

SECTION 14: INTEGRATED PEST MANAGEMENT

14.1 What is IPM?

There is no single official definition of Integrated Pest Management, or IPM. It has mistakenly been thought to refer only to insects or only to invasive plants. Broadly speaking, IPM is a natural systems approach to seeking the least harmful methods of managing all types of landscape pests, including insects, weeds, plant pathogens, or vertebrates. IPM refers to protecting biodiversity and habitat by minimizing the use of pesticides. A brief overview and definition of IPM may be found at the [California State IPM Program website](#).

General IPM resources may be found on these regional websites:

- Delaware: [University of Delaware Cooperative Extension](#).
- District of Columbia: [Integrated Pest Management](#). Department of Energy & Environment.
- Maryland: [Integrated Pest Management](#). University of Maryland Extension
- New York: [New York State Integrated Pest Management](#). Cornell University College of Agriculture and Life Sciences.
- Pennsylvania: [Pennsylvania Integrated Pest Management](#). PennState Extension.
- Virginia: [Pesticide Programs: IPM](#). Virginia Tech.
- West Virginia: [West Virginia University Extension Service](#).



IPM protects biodiversity and habitat by minimizing the use of pesticides.

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Due to the particularly adverse effects of pesticides on young children, many states in the Chesapeake Bay watershed also have IPM laws, plans, or guidelines for school grounds and child care centers. You are responsible for compliance with IPM laws in jurisdictions in which you practice. The following resources will help you understand your responsibilities when practicing IPM in or near areas where children play:

- District of Columbia: [Prevention Protocol: Integrated Pest Management](#). D.C. Public Schools.
- Maryland: [Integrated Pest Management \(IPM\) in Schools](#). Maryland Department of Agriculture.
- New York: [New York State Pest Management for Schools, Day Care Centers and Parents](#)
- Pennsylvania: [PA School IPM Manual](#). PennState Extension.

- Virginia: [*Integrated Pest Management Guidelines for Virginia Schools \(K-12\)*](#). Virginia Cooperative Extension.
- West Virginia: [*West Virginia Department of Agriculture Day Care IPM*](#).

The federal government recommends IPM for sustainable landscaping (see page 28 of [*Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes*](#) [accessed May 2017]). Also, the SITES™ v2 Rating System offers a credit for minimizing pesticide and fertilizer use.

Rather than eliminate pests from the ecosystem, IPM seeks to find acceptable levels. Rather than use pesticides which indiscriminately kill all insects or weeds, including beneficial insects like honey bees or praying mantis, IPM seeks to target pests with the least toxic intervention possible.

14.2 IPM Methods

IPM has four types of controls:

- 1. Cultural**
Educating the human population on the benefits of certain insects and mammals for managing pet populations.
- 2. Physical**
Mowing, lopping, or hand-pulling pests (insects and unwanted plants).
- 3. Biological**
Timed release of beneficial insects, parasites, and pathogens to reduce the numbers of pests.
- 4. Chemical**
Judicious and targeted pesticide use as a last resort for controlling pests.

The PLNA's *Sustainable Landscapes Certification Manual* offers four main steps to an IPM plan as outlined by the U.S. EPA (p. 101):

- 1. Set action thresholds**
Establish a threshold at which a pest control action must be taken. Sighting a single pest does not necessarily mean control measures are necessary.
- 2. Monitor and identify pests**
Monitor frequently to quickly identify any new pest problems, which are much easier to address in the early stages than once a pest has become established. Correctly identify the pest and establish whether it requires control. Not all insects and weeds cause negative impacts. Some are actually beneficial. Research the biology and life cycle of the pest to help determine the best way to control it, if controls are warranted.
- 3. Prevention and exclusion**
Prevent the pest from establishing and prevent further colonization by eliminating the conditions that the pest needs to survive.
- 4. Control**
Once monitoring, identification, and action thresholds indicate that pest control is required, and preventative methods are no longer effective or available, IPM programs then evaluate the proper control method for effectiveness and risk.

14.3 Specifying IPM

The SITES™ credit 8.4 includes a credit component for specifying “the use of third-party certified IPM service providers when pest control services are contracted out.” (p. 107)

The Seattle Public Utilities Commission's [*Landscape Maintenance Standards and Specifications*](#) offers the following template language regarding IPM, which may be adopted in your proposals and contracts:

3. INTEGRATED PEST MANAGEMENT (IPM)

- 3.1.1 Owner strongly encourages environmentally sensitive maintenance practices. The principles of integrated pest management (IPM) shall be employed. The intent is to limit any pesticide (including herbicide) applications through healthy landscape management practices.
- 3.1.2. IPM is an approach to pest control that utilizes regular monitoring to determine if and when treatments are needed and employs physical, mechanical, cultural, biological, and educational tactics to keep pest numbers low enough to prevent unacceptable damage or annoyance. Additional treatments, such as pesticide applications, are made only when and where monitoring has indicated that the pest will cause unacceptable economic, medical, or aesthetic damage. Treatments are not made according to a predetermined schedule. Treatments are chosen and timed to be most effective and least hazardous to non-target organisms and the general environment. (Adapted from Bio-Integral Resource Center)
- 3.1.3 Contractor shall consider pesticide applications only as a last resort and only after other methods of control are proven ineffective. (p. 4)

For more specific recommendations on pesticides, see Section 17 of this manual.

14.4 References

- Bush, Elizabeth. 2015. *Reducing Pesticide Use in the Home Lawn and Garden (450-725)*. Virginia Cooperative Extension.
- Conservation Landscaping Guidelines: The Eight Essential Elements of Conservation Landscaping*, pp. 28–32. 2013. Ridgely, MD: Chesapeake Conservation Landscaping Council.
- Ellis, Barbara W. and Fern Marshall Bradley (eds.). 1996. *The Organic Gardener's Handbook of Natural Insect and Disease Control*. Rodale Press.
- Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes* [accessed May 2017], p. 28. 2011. Council on Environmental Quality.
- IPM: A Common Sense Approach to Managing Problems in Your Landscape (HG62)*. 2013. University of Maryland Extension.
- Landscape Maintenance Standards and Specifications*. Seattle Public Utilities. www.seattle.gov/util/cs/groups/public/@spu/@conservation/documents/webcontent/02_015543.doc
- Pest Management Guide: Home Grounds and Animals (456-018)*. 2016. Virginia Cooperative Extension.
- SITES™ v2 Rating System*. Section 8.1, Credit 8.4: Minimize pesticide and fertilizer user, pp. 106–108. 2014. Green Business Certification Inc. All rights reserved.
- Sustainable Landscapes Certification Manual*, p. 101. Harrisburg, PA: Pennsylvania Landscape and Nursery Association.