



INTEGRATED PEST MANGEMENT PLAN

JAMES MADISON UNIVERSITY

Introduction

Pests are populations of living organism (animals, plants, or microorganism) that damage or interfere with desirable plants or aesthetics, or impact human or ecosystem health. Integrated Pest Management (IPM) is an approach that establishes a sustainable approach to managing pests by utilizing detailed knowledge of the pest organism's life cycle and ecology to intervene in the most effective and appropriate manner utilizing management tools that minimize economic, health and environmental risks.

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 James Madison University (JMU). Integrated Pest Management is defined as managing pests (plants, fungi, insects, and/or animals) in a way that protects human health and the surrounding environment and that improves economic returns through the most effective, least-risk option. Core elements of IPM include:

- Use of least-toxic chemical pesticides
- Minimum use of chemicals
- Use of chemicals and pesticides only in targeted locations and for targeted species
- Routine inspection and monitoring
- Proactive communication

Scope

This IPM plan applies to the building interior and grounds of all JMU areas. The plan includes approved IPM strategies for managing and eradicating pests that are common to the area, and provides resources to facilitate learning about new and emerging IPM strategies. This plan is applicable at all times.

Goals

The goals of the JMU IPM plan are to minimize the impact of site management practices on the local environment, and to reduce the exposure of occupants, staff and maintenance personnel to potentially hazardous chemical, biological and particle contaminants.

The plan addresses environmental practices for outdoor and indoor integrated pest management. Outdoor IPM should focus on keeping the property's pest populations under control and preventing pests from entering the building, with a focus on the building envelope and landscaping features. Indoor IPM should focus on maintaining the building envelope to avoid intrusions and managing pest attractants.

This IPM plan manage pest to:

- Reduce any potential human health hazard or to protect against a significant threat to public safety
- Prevent loss and damage to JMU's structures or property
- Prevent pests from spreading into the community, or to plant and animal populations beyond JMU's facilities
- Enhance the quality of life for students, staff, visitors and the community

Responsible Parties

The IPM supervisor is responsible for the consistent monitoring and correct implementation of the IPM plan. This includes coordinating with contractors and technicians. Technicians' primary responsibilities are to monitor sites on campus and promote good housekeeping practices. Various Lead Technicians shall supervise the daily operation of technicians. The Virginia Department of Agriculture and Consumer Services (VDACS) is the licensing body for technicians. Technicians receive certification every two years with a four-hour training. Licensing types include commercial and registered and varies by the three pest coverage types at JMU i.e. ornamentals (primary), turf, and general pesticides. Ehrlich through a contract agreement with JMU shall provide additional monitoring, pest identifications, and pest control. Ehrlich shall provide services based on stipulations of the contract and through coordination with the IPM supervisor.

Performance Measurements Quality Assurance and Control

The IPM staff shall analyze compiled IPM records on an annual basis to measure the environmental performance of the IPM program. JMU shall generate IPM records identifying the types of pest problems encountered at the buildings and the types and quantities of all pesticides for review. The following metrics shall be tracked annually and documented to evaluate the IPM plan:

1. The location of all major pest infestations
2. The amount of each pesticide product used by volume

JMU personnel, including facilities and custodial staff shall perform routine inspection and monitoring. Particular attention will be paid to problem areas.

Monitoring and Identifying Pests

The IPM staff and Ehrlich are responsible for identifying pests at JMU. The above parties shall employ techniques such as baiting, trapping, physical identification, and visual inspection to formally identify pests. This include installing pest monitors, interior and exterior rodent stations, and pheromone traps. Ehrlich and the IPM technicians shall record all sightings of potential pest and conduct a formal investigation to verify the threat.

IPM Practices and Strategies

The IPM program utilizes a four-tiered approach to pest control by setting action thresholds, monitoring and identifying pests, prevention, and finally control. The 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 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.

Means of Application

JMU uses several types of application to apply pesticides. These include bait applications, dust applications, aerosol applications, liquid applications, and granular applications. Aerosol, dust, and liquid applications are primarily limited to cracks and crevices.

In the case of emergencies due to accidents, all relevant 911 services will be contacted. JMU's HAZWOPER team is responsible for ensuring spills are properly attended to.

General Chemical Storage Practices

Chemicals are stored and used per the SDS standards for each product. Areas covered include storage areas, labels, product information, signage, preparation, and disposal. The IPM supervisor shall maintain safety data sheets for each pesticide used on JMU's properties.

Strategies for IPM Prevention

The following strategies are among many best management practices that JMU promotes and encourages as means to prevent pest infestation.

Indoor Sites

Entryways

- Keep exterior doors shut when not in use
- Keep vegetation, trees, shrubs, and ivy from contacting buildings

Classrooms and Offices

- Allow food and beverages only in designated areas
- Keep indoor plants healthy
- Keep areas dry as possible by removing standing water, water damaged or wet materials, and repairing water leaks

Food Preparation and Serving Areas

- Store food and wastes containers that are inaccessible to pests
- Create inhospitable living conditions for pests by reducing availability of food, water-dripping faucets, leaks, and dry out wet areas
- Improve cleaning practices, including the proper cleaning of food preparation equipment after use and removing grease accumulation from vents, ovens, and stoves

Rooms and Areas with Extensive Plumbing: bathrooms, locker rooms, science labs, and housekeeping closets.

- Promptly repair leaks and correct any situation that allows pests access to water
- Routinely clean floor drains, strainers and grates
- After use, promptly clean mops and mop buckets
- Keep area dry. Avoid conditions that allow condensation to form, increase ventilation if necessary

Maintenance Areas

- Clean trash cans on a regular basis
- Keep areas clean and dry as possible and remove all debris

Outdoor Sites

- Empty and clean trash cans regularly
- Provide adequate drainage away from structures
- Keep tree branches, shrubs, and ivy trimmed off buildings

POSTING AND NOTIFICATION OF PESTICIDE APPLICATIONS

The IPM staff discerns when there is a need to notify the JMU community on pesticide use on campus. In the advent of such notifications, directors for respective areas shall receive a notice by email. Directors are responsible for notifying personnel in their respective areas should the need arise. There is no general time window to notify directors, as notices are case specific. Information in emails shall include general notification messages. Information such as name of pesticides, and pest targeted shall be shared upon request. Immediately upon the use of a pesticide and at the discretion of the applicator, technicians shall post signage that includes information on measures undertaken in the respective area. Technicians shall use tags and locks accordingly.

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. JMU shall maintain records that include the information below.

1. Date, time, method, and location of pesticide application
2. Pest targeted
3. Prevention and other non-chemical methods of control used
4. Type and quantity of pesticide used, including trade name and active ingredient
5. Summary of results
6. Name of the pesticide applicator

7. Registration number

JMU records the above information manually on paper. The IPM supervisor will then add the information to an electronic database. Ehrlich records via electronic service reports. Ehrlich technicians then email reports to a superior to add to an electronic database.

Complains and Requests

The IPM supervisor shall handle all complaints and request by students, staff, faculty or any external personnel.

Species-Specific Animal Control Actions and Thresholds	
Pest	Actions
Ants	<p>Chemical of choice- various types of bait and pesticide products as needed.</p> <p>Outside residual perimeter treatments have shown to provide outstanding control of socially interactive pests like ants. They are non-repellent so ants will not detect its presence and will be exposed to it. Most ant species within the Shenandoah Valley forage outdoors on a regular basis. When these foraging ants cross this residual barrier, they will pick up some of the insecticide and transfer it to the rest of the colony through grooming, casual contact, and transference of food. This application will help eliminate interior ant colonies that forage outdoors, and eliminate any exterior colonies that attempt to enter a structure. Ehrlich uses their proprietary exterior ant bait stations to provide lasting protection for various formulations of insecticidal ant baits, including non-repellent solids, liquids, and granules.</p>
Roaches	<p>Chemicals of choice- various bait products, and growth regulators as needed</p> <p>Detected roaches will be treated with a growth regulator that prevents juvenile roaches from maturing into breeding adults. Ehrlich eliminates cockroaches by integrating a number of different methods including physical removal, targeted applications of</p>

	insecticidal dusts, baits, and insect growth regulators.
Rats and Mice	Ehrlich strategically places rodent bait stations on the exterior to provide initial lines of defense. This helps to prevent rodents from entering facilities. Technicians also place multiple catch traps, and various other trapping devices on the interiors as needed or as required by specification.
Bees	Technicians should mark area with a warning sign until exterminator arrives.
Termites	Technicians should vacuum detected termites from an area. They should then provide necessary treatments to affected areas.
Snakes	Snakes outside are left alone. Inside, if snake is three feet long or smaller, technicians will place sticky traps and seal the area. For snakes that are larger, or if snake is poisonous, technicians will seal the area for further measures to take place.
Birds	Personnel on hand should open windows and screens, and close all doors to allow birds to escape.
Bats	Technicians will treat bats accordingly. Personnel on hand should seal areas until technicians arrive.
Wild animals	Untrained personnel must never handle wild animals! Area should be sealed until professional aid arrives.
Assorted insects	There are many insects which can be seasonally particularly in the Fall when temperatures drop. Personnel can simply vacuum most of these insects. No other action will be required.