

Natural Pest Control in the Garden

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3 Practices for Organic Gardeners



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Key Principles of Integrated Pest Management:

One of the biggest gardening challenges is keeping pests at bay. While chemical pesticides may offer quick results, they can also harm beneficial insects, pollute soil, and compromise the health of our food and environment. That's where natural pest control comes in—an eco-friendly approach that not only helps protect your plants but also supports the overall health of your garden ecosystem. By using methods like integrated pest management, attracting beneficial insects, cultural controls, and using trap plants, you can manage pests naturally and sustainably.

Integrated Pest Management (IPM) is an environmentally friendly approach to pest control that combines multiple strategies to manage pests in an effective and economically viable way. Rather than relying solely on chemical pesticides, IPM integrates cultural, biological, mechanical, and chemical

controls to reduce pest populations to acceptable levels while minimizing harm to humans, beneficial organisms, and the environment.

Monitoring and Identification: The most important and first step in practicing IPM is regular monitoring and accurate identification of pests. By knowing which pests are present, their population levels, and life cycles, gardeners can make informed decisions about if and when control measures are needed. This prevents unnecessary applications of pesticides and helps target interventions effectively.

Setting Action Thresholds: A set threshold is the point at which pest populations or environmental conditions indicate that pest control action must be taken. Not every pest sighting demands action; thresholds help determine the appropriate level of intervention needed to prevent unacceptable damage or economic loss.

Prevention: Preventing pest problems through good cultural practices is a foundational aspect of IPM. This includes strategies like crop rotation, selecting pest-resistant plant varieties, proper spacing, mulching, sanitation, and maintaining healthy soil. By creating an environment that is less conducive to pest proliferation, the need for intervention is reduced.

Biological Controls: Biological control involves using natural predators, parasites, or pathogens to manage pest populations. Examples include ladybugs and lacewings that prey on aphids, nematodes that target soil-dwelling pests, and *Bacillus thuringiensis* (Bt) bacteria that control caterpillars. Encouraging or introducing these beneficial organisms can help keep pest populations in check.

Mechanical and Physical Controls: These methods physically remove or block pests from reaching plants. Techniques include hand-picking insects, using traps, employing barriers like row covers or screens, and using mulches to suppress weeds. Mechanical controls are often labor-intensive but can be highly effective, especially in small gardens.

Chemical Controls: When other methods fail to manage pests, chemical controls may be used as a last resort. IPM emphasizes using the least toxic and most targeted pesticides to minimize adverse effects on non-target organisms, humans, and the environment. The use of chemicals is carefully timed and applied only to affected areas rather than a broad application.

Evaluation and Record Keeping: After implementing control measures, it is essential to evaluate their effectiveness and adjust as needed. Keeping records of seasonal pest populations, interventions, and outcomes helps refine future IPM strategies and provides valuable data for managing pests more efficiently over time.

Cultural Controls

Cultural controls are practices and techniques that gardeners use to manage pests, diseases, and weeds by altering the environment, plant care routines, and cultivation methods. These controls focus on creating conditions that are unfavorable for pests and pathogens, thereby reducing their impact on plants without relying heavily on chemical interventions. Cultural controls are a key component of

Integrated Pest Management (IPM) and sustainable gardening, emphasizing prevention and ecosystem health.

Key Cultural Control Methods:

Crop Rotation: Planting different crops in a sequence over several growing seasons reduces the risk of soil-borne diseases and pest populations.

Plant Spacing: Adequate spacing between plants improves air circulation, reduces humidity around foliage, and minimizes the spread of fungal diseases. Crowded plants are more susceptible to disease outbreaks and pest infestations due to limited airflow and light penetration, as well as competition for water and nutrients.

Good Sanitation Practices: Removing plant debris, fallen leaves, and rotting fruits from the garden helps prevent pests and diseases from overwintering and spreading. Regularly cleaning gardening tools and equipment also reduces the risk of disease transmission.

Water Management Practices: Proper irrigation techniques, such as drip irrigation or soaker hoses, direct water to the base of plants and keep foliage dry. This helps prevent fungal diseases like powdery mildew and blight. Watering early in the day allows plants to dry quickly, further reducing disease risk.

Soil Health Management: Maintain healthy soil by adding compost, organic matter, and cover crops to add fertility and provide resistance to pests and diseases. Healthy soil supports a diverse microbial ecosystem that competes with or inhibits harmful pathogens.

Companion Planting: Planting certain crops together, a practice called companion planting, can deter pests, enhance growth, or attract beneficial insects. For example, marigolds can help repel nematodes and some insects, while herbs like basil and dill can attract pollinators and predatory insects.

Resistant Varieties: Choose plant varieties that are naturally resistant or tolerant to certain pests and diseases to significantly reduce the need for chemical treatments. Many seed companies offer varieties bred for resistance to common issues like blight, rust, and aphids.

Timing of Planting and Harvesting: Planting at times when pests are less active or harvesting before pests can cause significant damage are effective strategies. For example, planting cool-season crops early in spring can avoid peak pest populations that appear later in the season.

Mulching: Mulching with organic materials like straw or wood chips helps suppress weeds, conserve moisture, and regulate soil temperature. It also reduces the splash up of soil-borne pathogens onto plants.

Mechanical Controls: Hand-picking pests, using row covers, and setting up physical barriers like fences or netting are methods that prevent pests from reaching plants.

By incorporating IPM and cultural controls into gardening routines, gardeners can create a more balanced, sustainable, and productive growing environment that minimizes pest and disease problems naturally.

Attract Pests with Trap Plants

Another method for natural pest control is the use of **trap plants**. A trap plant is a plant that is strategically grown to attract pests away from the main crops or plants that a gardener wants to protect. Trap plants serve as decoys, attracting pests to feed on them rather than on the more valuable or vulnerable plants. This method is an effective, environmentally friendly way to manage pests without relying on chemical pesticides.

A trap plant concentrates pests on a single plant or a specific area where gardeners can more easily monitor pest populations and manage them in a targeted manner, rather than having to treat the whole garden. This may involve physically removing pests from the trap plants, applying organic or chemical controls specifically to these plants, or even removing the infested trap plants altogether.

Some trap plants can also attract beneficial insects, such as ladybugs, lacewings, and parasitic wasps, which feed on the pests gathered on the trap plants. This encourages a natural balance and helps keep pest populations under control without additional intervention.

Trap plants should be placed close enough to the main crops to attract pests away but not so close that pests can easily move back to the main crops.

Examples of Common Trap Plants:

Trap Plant	Target Pest
Nasturtium	Attract aphids, whiteflies, flea beetles
Marigold	Attract aphids and whiteflies, and repel nematodes
Radish	Flea beetles
Mustard and Collards	Attract diamondback moths, cabbage loopers, and aphids
Blue Hubbard Squash	Cucumber beetle, squash vine borer, squash bug
Sunflowers	Attract aphids, leafhoppers, and other pests

By incorporating trap plants into a gardening strategy, gardeners can create a more balanced and sustainable ecosystem, manage pests more effectively, and protect their crops with minimal chemical intervention.