UMass Chan Medical School

Office of Facilities

Integrated Pest Management Plan

Grounds Management

Office of Sustainability

Pollination Association

December 2024

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1. Introduction

Integrated Pest Management (IPM) is a long-term, scientific approach to maintaining healthy landscapes and facilities that minimizes risks to people and the environment by:

- Emphasizing prevention first and seeking to eliminate the underlying causes of plant diseases, weed growth, and wildlife destruction rather than only attacking the symptoms (the pests);
- Discouraging pests by altering habitat conditions, employing physical controls, and enhancing pests' natural enemies;
- Avoiding routine use of pesticides. Pesticides are acceptable if other methods fail to keep pests at acceptable levels. Any applications must minimize unintended consequences, such as harm to people and pollinators.

The term "pest" is used with this Plan to refer to undesired vegetation (weeds), insects, and fungus. The term "pesticide" is used within this Plan to refer to herbicides, insecticides, and fungicides.

1.1 Outdoor Spaces Covered

This plan encompasses all outdoor spaces managed by the University of Massachusetts Chan Medical School (UMass Chan) which includes the 55 Lake Avenue Campus Area bordered by Belmont Street, Plantation Street, North Street, and Lake Avenue, and all offsite locations directly managed by UMass Chan.

2. Commitment to Integrated Pest Management

2.1 University Goals and Commitment

The goal of the UMass Chan IPM plan is to establish and sustain healthy turfs and gardens, thereby preventing or diminishing the opportunities for undesirable weeds and pests to take hold. A strong secondary concern is the health of UMass Chan's local ecosystem, including the campus and surrounding grounds and waterways. UMass Chan is committed to reducing landscape management practices that might harm pollinator habitat by following an IPM plan.

2.2 Compliance with State and Federal Regulations

The Massachusetts Department of Agricultural Resources (MDAR) regulates and licenses individuals who apply pesticides in public areas. All individuals applying pesticides on UMass Chan campus have undergone rigorous training and education to become licensed and are aware of the goals within this IPM plan.

All pesticide storage, transportation, and application shall be conducted in accordance with the requirement of the Federal Insecticide, Fungicide, and Rodenticide Act (7 United States Code136 et seq.), Environmental Protection Agency regulations in 40 CFR, Massachusetts state requirements, Occupational Safety and Health Administration Regulations, UMass Chan policies and procedures, and local ordinances.

2.3 Responsibilities of Stakeholders

Stakeholder	Responsibilities
Facilities (Grounds) Manager	Primary contact for this plan. Responsible for ensuring the plan is carried out. Reviewing the plan annually and making updates as needed.
Grounds Team Members	Remaining vigilant to pests.
Pest control and landscape vendors contracted by UMass Chan	Understanding the IPM plan and adhering to its guidance.
Office of Sustainability	In collaboration with the Grounds Team, review the plan annually and make updates as needed.

3. Pest Identification and Monitoring

3.1 Identification of Common Pests in Outdoor Spaces

The Grounds Team monitors pests daily by driving and walking around campus, and throughout their regular work duties. All Grounds Team members are trained in the identification of common pests. Group routine inspections are also conducted. The Grounds Team also responds to pests via notifications from the UMass Chan community. For any pests unfamiliar to the Grounds Team, they may consult outside sources such as the UMass Extension Program for identification of the pest or assessment of plant damage.

3.2 Non-exhaustive list of common pests on the UMass Chan campus

- Canada geese
- Deer
- Weeds and invasive plants
- Pathogenetic fungus such as Ceratocystis fungus
- Asian longhorn beetle

4. Preventative Measures

A lawn area that is properly managed should produce dense, thick turf-grass, which ideally will help to prevent invasive weed species from becoming established. Some weed growth should be anticipated and will be tolerated to some degree. Weeds on the quad will be tolerated less.

Seeding and aeration shall be used as mechanical means to promote healthy turf growth. Limited fertilizer shall be used to help promote healthy turf, particularly after high traffic events on the grass.

4.1 Landscape Design for Pest Prevention

Wood and stone mulch shall be distributed throughout garden areas, encircling individual trees and shrubs. The application of mulch will ensure an ample depth, effectively suppressing weed

growth and aiding in moisture retention. Precision in landscaping shall be maintained by utilizing a string trimmer or mechanical edger to line curbs, borders, and walkways.

4.2 Proper Waste Management Practices

The Grounds Team on campus shall consistently perform routine litter cleanup, ensuring the regular emptying of outdoor trash bins. Pruning waste, trimmings, and plant matter shall be temporarily stored near the third floor of the West Garage. Once this storage area reaches its maximum capacity, the organic materials shall be transported via truck to the Maple Ave location in Shrewsbury, and subsequently, left to decompose within the wooded section of the property.

4.3 Irrigation and Drainage Considerations

In accordance with the 2024 Stormwater Management Plan, UMass Chan Medical School minimizes the use of pesticides, herbicides, and fertilizers in an effort to protect surrounding waterbodies. Proper approval from the applicable Conservation Commission shall be obtained before applying chemicals within 25 feet of resource areas as defined in the MA Wetlands Protection Act. No outdoor pesticides shall be used during, 24 hours immediately after, or 24 hours prior to any imminent precipitation expected. For the most up-to-date information on application protocols, please reference the most recent Stormwater Management Plan.

The pesticide applicator must check local weather reports and shall apply the approved pesticide only if there is no precipitation predicted for the next 24 hours or for the amount of time specified on the pesticide manufacturer's label, whichever is longer, to minimize runoff into local waterways.

4.4 Selection of Pest Resistant Plants

Plants selected for landscaping shall be either locally native to New England or proven not to introduce disease, insect problems, or become invasive. Native plants are less likely to suffer pest/insect damage because they have adapted to growing alongside the insects common to the region. Additionally, native plants require fewer inputs than non-native plants over the long-term. Native plants are adapted to local climate and soil fertility, are drought tolerant, and are perennial (re-sprout every year). The best choice of plant is one that is suited to the naturally available light, water, and soil nutrients of the planting site.

5. Cultural Controls

5.1 Maintenance Practices to Discourage Pest Habitation

To deter pest habitation, foundational plantings and vines shall undergo trimming, maintaining a minimum distance of 12" from the building, to not only eliminate potential rodent harborage and access points to the building, but also facilitate the monitoring of rodent activity. The Grounds Team shall routinely remove dead and dying vegetation from plants and plant beds to mitigate the risk of disease spread. Leaves are diligently raked, blown, or vacuumed away to prevent the accumulation and creation of rodent harborage. At the end of each workday, branches and plant materials are appropriately disposed of.

5.2 Education and Training for Grounds Maintenance Staff

In compliance with state regulations, one full-time position shall be designated to perform pesticide applications. The Grounds Maintenance Staff member shall undergo yearly license renewal and training to ensure ongoing compliance and proficiency in the pesticide application.

6. Mechanical Controls

The mowing of campus grounds shall be the responsibility of Facilities Operations and/or the Contractor. To prevent the spread of turf diseases, mowing activities shall be scheduled during dry conditions. It is essential to ensure that mower blades are consistently maintained with sharp cutting edges, minimizing excessive wounding and stress to the turf-grass. Hand weeding shall be employed where practical, offering a targeted approach to weed control. Additionally, dead and diseased plant material shall be pruned, and invasive plants shall be cut back when mowing alone is insufficient for control.

6.1 Safe Use of Equipment for Pest Control

When handling mechanical maintenance devices for pest control, adherence to safe practices is paramount. The use of appropriate Personal Protective Equipment (PPE) shall be mandatory to ensure the well-being of personnel. This includes but is not limited to ensuring that individuals handling equipment are equipped with the necessary protective gear to safeguard against potential hazards.

7. Biological Controls

7.1 Canine Deterrence for Geese Management

Objective: The presence of geese on university grounds can lead to issues such as fecal contamination, damage to landscaping, and potential safety hazards. To address this concern, the Grounds Management Team has strategically integrated trained dogs into the pest management program.

Implementation: Specially trained dogs, under the guidance of professional handlers, shall be deployed in areas where geese are prone to congregate. These dogs serve as a humane and effective deterrent, utilizing their natural instincts and behaviors to discourage geese from settling in these locations. The mere presence of the dogs creates an environment that is perceived as unsafe by the geese, prompting them to seek alternative habitats.

8. Chemical Controls

8.1 Threshold

When a pest is identified, the injury level shall be assessed before action can be taken. Injury level refers to the level of damage to the plant directly or the size of the pest population, which may

cause unacceptable damage to plants without intervention. UMass Chan does not use insecticides in its outdoor spaces. Herbicides and fungicides shall be applied if the weed infestation or fungus growth, respectively, exceeds an acceptable level. Priority shall be given to herbicides and fungicides with the lowest toxicity, considering the method and frequency of application and the risk of exposure to the campus community. If the Grounds team is equipped to handle the pest in consideration, they shall apply IPM strategies as needed. At times, an external vendor may be needed to treat specific kinds of pests. The Grounds Team shall ensure that the proper IPM protocols are followed by outside agents.

8.2 Fertilizer Application to Promote Healthy Turf

Standards set forth in Massachusetts regulations on plant nutrient application (330 CMR 31.00) shall be followed. The state requirements for fertilizers can be found here: https://www.mass.gov/doc/330-cmr-31-plant-nutrient-application-requirements-for-agricultural-landand-non-agricultural/download. As required by the State, only fertilizer products registered with the Department of Agricultural Resources shall be used. In accordance with total maximum daily loads and impaired waterbody requirements of the MS4 Permit, UMass Chan shall use slow-release fertilizers in addition to reducing fertilizer use to reduce runoff to nutrient impaired waterbodies, as indicated in UMass Chan's Stormwater Management Program. Phosphorus shall only be applied in areas where a soil test indicates that it is not present in sufficient quantities. Where possible, UMass Chan shall use phosphorus-free fertilizer options. For the most up-to-date protocol for fertilizer application, please refer to the latest version of the UMass Chan Stormwater Management Plan.

8.3 Criteria for Selecting Pesticides

The selection of pesticides for use in Massachusetts is a meticulous process guided by a set of criteria aimed at ensuring environmental responsibility, public safety, and compliance with state regulations. The Grounds Management Team abides by the following criteria when evaluating and choosing pesticides for application:

Approval by Regulatory Authorities:
Only pesticides approved by the MDAR and the Environmental Protection Agency (EPA) shall be considered for use. This ensures that selected pesticides meet the rigorous safety and efficacy standards set by regulatory bodies.

Target-Specificity:
Preference shall be given to pesticides that demonstrate a high degree of target specificity. Products that specifically target the pests or vegetation of concern while minimizing impact on non-targeted species shall be prioritized. This approach aligns with IPM principles.

Minimal Environmental Impact:
Pesticides with a lower environmental impact, including reduced toxicity to non-target organisms, limited persistence in soil and water, and minimal risk of bioaccumulation, shall be favored. This criterion supports UMass Chan's commitment to environmental stewardship and sustainability.

Compliance with Massachusetts Pesticide Regulations:
Adherence to state-specific regulations governing pesticide use is non-negotiable. Only products that comply with Massachusetts pesticide laws, including restrictions on application rates, timing, and locations, are considered.

8.4 Proper Storage and Handling of Pesticides

Storage Protocols:
UMass Chan adheres to stringent storage protocols to mitigate the risk associated with the handling of pesticides. Pesticides are stored in dedicated, secure storage facilities that comply with regulatory standards. These facilities are equipped with appropriate ventilation, temperature control, and containment measures to prevent leaks or spills. Regular inspections shall be conducted to verify the integrity of storage containers and to identify and rectify any potential issues promptly.

Handling Procedures:
Personnel responsible for pesticide handling undergo comprehensive training programs that emphasize the importance of safe and responsible practices. This includes proper wearing of Personal Protective Equipment (PPE), accurate measurement and mixing techniques, and the use of calibrated equipment to ensure precise application rates.

Backflow Prevention in Mixing:
A critical aspect of UMass Chan's pesticide handling procedures is the implementation of backflow prevention measures during the mixing of fertilizers and herbicides. Backflow, the unwanted reversal of flow in a system, can potentially contaminate the water supply with pesticides.

8.5 Application Protocols and Safety Measures

Personal Protective Equipment (PPE):
One cornerstone of UMass Chan's safety measures is the provision of Personal Protective Equipment (PPE) for all individuals tasked with handling pesticides. Recognizing the potential hazards associated with these chemicals, UMass Chan's commitment to safety extends to providing appropriate PPE, including high rubber gloves, rubber boots, protective eyewear, respirator, and a vest for using the backpack sprayer. Regular annual training sessions shall be conducted to educate personnel on the correct usage and maintenance of PPE to ensure optimal protection.

Spot Applications:
A core tenet of UMass Chan's chemical application strategy is the adoption of spot applications. This targeted approach minimizes the overall use of pesticides, focusing only on specific areas requiring treatment. This method not only reduces the environmental impact but also enhances the efficiency of grounds management practices. By pinpointing areas with pest infestations or specific vegetation concerns, we optimize the efficacy of chemical applications while mitigating the risk of overuse.

Rationale for Spot Applications:

- Precision and Accuracy: Spot applications allow for precise and accurate targeting of areas requiring treatment. This method ensures that pesticides are applied only where needed, avoiding unnecessary exposure to non-targeted flora and fauna.
- Resource Efficiency: By concentrating efforts on identified problem areas, spot applications optimize the utilization of resources. This approach aligns with sustainable practices, reducing the overall quantity of chemicals required for grounds management.
- Environmental Stewardship: Embracing spot applications reflects UMass Chan's commitment to environmental stewardship. By minimizing the broad-scale application of pesticides, we aim to mitigate potential adverse effects on ecosystems and promote the preservation of biodiversity.

In conclusion, UMass Chan's approach to chemical applications for grounds management underscores a dedication to safety and sustainability. The combination of rigorous PPE provisions and the preference for spot applications exemplifies a holistic strategy aimed at achieving effective results while minimizing environmental impact and ensuring the safety of all personnel involved in the process.

9. Communication and Notification

9.1 Communication Strategy for Pest Management

The goal of the communication strategy for pest management is to ensure timely and accurate information sharing among stakeholders, including facility managers, pest control personnel, employees, the management team, and Environmental Health and Safety.

Communications occur through email, UMass Chan intranet pages, meetings (virtual or in-person), posters and signage, and newsletters. Communications will be distributed on an as-needed basis to provide updates for pest prevention tips, reporting procedures for pest sightings, scheduled pest control activities, and emergency response protocols.

The main point of contact for the Plan shall be the Grounds Manager, who can be contacted below:

Brian Crowley
UMass Chan Medical School
Facilities Maintenance
Grounds, Waste, Fleet
508-856-3231
Brian.crowley@umassmed.edu

9.2 Warning Flags Implementation for Chemical Application Sites

As part of UMass Chan's commitment to transparency and community safety, UMass Chan has instituted a comprehensive system for marking and communicating areas where chemical applications for grounds management have been conducted. This system involves the strategic

placement of warning flags, which serve as visible indicators for the presence of recently treated areas.

Procedure for Warning Flag Placement:
Upon completion of any chemical application on university grounds, the Grounds Management Team shall place warning flags in the treated areas. These flags shall be strategically positioned to ensure maximum visibility, particularly in areas accessible to the university community and visitors.

Duration of Warning Flags:
A crucial aspect of UMass Chan's flagging system is the predetermined duration for which warning flags remain in place. Consistent with best practices and safety standards, these flags are left undisturbed for 48 hours after the completion of chemical applications. This timeframe allows for the dissipation of any residual chemicals and ensures that individuals are informed and exercise caution in the treatment's immediate aftermath.

10. Record Keeping and Documentation

10.1 Pesticide Application Records

The following pesticide product information is kept for 3 years in the pesticide application binder:

- A copy of the label;
- A copy of the Material Safety Data Sheets (MSDS);
- The brand name and EPA registration number of the product;
- The approximate amount and concentration of product applied;
- The location of the application;
- The pest condition that prompted the application;
- The type of application and whether the application proved effective;
- The pesticide applicator's license numbers and pesticide trainee or certificate numbers of the person applying the pesticide;
- The name(s) of the person(s) applying the pesticide;
- The dates on which notices of the application were given;
- The dates and times for the placement and removal of warning signs; and
- Copies of all required notices given, including the dates.

11. Training and Education

11.1 Training Programs for Staff and Stakeholders

UMass Chan's Grounds Management staff shall undergo regular training programs to comply with state regulations. In addition, new plantings facilitated by the Grounds team and completed by outside vendors shall come with a list of plants shared with the campus's Office of Sustainability and associated stakeholders for review. This shall not only inform the campus of its types of plantings, but how to care for them appropriately. The Office of Sustainability shall regularly work

with stakeholders of the campus to teach them about the plantings and grounds management practices, with opportunities to weigh in and shape the future of grounds on campus, with special considerations such as drought tolerance and nativity to the local ecosystem.

11.2 Educational Initiatives for the School Community

The Office of Sustainability shall collaborate with its campus stakeholders and the Grounds Management Team to provide educational opportunities and service-learning projects that support pollinator systems on and near campus.

12. Review and Revision

The UMass Chan Grounds Team, in collaboration with the Office of Sustainability and associated stakeholders, will conduct an annual review of the plan to ensure accuracy and revise as necessary.

Resources

Blue Ridge Community College. (2019). IPM Plan for Campus Landscape. Retrieved from: https://www.blueridge.edu/wp-content/uploads/2019/10/BRCC-Integrated-Pest-Management-Plan_a.pdf

Portland Community College. (2014). Integrated Pest Management Plan. Retrieved from: https://www.pcc.edu/facilities-management/wp-content/uploads/sites/31/2019/01/integrated-pest-management_Oct_2015.pdf

Raritan Valley Community College. (2016). Integrated Pest Management Plan for RVCC Grounds. Retrieved from: https://www.raritanval.edu/sites/default/files/aa_PDF%20Files/8.x%20General%20Information/ipm_plan.pdf

Tufts University. (2022). IPM Plan for Tufts Medford-Somerville Campus. Retrieved from: https://beecityusa.org/wp-content/uploads/ultimatemember/258/file_e1b03176_04e479491634792347edf8c1974f87666ab64a0b.pdf

University of Connecticut. (2019). Integrated Pest Management Plan: Ornamental & Turf Program. Retrieved from: https://ecohusky.uconn.edu/wp-content/uploads/sites/2041/2020/02/UConn-IPM-turf-and-ornamental-Final_112019.pdf

University of Massachusetts Amherst Center for Agriculture, Food, and the Environment. (2023). Agriculture & Commercial Horticulture: Pesticide Regulations. Retrieved from: https://ag.umass.edu/resources/agriculture-resources/business-resources-for-farmers/pesticide-regulations

University of Massachusetts Chan Medical School. (2023). Stormwater Management Program. Retrieved from: https://www.umassmed.edu/globalassets/growing-green/files/umass-chan-medical-school-swmp-2023_final.pdf

Appendices:

Appendix 1 – Map of UMass Chan Medical School University Campus