

# MONITORING: THE BACKBONE OF IPM

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It is no surprise that monitoring is the backbone of a good IPM (Integrated Pest Management) program. IPM is making use of available technologies in biological, cultural, mechanical, physical, and chemical pest control. Because one to five of these very different types of controls can be used in any given situation, this makes IPM a decision-making process. Maintenance and pest control professionals and homeowners have to decide just which control, if any, is needed. This is where monitoring comes in. By keeping any eye on the site and on individual plants, you will be aware of:

- Which pests are active and in which life stage
- Whether biological controls are present
- What damage is being done (and whether it exceeds economic or aesthetic thresholds)
- How many plants are affected
- Any changes in plant condition

Armed with this current information, the scout will be able to make pest control decisions. There are several reasons why the "monitoring first, control second" approach is infinitely superior to the old "2 to 3 cover-sprays-a-month-apart" method:

- **Reduced pesticide use** because you can target the pest-infested plants. Pest occurrence varies from year to year and between locations.
- **Reduced damage** to beneficial insect populations.
- **Reduced pesticide resistance** because only the plants that exceed the threshold for an insect pest are sprayed.
- **Controls can be timed** to better control the pest because keeping a close watch enables the applicator to hit specific developmental stages.

This writer has been a scout and has monitored insect, disease, weed, mite, and animal pests and cultural problems on sites ranging from private residences to industrial parks to condominium complexes and has already made many of the mistakes that a first time scout will probably make. These include:

1. **Visiting a site too frequently.** In the beginning there is a tendency to think that the more often you're on a site, the more insects you'll find, the more up on problems you'll be, the more impressed the client will be. None of this is really true. Unless you are checking populations in a pheromone trap, bi-weekly visits are generally often enough.
2. **Checking every single plant on a site.** Not all plants are equally affected by problems. It is helpful to be aware of pest resistant plants like viburnum, katsura tree, forsythia, ginkgo, and dawn redwood. These plants seldom have serious problems and need to be checked thoroughly only on the first visit. There are plants "most likely to be infested" such as dwarf Alberta spruce, dogwood, rose, euonymus, azalea, birch, and juniper (KEY PLANTS) which are also "most likely to be in the landscape" and should be checked regularly.
3. **Recording every insect on a site.** Not every insect is a pest. There are many beneficial parasites, predators, and pollinators that can be found in plantings. Also, not all pest insects are found at damaging levels. It helps to note their presence, but doesn't require treatment. Along with key plants, there are KEY PESTS. These include black vine weevil, bagworm, aphids, Japanese beetles, borers, mites, leaf miners, scale (many types) and others that account for the majority of damage to landscape plants.
4. **Failing to record information** on the site map or chart at the time you see it thinking that you will remember where it was. One word on this: don't!

Now that the "don'ts" have been covered, there are some "do's". Often a professional has a great number of clients, and therefore a large number of sites to visit. The only way to make IPM an economical way to be environmentally responsible is to be efficient. Monitoring should never be random, helter-skelter, or hit-or-miss. For it to be the backbone of your IPM program, methodical planning must go into the design of the program. The ways to run a successful business are to:

- Hire good people
- Have proper equipment

- Have access to a reference library, the internet, or some other reliable information source
- Receive newsletters that are up-to-date on strategies, trends, current problems and controls, and pest emergence.
- Keep good records.

These features of any good business are also essential to your IPM program. To scout or monitor effectively, these are the key points:

1. Hire good people who have a background in horticulture or a related field. It is possible to train people to have an understanding of the basics, but it is very time-consuming.
2. Have the right equipment each time the scout goes out:
  - A clipboard painted white on the back (for mite and thrips taps), paper and a pencil.
  - A site map obtained from an architect or site engineer or drawn by the scout on the first visit indicating all plants on a specific site. If there are too many plants to be able to note each one, then mark key plants or areas of plants so that your control person will have no trouble finding them. Make multiple copies (8-12) of each map so that a new one can be used on each bi-weekly visit.
  - A good hand lens, at least 10x, preferably on a neck chain.
  - A ruler
  - Flagging tape to tag areas at risk.
  - Shears or clippers and a pocket knife
  - A small container of alcohol (to sterilize shears or knife and to preserve insect specimens) and plastic bags, twist ties, and small plastic vials for samples.
  - Personal identification.
  - Insect/tick repellent, sun glasses or safety glasses, pre-moistened towelets, antihistamine (to take if stung by a bee or wasp)
3. Check each site thoroughly on the first visit. Stand off the site and scan the property. This first impression of general plant appearance will give the scout a lot of information of the probability of cultural problems, general plant health, type of prior care, lay of the land. Check individual plants for pre-existing conditions that may require control immediately or later in the season. On subsequent visits, check the key plants closely, especially when pests are expected to emerge. Briefly check other plants for changes in plant health or appearance.
4. Employ available monitoring approaches and techniques:
  - **visual inspection**  
Mite and thrips tapping  
Cutting turf sections  
Digging or pulling up dead plants
  - **Trapping**  
Pheromone traps  
Black light traps  
Sticky traps  
Refuges, such as bands
  - **Degree day models and phenological indicators** (environmental monitoring) which are used to predict emergence of lilac borer, bronze birch borer, Nantucket pine tip moth, San Jose scale, and others which are temperature dependent or coincide with bloom of a certain shrub or tree.
5. Record data from pheromone traps, visual inspections on the site, etc. Do not rely on memory.
6. Use available references, diagnostic laboratories, and industry and extension professionals when planning strategies.