

Integrated Pest Management

By John Combs, St. James' Care for Creation Committee

Integrated Pest Management (IPM) is a program that provides a method to safeguard plants from insect pests while also reducing the use of toxic pesticides. Pesticides, which also include herbicides, are chemical formulas designed to kill living organisms. Since you and I and our children and our pets are living organisms, it behooves us to be very careful how we use pesticides. All toxic pesticides have the potential to cause unintended harm to humans and wildlife, through pesticide spray drifting in the wind and impacting unintended people and pets, or through stormwater runoff.

The potential for harm is real and can be a very serious concern. While healthy adults can often recover from small doses of pesticides, children's physical development can be impaired by doses that might not cause significant harm to adults. The Environmental Protection Agency and others try to keep track of the amount of foreign substances in our public drinking water where a number of chemicals are present in small quantities. These small amounts are presumed to be safe but no one knows for sure.

Integrated Pest Management seeks to limit the use of pesticides to those situations where they are the only method of solving a pest problem. I cannot cover the full range of IPM treatments that may be used in this short paper but an internet search of IPM will demonstrate the many alternative treatments available. I will simply give a few examples to illustrate the theory of IPM.

IPM uses a wide range of alternative pest control methods which begin with good cultural plant management including ensuring that we know what the cultural needs of the plants are and we make sure that we follow them. If a plant needs full sunlight, we plant it where it will receive full sunlight. If the plant needs medium moisture, we ensure it is planted where it will receive medium moisture etc. We then ensure it is planted correctly so the plant can grow successfully.

IPM calls for regular monitoring of your plants, generally weekly inspection to ensure that any problems are identified promptly and dealt with. The general principal of IPM is that we use the least toxic product first to see if that will solve the problem. If the problem continues, we use a slightly more toxic product to solve the problem and then observe the result.

For example, if an inspection shows that aphids are present and affecting the plant's health, the initial approach might be to spray the plant with a fine water spray to dislodge many of the aphids and often this will solve the problem. If the problem persists then a second water spray treatment may be necessary. If the problem persists again then the use of a mild pesticide such as plain soap mixture may be necessary or a sticky card could be placed near the plant to trap the pests. If the problem is not solved, we continue to move up the scale of toxicity until we find a solution to the problem.

The value here is that we limit toxicity and the prevalence of the use of pesticide while still being open to use pesticides where they are necessary to control situations that cannot be resolved with less toxic means. In a healthy ecosystem, especially one with many native plants, the insects we call pests are subject to control by natural insect predators such as Assassin bug or Lacewings as well as birds and animals. Generally, most insects have several natural predators that provide a check on their numbers and prevent them from causing significant harm to our plants. If we use a broad-spectrum insecticide, we kill off the natural predators as well as the target insect species and we may actually create a more significant problem.

In a future essay, we will discuss the incredible role that microorganisms play in the life of the soil, but it is crucial to the long-term health of the soil that we limit toxic pesticides that might kill critical microorganisms.

In closing, I am reminded of the words of Rachel Carson whose pioneering work of uncovering the harmful effects of pesticide toxicity led to the beginning of our society's study and control of toxic pesticides: "The contamination of the environment with harmful substances is one of the major problems of modern life. The world of air and water and soil supports not only the hundreds of thousands of species of animals and plants, it supports man himself."