

Integrated Pest Management - What Is It?

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Integrated Pest Management (IPM) is one method of pest control. Often called the hybrid solution to organic and chemical sprays, the IPM program uses progressive controls. Dale Bottrell, in his book, *Integrated Pest Management*, defines IPM as "the selection, integration, and implementation of pest control based on predicted economic, ecological, and sociological consequences. IPM seeks maximum use of naturally occurring pest controls, including weather, disease agents, predators, and parasitoids. In addition, IPM utilizes various biological, physical, chemical control and habitat modification techniques."

The real basis of IPM is not the total annihilation of the pest that most of us would hope for, but to control the pest population down to some acceptable level. The reason is that if you tried to kill all the pests by chemicals, some resistant individual pests will survive the holocaust of sprays and will multiply into resistant varieties. Also, heavy use of pesticides will kill the good as well as the bad bugs. In the long run, you have to maintain the desired program if it is to function properly.

IPM works in a progressive manner. You start with the least harmful methods of control for man, animals, and the environment collectively. The use of natural controls is the first item on the list. If they fail, then you progress to controls with the least harm to man, then to the least known to harm to animals and beneficial insects, and finally the environment. Also in this process is consideration of cost effectiveness for short and long term controls. No need for an expensive, labor intensive program to remove a small percent of the population.

As with any program, you need to establish goals and define the parameters.

- What is the pest you are trying to control.
- At what level of reduction of that pest will you be happy?
- What environmental concerns do you have, etc.

So let's start with the pest itself. **Have you properly identified it?** Have it identified by your local Ag Dept. or a local Consulting Rosarian. Once you have identified the pest, learn all you can about its life cycle, stages of growth, seasonal variations, where it winters over, etc. The more you learn of your pest, the better you can control it. For example, in our area we have a beetle called *Hoplia*. It is a member of the scarab family and closely related to the Japanese Beetle. These beetles winter over as grubs in the foothills around us. They become adults in late May and June, and fly to their feeding grounds. If your roses are on their flight path, like mine, then they will not go any further. They do a lot of damage to the lighter colored roses, but not as bad as the Japanese Beetles. So since the life cycle occurs beyond my control, there is little I can do about that control. They are active in late May and June, normally when we do not have shows, so I am not as bothered by them and can accept some damage. They have no natural predators or plants they find offensive, so that is not an option either. My only recourse is to either ignore them, hand-pick into a bucket of soapy water, or spray with an insecticide for beetles, like *Sevin*®. I have tried white buckets of soapy water with little to no success as well as the yellow sticky strips.

All of these methods, except for Sevin, are safe to the environment, pets, and man. I have thought about placing a camouflaged cover over the roses but that is a little extreme. By monitoring the seasonal patterns, I know when the Hoplias are coming. You can do the same for all pests.

Another example is that I do not have to worry about mildew or rust in the summertime, as I am lucky to even have roses in the 110 degree heat with low humidity. In the damp, cool spring and fall powdery mildew is a problem, so I have to start controls before those times. With most things, it is easier to prevent problems than to play catch-up once the problem becomes established.

One requirement for a good IPM program is monitoring and recordkeeping. Keep track of what you did, when you did it, and the level of control, if any. Also note any damage to the plant or surroundings due to the control method. Set some parameters on what to look for when you monitor. If you see a couple of aphids - that may be okay, but if you see a mass, then it's time to spray or release more ladybugs, especially if there are few ladybugs around. So your level of monitoring can be looking for signs of the pest, pest levels, predator levels, and signs of damage from the pest or control method. It is a good idea to monitor your program each time you are in the garden. It doesn't have to be a scientific study each time, just glance around your roses and note anything good, bad, or indifferent.

IPM programs can be short or long term. Short term programs will take care of the problem at the minute, and will not control long term. One application of a pesticide will work for a short time, while the planting of offensive plants to the pest are long term. Other long term measures could be relocating the desired plants away from potential sources of the pest, installing fences to keep the pest out (such as deer) or to include plants that attract natural predators. A good rule to follow is to remove all potential sources of the pest. Fungus spores hide on leaves so remove all the refuse from the ground. Keep your rose beds clean at all times. Water works wonders for cleansing leaves in dry areas to help control mildew and spider mites.

Biological controls take many forms and shapes. We all know that ladybugs and lacewings will eat their fair share of aphids. There are bacteria that are commonly used to control certain types of caterpillars. Parasitic wasps are used to control white ash flies and many caterpillars. These may be locally occurring predators or they can be imported.

There are several levels of control even for chemicals. There are some natural occurring materials such as pyrethrins, and there are "sex" attractants, to lure the pest to the control material. Once you have exhausted all of these controls with no success, then you proceed with chemicals. In any IPM program, there is no right or wrong way. You may have several types of control working at one time, from perfectly safe to chemical sprays.