



# Integrated Pest Management for Home Gardens and Landscapes

Integrated pest management (IPM) is the combination of actions and decisions gardeners make to protect the home garden, lawn, and landscape from unacceptable damage caused by insects, plant diseases, weeds, and other destructive pests. IPM is not one specific action or tactic; it is the combination of all actions that reduce the impact of pests while minimizing negative effects on the environment.

Judicious and proper use of pesticides such as herbicides, fungicides, and insecticides may be included in IPM depending on the preference of the gardener. IPM is not a “one-size-fits-all” approach. There is no single correct answer to garden pest problems. IPM expects you to understand the garden ecosystem—your plants, the potential pest problems, and the interrelationships within their environment. With this understanding, you can maintain healthy plants that yield acceptable quantity and quality of produce and function to your satisfaction in the landscape.

IPM means recognizing that most crops, especially in the home garden, can tolerate a certain amount of pest damage. While we expect produce in the store and at the farmers market to be blemish-free, a small amount of damage can usually be tolerated for homegrown vegetables, depending on the individual gardener's tolerance of damage. We refer to the number of pests that will cause the home gardener to feel treatment is justified as the threshold. This threshold for a farmer or producer means the point at which they start to lose money. For most home gardeners the threshold is based on aesthetics and general concern for the appearance of the plants and produce.

## Pest Prevention

IPM promotes prevention of pests rather than control and integration of a variety of management strategies. Pest prevention requires using knowledge of past and potential pest problems to avoid future problems.

Your garden and landscape will require dozens of horticultural decisions that determine what, where, when, and how the landscape and garden are planted and maintained. Collectively, these are called cultural practices and are aimed at establishing and maintaining plants that are healthy, vigorous, and suited to the location. Healthy plants are less prone to disease and insect problems. Many common garden activities are part of pest and pest damage prevention and therefore part of IPM. Cultural practices include decisions such as plant selection, crop rotation, planting time, sanitation, plant spacing, proper watering, and fertilization.

Specific proactive actions to reduce pest damage in your garden and landscape:

- Select the right plants for the location; plant crops that are suited to the soil and climate in your area.
- Carefully inspect plants for disease or pests prior to purchase.
- Select insect- and disease-resistant varieties when available.
- Use disease-free, certified seed, if available.
- Practice crop rotation in the vegetable garden. Do not grow the same kind of produce in the same place each year. Plant related crops in one site only once every three or four years.
- Time plantings for best growth and to avoid pest problems when possible.
- Fertilize carefully to avoid over stimulating foliage production. Consider testing the soil for nutrients and minerals to plan fertilizer needs.



- Space plants properly.
- Proper spacing will allow good air circulation and reduce disease problems.
- Thin young vegetables and flowers to avoid overcrowding that causes weak growth and contributes to insect and disease problems.
- Use mulch to preserve soil moisture, lessen weed competition, and to reduce soil splash that brings soilborne pathogens into contact with lower leaves.
- Stake or cage tall flowers and vegetable plants to promote air circulation and to keep the blossoms or fruit from coming in contact with the soil.
- Water plants in the morning and at ground level; wet leaves are more susceptible to disease. Drip irrigation systems also reduce leaf wetness, a contributing factor to plant diseases.
- Remove dead or diseased plant material promptly.
- Remove all overripe, damaged, or dropped produce to reduce attraction of scavengers such as picnic beetles and yellowjacket wasps.
- Inspect your plants thoroughly and regularly in order to detect problems early.
- Identify insects and diseases that are present and evaluate the extent and potential damage from the infestation.

## Mechanical Controls

Mechanical barriers such as netting, screens, and row covers may keep pests away from garden plants. Also consider using traps to reduce or monitor for pests. Yellow sticky cards can help detect whitefly and aphid infestations before they get out of hand. Traps can be set for moles, and wildlife critters can be live-trapped and relocated.

Traps for insects in open areas may indicate a pest's presence but will not control the pest. A good example of this are the numerous styles of traps sold for Japanese beetles. These traps consistently attract more beetles than they catch and draw more beetles to your garden and landscape. The use of Japanese beetle traps is not recommended.

Mechanical controls include the simple removal of pests by hand. Large insects such as Colorado potato beetles can be hand-picked from infested plants. Weeds can be hoed or dug by hand from flowerbeds, gardens, and lawns. Small

insects can be dislodged by a forceful stream of water.

## Biological Controls

Naturally occurring predators and parasites are found in gardens, orchards, and fields. These natural enemies attack pest insects and may help suppress or limit insect populations. Biological controls do not eliminate pests. You can encourage biological controls by learning to properly identify these species as beneficial to your environment. Avoid all unnecessary use of pesticides, and do not spray insecticides on plants that are in bloom.

Purchase and release of natural enemies such as lady beetles, lacewings, and praying mantids will have little, if any, impact in the home garden and landscape.

It is better to conserve or preserve existing natural enemies by furnishing them with food (pests and flowers), shelter (a diverse habitat), and a safe environment (limited insecticide use).

## Pesticides

Pesticides are chemicals that adversely affect pests. They can be used to kill unwanted insects, weeds, or plant pathogens; affect plant growth; or repel pests from an area. IPM may include the judicious use of pesticides as a chemical management tool. Pesticides can be carefully used in combination with other tactics or if other tactics do not give the desired level of control. Careful use requires thoughtfully chosen and properly timed applications of the least toxic alternatives. Environmental consequences especially need to be considered when using pesticides. Special attention should be taken, for example, to avoid pesticide use when plant pollinators or natural enemies are present.

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