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## **What exactly is Integrated Pest Management (IPM)?**

Of the million insect species, only 2% of them are actual pests. In order to control these pest insects, we recommend using an integrated pest management (IPM) approach. IPM is the management of pest populations using systems of control strategies to reduce pest populations to levels that can be tolerated by humans. The focus of IPM is on using control tactics that will prevent pests rather than trying to reduce pests once they have occurred. In order to maintain healthy plants, a basic understanding of the plant's requirements for normal growth and possible pests in the area are needed to design an IPM plan.

The first step of the IPM approach is to correctly identify the pest insect. This will ensure that we know what lifecycle, habitats and other methods of survival are needed for this insect pest to thrive in your landscape. Once correctly identified, then an IPM plan can be designed using mechanical, physical, cultural, biological, and chemical control methods. Mechanical control uses a combination of labor and machinery to reduce pests, which include hand-pulling weeds, hand picking insects, sticky traps, and soil cultivation. Physical control involves altering the growing environment, such as changing growing temperature and altering amount of light, humidity and irrigation timing and method. Cultural controls involve changing plant care practices, such as selecting adapted or pest tolerant cultivars, crop rotation, proper bed preparation, and use of sanitation. Biological control strategies include the use of natural enemies to control pests, such as parasitoids, pathogens, predators and competitors. The final control tactic is the use of chemicals to either repel or control pests. Chemical controls should be used as the last resort. If chemicals are needed, insecticides that are low in toxicity should be used. Examples of low toxicity insecticides include: insecticidal soaps, oils, insect growth regulators, biological pesticides and inorganics.

### **A Word about Beneficials as Part of an IPM Plan**

Existing natural enemies should be conserved by using less chemical treatments or pesticides that are low in toxicity; also natural enemies can be purchased and released in order to increase populations in the landscape. One of these insects are lady beetles, where the larvae and adults feed on many insects and mites. Most of these are sold as adults, but remember they have wings so they can fly away. It is better to buy them in the larval form, so they will stay in the landscape instead of fly away. The number of beetles that needs to be purchased for release depends on the pest population. Some

thrips species can also be beneficial insects. The six-spotted thrips, *Scolothrips sexmaculatus*, feeds on two-spotted spider mites. This thrips is less than 1/8 inch in length and it has six dark spots on their bodies. Both the larvae and adults are predators of two-spotted spider mites. Be sure to do your research before purchase and releasing any natural enemy. Also make sure that the supplier has a good reputation for producing healthy natural enemies. Once you have established a large number of natural enemies in your landscape, you will want to try to use low impact insecticides as to not kill these beneficials.

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