



## **INTEGRATED PEST MANAGEMENT PLAN**

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## **Statement of Purpose**

The purpose of this integrated pest management (IPM) plan is to guide the use of environmentally sensitive pest management strategies and least-toxic control methods at Coastal Carolina University to enhance the health and safety of building users, and protect the environment. To ensure building users are informed and empowered to care for their own health with regard to pest management activities, the plan includes procedures for notifying occupants and visitors in advance of any pesticide application other than a least-toxic pesticide.

## **Goals**

The goals of the IPM program at Coastal Carolina University are:

1. Protect human health and the surrounding environment by employing a range of preventative strategies and using least-toxic products for pest control and eradication.
2. Inspect and monitor pest populations and locations to enhance control strategies.
3. Minimize the quantity and toxicity of chemicals used for pest management.
4. Minimize environmental impacts by using species-specific pesticides and targeting application areas carefully.
5. Establish clear criteria for acceptable circumstances in which using a pesticide other than a least-toxic pesticide is necessary; toxic pesticides shall only be used when there is a threat to public health and safety, or to prevent economic or environmental damage, and only after other alternatives have been implemented and are shown to be ineffective.
6. Provide building occupants and visitors with advanced notice of IPM activities involving use of a pesticide other than a least-toxic pesticide.

## **Program Components**

IPM promotes the use of a range of preventative and non-chemical approaches to control pest populations and stave off infestation. If an infestation with unacceptable impacts occurs, thereby warranting additional treatment, IPM then favors the use of least-toxic pesticides. The targeted application of a toxic pesticide is allowed only after all other reasonable non-toxic options are exhausted. This plan outlines preventative best practices and eradication strategies approved for use at CCU. Provisions for the use of least-toxic pesticides, and toxic chemicals when necessary, are outlined should a pest infestation occur. In addition, the matrix below provides a framework for the dealing of pests as they occur on campus.

## Pest Specific Matrix

IPM RESPONSE PLAN FOR:								
This pest is a:	# of pests	Actions to be taken to control the problem						
		First Actions	Keep Pests Out	Remove Pests' Food & Water	Reduce Pest Shelter	Monitor for Pests	Treat the Problem	Follow-up
Health Concern__								
Safety Issue__								
Nuisance__								
Other:								

\* Focus on least toxic pesticide alternatives.

One of the characteristics of an IPM approach that makes it so effective is that the basic decision making process is the same for any pest problem in any location. The strategies and tactics may change, but the steps taken to decide if and when treatment is needed and which methods to use are the same each time. An IPM program is built around the following components:

- Monitoring the pest populations and other relevant factors
- Accurate identification of the pest
- Determining injury and action levels that trigger treatments
- Timing treatments to the best advantage
- Spot treating the pest (to minimize human and other non-target organism exposure to pesticides)
- Selecting least disruptive tactics
- Evaluating the effectiveness of treatments to fine tune future actions
- Educating all people involved with the pest problem

### The Decision Making Process: The If, Where, When and Which

1. *IF treatment action is necessary.* Instead of taking action at the first sign of a potential pest problem, the IPM process begins with asking whether any actions are needed by assessing the potential injury level. Certain pests may pose a greater potential threat in small numbers or may become threatening only in large numbers. By assessing the injury

level on a pest specific basis, further action plans can be made for the inclusion or exclusion of treatment protocols.

2. *WHERE treatment activity should take place.* If it is decided that some treatment action is necessary, it is important to thoroughly survey the area to determine the best place to treat in order to solve the problem. Treatment should be applied where actions will have the greatest effect.
3. *WHEN action should take place.* The timing of treatments is important and should be taken into consideration. Often there are optimal times during the pest's life cycle when treatment would have the greatest effect. Conversely, there are also times when treatment could prove to be ineffective or even worsen the problem. The school class schedule will also affect the treatment schedule, as it is important to plan ahead for pesticide use.
4. *WHICH mix of strategies and tactics are the best to use.* There are three guiding principles to use when choosing treatments: conserve and enhance naturally occurring biological controls; use a multi-tactic approach; and view each pest problem in its larger context.

### **Setting Injury and Action Levels**

Before any course of action can be determined, it is first important to determine the injury level. The injury level is the level of damage or the level of pest population that causes unacceptable injury. Once the injury level has been determined, an action level must be set. The injury level will always be higher than the action level, meaning that action should occur before the situation progresses the point of unacceptable injury (see Fig. 1). The action level is the level of pest damage or number of pests that triggers treatment to prevent pest numbers from reaching the injury level.

*Aesthetic injury* applies mainly to the damage of plants. This is injury that affects the appearance without affecting the health of the plant. There are few indoor pests or pests of structures that cause only aesthetic damage.

*Economic injury* refers to pest damage that causes monetary loss.

*Medical injury* relates to human health problems caused by pests.

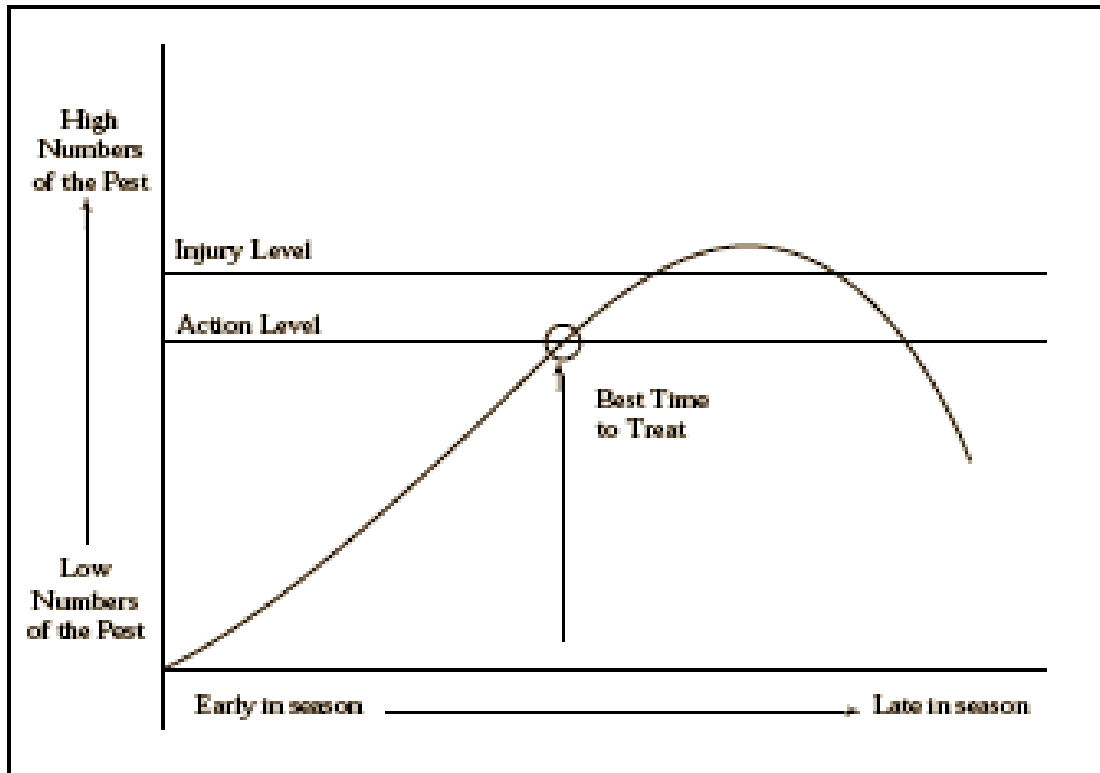


Figure 1: Injury and Action Levels

### Criteria for Selecting Treatment Strategies

Once the IPM decision making process is in place and monitoring indicates that pest treatment is needed, the choice of specific strategies can be made. Choose strategies that are:

- Least hazardous to human health
- Least disruptive of natural controls in landscape situations
- Least toxic to non-target organisms other than natural controls
- Most likely to be permanent and prevent recurrence of the pest problem
- Easiest to carry out safely and effectively
- Most cost effective in the short and long term
- Appropriate to the site and maintenance system

### What are the Treatment Options?

Education. Education is a cost effective pest management strategy. Information that will help change people's behaviors, including proper disposal of waste and proper storage of food, will play a part in managing certain pests.

Habitat modification. Pests need food, water and shelter to survive. If the pest manager can eliminate or reduce the resources pests need to flourish, the environment will support fewer pests. Examples of habitat modification include: design or redesign of structures and landscape

plantings; improved sanitation; eliminating water sources for pests; and eliminating the pest habitat.

*Physical controls.* Methods of physical control (or direct removal of pests from an environment) include vacuuming, trapping, erecting barriers, controlling the indoor climate and removing pests by hand.

*Biological controls.* A biological control uses a pest's natural enemies to attack and control the pest. Biological control strategies include conservation (conserving the biological control application), augmentation (artificially increasing the number of biological controls in a given area) and importation (importing foreign controls).

*Least toxic chemical controls.* Least toxic pesticides are those with all or most of the following characteristics: they are effective against the target pest, have a low acute and chronic toxicity to mammals, biodegrade rapidly, kill a narrow range of target pests and have little or no impact on non-target organisms. These include materials such as the following:

- Pheromones and other attractants
- Insect growth regulators
- Repellents
- Desiccating dusts
- Pesticidal soaps and oils
- Some botanical pesticides

The following criteria should be used when selecting a pesticide:

- Safety
- Species specificity
- Effectiveness
- Endurance
- Speed
- Repellency
- Cost

## **Scope**

This IPM plan applies to the building interior and outdoor grounds of Coastal Carolina University. All pest control vendors will follow best practices for pest management and uphold Coastal Carolina University's commitment to environmental stewardship by implementing the following operational plan for integrated pest management. This plan is applicable at all times at Coastal Carolina University.

## **Definitions**

**Emergency** – A pest outbreak that poses an immediate threat to public health or will cause significant economic or environmental damage.

**Least-toxic pesticide** – Any pesticide product that meets CCU’s Tier 3 hazard criteria is low hazard, and considered a least-toxic pesticide. Tier 3 products are the next line of defense against pests after preventative measures are exhausted.

**Pesticide** – Any substance, or mixture of substances, used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, which may be detrimental to vegetation, humans, or animals.

**Tiered Materials** – CCU’s pesticide classification system based on hazard potential. Products are evaluated against comprehensive list of hazard criteria including carcinogenicity, reproductive toxicity, endocrine disruption, acute toxicity, hazard to birds/fish/bees/wildlife, persistence, and soil mobility, and are placed within the Tier structure based on the evaluation results.

Tier 1: Highest concern

Tier 2: Moderate concern

Tier 3: Lowest concern

Tier 4: Insufficient information available to assign to above tiers

## **Pest Control Contractors**

All pest control vendors contracted to work at Coastal Carolina University are responsible for adhering to this plan. When Coastal Carolina University enters into a new pest control contract or extends the terms of an existing contract that authorizes the application of pesticides in the building interior or outdoor grounds, the contract shall require that the contractor comply with this IPM plan. The contract documents shall also require the contracted company to maintain records in accordance with the IPM plan and submit this information to CCU within 30 days of initial verbal or written request. All pest control contractors will also be asked to submit a description of their staff IPM training and education programs.

## **Record Keeping**

Monitoring the effectiveness of the IPM plan over time requires diligent tracking of several items: pest populations and locations; management strategies employed; quantities and types of chemicals and products used; and the outcome of pest management activities. The pest control vendor is responsible for maintaining records that include the information below. See the appendix for the Record Keeping form that shall be used at Coastal Carolina University to standardize all record keeping activities.

1. Target pest
2. Prevention and other non-chemical methods of control used
3. Type and quantity of pesticide used
4. Location of the pesticide application
5. Date of pesticide application
6. Name of the pesticide applicator
7. Application equipment used
8. Summary of results



## **Performance Measurements**

The performance of the IPM program shall be compiled from IPM records and analyzed on an annual basis. An IPM report identifying the types of pest problems encountered at the building and the types and quantities of all pesticides used shall be generated by the pest control vendor and presented to the Facilities & Operations (F&O) Director for review each year. The following metrics shall be tracked throughout the year and documented in the report to evaluate the IPM plan at Coastal Carolina University over time:

1. The severity and location of all major pest infestations
2. The amount of each pesticide product used by volume
3. IPM measures employed to show ongoing compliance with Plan
4. Pest populations and locations to determine the effectiveness of preventative measures

A representative from the pest control company and CCU F&O will also hold quarterly meetings to discuss IPM and performance.

## **Building User Notification**

Notifying building users of pesticide applications other than a least-toxic pesticide is a critical component of the IPM plan. Providing occupants and visitors with the appropriate information at the appropriate time enables individuals to take precautions as they see necessary to protect their personal health. At Coastal Carolina University, a 72 hour advance notice to building occupants is required for the application of any pesticide other than a least-toxic pesticide. Advance notice procedures shall take the following form:

1. Post signs at least 3 business days before application of the pesticide product, and leave signs in place for at least 3 business days after application.
2. Post signs at every entry point to where the pesticide is applied, if applied in an enclosed area. In highly visible, open area locations, post signs around the perimeter of the area where the pesticide is applied.
3. Signs must be standardized and easily recognizable. See the appendix for the approved notification sign template.
4. Each sign must contain the following information:
  - a. The name and active ingredient of the pesticide product
  - b. The targeted pest
  - c. The application date
  - d. The signal word indicating the toxicity category of the pesticide product
  - e. The name and contact information of an individual that is responsible for fielding questions regarding the application.
5. Copies of posted signs shall be retained for record keeping purposes for one year.

## **Emergencies**

A pest outbreak is considered an emergency when it poses an immediate threat to public health or will cause significant economic or environmental damage. Emergency pesticide applications require a 24 hour advance notice to building users in accordance with procedures numbered 2 through 6 under the “Building User Notification” section of this plan.

## **General Preventative Practices**

General preventative practices are simple housekeeping and landscaping procedures that eliminate sources of food, water and shelter that attract pests to the building grounds and interior. Coastal Carolina University shall use the following methods as the first and primary means for controlling pests and preventing outbreaks:

### **Landscaping and Site**

1. Use mulch and other landscaping best practices to promote soil and plant health.
2. Use weed-free soil amendments.
3. Maintain and plan landscape features to eliminate safe havens for pests and rodents.
4. Keep vegetation trimmed 18 inches from the building and fill area with stones or similar material to prevent nesting.
5. Clean up plant debris, especially from fruit-bearing trees.
6. Remove invasive plants that are known to harbor or provide food for pests.

### **Building Infrastructure**

1. Maintain the building envelope by weather-stripping around windows and doors, installing door sweeps, screens or other barriers, and sealing cracks and crevices to prevent pests from entering the building.
2. Remove hiding places by cleaning up clutter such as cardboard boxes, crates, used tires, wood piles.
3. Manage trash receptacles and dumpster areas for clutter and cleanliness to minimize food sources and hiding places.
4. Eliminate water sources by fixing leaky pipes, cleaning out drains and rain gutters, and preventing water from pooling on concrete or soil after irrigating landscape.
5. Rinse all food and beverage containers before placing in recycling bins.

## **Materials for use – Least Toxic Pesticides**

Chemical pesticides are considered a last resort under the tenets of integrated pest management. This control strategy is to be used at Coastal Carolina University only after general preventative practices and non-chemical options are exhausted. Pesticides that meet the requirements of Tier 3 are considered least-toxic and may be applied without building user notification when chemical product use is required. To qualify as a Tier 3 material, all of the following statements must be true:

1. Product contains no known, likely, or probable carcinogens
2. Product contains no reproductive toxicants (CA Prop 65 list)
3. Product contains no ingredients listed by CA DTSC as known, probable, or suspect endocrine disrupters
4. Active ingredients has soil half-life of thirty days or less

5. Product is labeled as not toxic to fish, birds, bees, wildlife, or domestic animals

### **Which Pesticides are the Least Toxic?**

The term “least toxic” refers to pesticides that have low or no acute or chronic toxicity to humans, affect a narrow range of species and are formulated to be applied in a manner that limits or eliminates exposure of humans and other non target organisms. Fortunately, there are an increasing number of pesticides that fit within this least toxic definition. Examples include products formulated as baits, pastes or gels that do not volatilize in the air and that utilize very small amounts of the active ingredient pesticide and microbial pesticides formulated from fungi, bacteria or viruses that are toxic only to specific pest species but harmless to humans.

Least toxic pesticides include:

- (a) Boric acid and disodium octobrate tetrahydrate
- (b) Silica gels
- (c) Diatomaceous earth
- (d) Nonvolatile insect and rodent baits in tamper resistant containers or for crack and crevice treatment only
- (e) Microbe based pesticides
- (f) Pesticides made with essential oils (not including synthetic pyrethroids) without toxic synergists and
- (g) Materials for which the inert ingredients are nontoxic and disclosed.

The term least toxic pesticides does not include a pesticide that is:

- (a) Determined by the U.S. EPA to be a possible, probable or known carcinogen, mutagen, teratogen, reproductive toxin, developmental neurotoxin, endocrine disrupter or immune system toxin
- (b) A pesticide in U.S. EPA’s toxicity category I or II
- (c) Any application of the pesticide using a broadcast spray, dust, tenting, fogging or baseboard spray application.

### **Responsible Parties**

Director of Facilities & Operations, is responsible for overseeing the implementation of the IPM plan and ensuring contractor compliance and responsible for supervising record keeping and performance measurement, which is primarily the responsibility of contracted pest control companies.

Facilities Supervisor is responsible for quality assurance/quality control processes. This position shall verify that the plan is being implemented consistently and correctly, that performance persists over time, and that performance measurement methods truly reflect actual outcomes.

All pest control vendors contracted to work at Coastal Carolina University are responsible for adhering to this policy.

## **Training**

All pest control contractors hired for Coastal Carolina University will submit a description of their staff IPM training and education programs.

## **Resources**

1. UC IPM Online- free training.  
<http://www.ipm.ucdavis.edu/training/>
2. The Integrated Pest Management Institute of North America, Inc. provides news, standards, and information about upcoming IPM conferences and webinars.  
[www.ipminstitute.org](http://www.ipminstitute.org)
3. Beyond Pesticides is a non-profit organization committed to pesticide safety.  
[www.beyondpesticides.org](http://www.beyondpesticides.org)
4. For toxicity categories and pesticide label statements, visit the U.S. EPA Web site at: [http://www.epa.gov/pesticides/health/tox\\_categories.htm](http://www.epa.gov/pesticides/health/tox_categories.htm)
5. [This template provided and adapted from Santa Barbara City Colledge](#)

## **Appendix**

1. Pre-notification and Notification sign template for toxic pesticide applications
2. IPM Evaluation Form

# Pre-Notification of the Use of Pesticides

(This notice should be received at least 72 hours prior to pesticide use)

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**Date:** \_\_\_\_\_

**To:** Parents and guardians of students, and staff of: Coastal Carolina University

**From:** IPM Coordinator \_\_\_\_\_

Phone Number: \_\_\_\_\_

**Subject: Notification of the Use of Non Low Impact Pesticides**

This notice is to advise you that the following pesticide(s) will be used at [insert name of Building]:

Pesticide Common Name		
Pesticide Trade Name		
EPA Registration Number		

**Location of the pesticide application:** \_\_\_\_\_

**Reason for the pesticide application:** \_\_\_\_\_

**If an indoor application, the date and time it is planned:**

DATE \_\_\_\_\_ TIME \_\_\_\_\_

**If an outdoor application, 3 dates must be listed, in chronological order, on which the outdoor application may take place if the preceding date is canceled.**

DATE \_\_\_\_\_ DATE \_\_\_\_\_ DATE \_\_\_\_\_

**Description of the possible adverse effects of the pesticide as per the Material Safety Data Sheets for the pesticides to be used, if available:**

\_\_\_\_\_  
\_\_\_\_\_

**Pesticide product label instructions and precautions related to Public Safety.**

\_\_\_\_\_  
\_\_\_\_\_

**Note: By law, we must advise you that:** *The Office of Pesticide Programs of the United States Environmental Protection Agency has stated: "Where possible, persons who potentially are sensitive, such as pregnant women, infants, and children, should avoid any unnecessary pesticide exposure."*

## NOTICE OF PESTICIDE APPLICATION

For further information regarding this notice please contact the School IPM Coordinator:

\_\_\_\_\_  
Phone Number: \_\_\_\_\_

The following pesticides will be used at : Coastal Carolina University

Pesticide Common Name	Pesticide Trade Name	EPA Registration Number
Pesticide Common Name	Pesticide Trade Name	EPA Registration Number

The Office of Pesticide Programs of the United States Environmental Protection Agency has stated: “Where possible, persons who potentially are sensitive, such as pregnant women, infants, and children, should avoid any unnecessary pesticide exposure.”

**Location of the pesticide application:** \_\_\_\_\_

**Reason for the pesticide application:** \_\_\_\_\_

**If an indoor application the date and time it is planned:**

DATE \_\_\_\_\_ TIME \_\_\_\_\_

**In the case of an outdoor application, 3 dates must be listed, in chronological order, on which the outdoor application may take place if the preceding date is canceled.**

DATE \_\_\_\_\_ DATE \_\_\_\_\_ DATE \_\_\_\_\_

**Description of the possible adverse effects of the pesticides as per the Material Safety Data Sheets for the pesticides to be used, if available:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Pesticide(s) product-label instructions and precautions related to Public Safety:**

\_\_\_\_\_













