-0190
E-mail: foi@ufl.edu
Pest Management University: http://pmu.ifas.ufl.edu/
School IPM: http://schoolipm.ifas.ufl.edu/

Michael J. Page, Chief
Florida Dept. of Agriculture & Consumer Services
Bureau of Entomology and Pest Control
3125 Conner Blvd. Suite N, MS C-41
Tallahassee, FL 32399-1650
ph - 850.617.7988
Fax - 850.617.7967
Cell - 850.528.5316
Michael.Page@freshfromflorida.com

Acknowledgements

We thank the National Pest Management Association for sharing their GreenPro guidelines as a basis for us to develop sustainable IPM practices and the US EPA for partial support in the development of these BMPs (EPA Assistance Agreement No 0009811).