



IPM Plan for Tufts Medford-Somerville Campus

Statement of Commitment

Tufts University Medford-Somerville campus (hereafter, Tufts) is committed to protecting wild pollinators and their habitat through environmental stewardship. Wild pollinators are critical to ecosystem function and to human well-being by ensuring that the plants we rely on keep growing year after year. To do our part in pollinator protection, Tufts has committed to reducing landscape management practices that might harm pollinators and pollinator habitat by following an integrated pest management (IPM) plan.

IPM is a sustainable approach to managing pests that relies on a combination of biological, cultural, mechanical, physical, and chemical tools that minimize the negative health impacts to beneficial insects and humans alike. IPM emphasizes long-term control and prevention of pests through regular surveillance and education. This is in contrast to many traditional pest management methods, which focus on pest eradication. Tufts is committed to using the least-toxic control methods possible to protect human health, non-target organisms, and the environment.

Identify and Monitor

Regular surveillance and observation are key components of any successful IPM plan to prevent pest outbreaks. Observation will require Tufts land managers to inspect ornamental plants and turf weekly for unwanted insects, weed growth, disease, or lack of nutrients. Employees may rely on an outside source such as the UMass Extension Program for identification of pest or assessment of plant damage.

Action Thresholds

When a pest is identified, the injury level must 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.

- *Aesthetic injury*: Damage to plant that may affect appearance but has no significant effect on plant health.
- *Economic injury*: Damage that harms plant health or pest levels that threaten plant community and may cause economic loss.
- *Medical injury*: Pest populations that threaten human health.

Tufts land managers should choose a treatment strategy that takes into account the injury/threat level of the plants and pests, and choose a treatment that is specific to the identified pest. The treatment approach must consider what is least harmful to human health and non-target organisms, least disruptive to natural conditions, and can serve as a long-term preventative measure.

Prevention

One of the major goals of IPM is to prevent pest outbreaks through close monitoring and swift action to remove the pest or diseased plant before the pest can reach a level of damage that requires significant chemical or mechanical intervention. Prevention strategies include:

Education. Education is the most important step to successful pest prevention and control. Once a pest is identified, managers can use information about the pest's natural history and biological needs to remove the organism. Education will also lead to recognition that some plants and insects formerly considered pests may not cause harm and should not be treated as pests.

Site-Appropriate Planting. Plants selected for landscaping should 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.

Healthy soil. Soils that have adequate nutrients for plant growth, high organic content, and minimal inorganic chemicals will promote healthy plants and help to prevent pests. Soil amendments should use natural materials when possible, including compost and low-strength organic fertilizers. Native plants are adapted to infertile soils and do not require fertilizer applications. Applying leaf litter at the end of growing season will provide overwintering pollinator habitat and promote soil integrity.

Sanitation. Diseased plants should be manually removed from growing site. Land managers should take steps to maintain clean gardening equipment, such as cleaning pruning shears in a dilute bleach solution after each use to prevent the spread of disease or pests between plants across campus.

Control

Some pests may still become a problem and cause damage despite preventative measures. Steps to control the pest should start with mechanical intervention, then biological, and only to chemical if no other approach results in pest control. The method of control must be specific to the identified pest and its host plant.

1. Mechanical/Physical control. These control methods may include: hand removal of diseased/damaged plants, weeds, and pest insects; insect removal by bug vacuum; sanitizing landscaping equipment; habitat modification to deprive pests of food resources or nesting habitat; physical pest traps or pheromone traps and lures.
2. Biological control. Attracting beneficial insects that may be the natural predator of the pest insect can help control pest outbreaks. Beneficial insects can be purchased online and released when pest densities are low to medium, or companion planting of plant species can attract beneficial insects while repelling pests. Beneficial insects do not harm plants, animals, or people.
3. Chemical control. Chemicals should be used as a last resort in pest and weed management, and should only be applied in small, targeted amounts. Land managers must give proper notice to the general public that pesticides are being applied through campus-wide notification two days in advance, and signage at the site. Tufts Facilities should keep a record of chemical application

on campus, with date of application, chemical applied, and in what amount. Currently, Tufts campus uses Treflon as a pre-weed emergence herbicide on turf and organic Burnout 2 for handling weeds throughout the season. No insecticides are used. If chemicals are applied, it must be in conjunction with mechanical and biological controls and monitoring should continue throughout the growing season.

Statement Against the Use of Neonicotinoids

Tufts University is against the use of neonicotinoids. This variety of insecticide has been shown to cause acute mortality in some beneficial insects like bees, hover flies, and parasitic wasps. Neonicotinoids also cause nonlethal effects in pollinators that cause lead to disorientation, lethargy, inability to care for offspring, and altered thermoregulation. Neonicotinoids can also persist in the environment for years following application and affect non-target species when not applied correctly. For these reasons, Tufts does not use any chemicals in the neonicotinoid family.

Tufts Pollinator Gardens

Tufts University maintains three pollinator gardens on campus, each planted with over 15 species of native plant species that attract diverse insect pollinators (a complete list of the plants can be accessed: sites.tufts.edu/pollinators/). These gardens are maintained by the student-run Tufts Pollinator Initiative and are not treated with any pesticides. Gardens are maintained through hand weeding and watering when needed. Seeds are saved each fall to preserve local-adapted genotypes, propagated each spring, and made available to community members for planting.

Resources

<https://www.moreheadstate.edu/getattachment/Outreach/Sustainability/Earthwise-Eagles/Pollinator-Protection-Plan.pdf.aspx?lang=en-US>

<http://www.ega.edu/bee-campus/integrated-pest-management-plan>

<https://studentaffairs.unt.edu/sites/default/files/sustainability/ipm-plan.pdf>

<https://sustainability.uconn.edu/pest-and-plant-management/#>

https://www.blueridge.edu/wp-content/uploads/2019/10/BRCC-Integrated-Pest-Management-Plan_a.pdf

<https://sustainability.tufts.edu/wp-content/uploads/OrganicTurf.pdf>