

BEST PRACTICES

The Integrated Pest Management Approach to Treating Garden Problems



The Best Practices approach, sometimes called Integrated Pest Management (IPM) is an environmentally sensitive approach to dealing with garden pests. This approach uses the scientific understanding of pests and diseases to determine if a problem requires treatment, and if so how to proceed in the safest effective way while taking into account the specific sensitivities of the site. The safety of the applicator, effects on pets and people, consequences for ground-water, threat to beneficial insects, persistence in the environment, potential for runoff, and timing of the treatment are just a few factors that could be considered.

STEPS TO BEST PRACTICE

1. **Identify** the weed, pest, or disease.
2. **Monitor** pest numbers, spread of weeds, or extent of disease damage.
3. Decide what **Threshold** of infestation requires action. Can the damage be tolerated? Is it really an issue that requires treatment?
4. Could **Prevention** eliminate need for future treatment (appropriate plant selection, cultural controls)?
5. **Control** the problem using the safest effective biological, cultural, mechanical/physical, and chemical tools.



It should be noted that Best Practices is not Synthetic vs. Organic. If control is warranted then it is a matter of choosing the right tool to achieve an acceptable result that will minimize harm to humans, wildlife and the environment. Biological control would consist of natural enemies: predators, parasites, pathogens, competitors (ladybugs, beneficial nematodes, bacillus strains, etc.). Cultural controls would be practices that prevent or slow the spread of the problem (crop rotation, pruning, watering methods, etc.). Mechanical and physical methods would include traps for pests, bird netting, row covers, mulching, and removing pests by hand. Chemical control would be the use of the safest effective pesticides, fungicides or herbicides.

With these five steps and a little research you can create a Best Practices plan of action for ANY garden problem!

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EXAMPLE #1: APHIDS IN THE VEGETABLE GARDEN

1. **Proper Identification:** Aphids are tiny and come in many colors including green, black and white.
2. **Monitor and Assess the Population and Amount of Damage:** A scenario where one plant is heavily infested and the rest are clean might be treated differently than one where all the plants have a few aphids.
3. **Threshold:** We know aphids reproduce rapidly and that the edibility of food crops like brussels sprouts can be compromised quickly. The example of one heavily infested plant probably meets the threshold for some sort of action. A light infestation on all the plants might also require action. Or you may continue monitoring the situation while waiting for nearby ladybugs to solve the problem for you. Or if you'll be harvesting in a day or two simply rinse them off.
4. **Prevention:** Treat nearby outbreaks before they spread to your garden. Row covers make an effective physical barrier. If only one plant is infested row covers may still be able to isolate the other plants.
5. **Use a Combination of Biological, Cultural, Mechanical/Physical and Chemical Tools to Treat:** There are many safer options for treating aphids. In the scenario where all plants have a light infestation, hosing them off with a strong stream of water can be effective (mechanical). Introducing predators like ladybugs can control the population (biological). If sprays are needed then various oils (cottonseed, paraffin, neem, etc.) or soaps can be quite effective. In the scenario of the heavily infested plant, if it's already badly damaged you may simply remove it (physical), or treat it using any of the above methods. There are stronger products available to kill aphids, but in these examples (a small, easily treated food crop) none of these products works any more effectively and some would be less safe to apply.



EXAMPLE #2: BLACK SPOT ON ROSES

1. **Proper Identification:** Black spots with fringed margins that cannot be rubbed off the leaf.
2. **Monitor and Assess the Amount of Damage:** How widespread the disease is will determine which route you should follow. Is it on just a few leaves? Has it spread to at least half the plant? If it is just a handful of leaves then removing them is probably the best course of action.
3. **Threshold:** Since black spot is quite common here, even if you are diligent the threshold should realistically allow for a few bad leaves. If large numbers of leaves (a third or more) are affected black spot can cause large-scale leaf drop. This stresses the plant which can invite other problems to take hold.
4. **Prevention:** Choosing disease resistant varieties can greatly reduce problems associated with rose care. Good hygiene is critical. Disease spores can overwinter on branches and dead plant material, so start by removing fallen leaves and dead canes. Good air flow also discourages fungal problems. Well-fed plants are better fortified to fend off pests and disease. Dormant sprays can also be invaluable for disease-prone varieties.
5. **Use a Combination of Biological, Cultural, Mechanical/Physical and Chemical Tools to Treat:** The mechanical approach would be the physical removal of affected leaves as well as cleaning up any fallen leaf debris. This alone may be enough to prevent further infection. Cultural practices would include minimizing any overhead watering since splashing water from an infected plant can spread spores to healthy leaves. If disease pressures remain low to moderate, safer sprays like neem and bacillus subtilis can be used in cooler weather. Sulfur can be effective in temperatures from 60-85 degrees. More severe infections may require treatment with copper or synthetic fungicides like Immunox. Note: applications of any remedy should take into account flower time and the presence of bees and other beneficial insects.



As you can see, there is a basic formula one can follow when trying to figure out the proper approach to the various problems we face in our gardens. Starting with right plant/right place will go a long way to ensuring success. The old adage "an ounce of prevention is worth a pound of cure" is very applicable here. Remember that gardening is a lifelong learning experience. Have fun and enjoy the process.

FOR MORE INFORMATION:

<http://www.biconet.com/reference/BICONETRC.html>

<http://www.epa.gov/opp00001/factsheets/ipm.htm>

<http://oregonstate.edu/dept/nurspest/>

"The Truth about Organic Gardening" by Jeff Gillman

A Method to Measure the Environmental Impact of Pesticides:

ecommons.cornell.edu/publications/eiq



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