

# Integrated Pest Management

Integrated pest management (IPM) is a method of managing crops and controlling pests where information replaces pesticides or other inputs. Apple growers using IPM approaches monitor their orchards regularly for pests. They set out traps to catch certain insects and count the numbers in the traps. They look at apple leaves for insects and diseases. They watch the weather for conditions that are favorable for disease development. Growers use this information along with the stage of fruit development during the year, to make decisions on how to manage pests in the most environmentally friendly way.

IPM helps growers limit their use of pesticides. Chemical pesticides are used only when pests are present in numbers that could damage the crop. By watching the development of the pests and the crop, pesticides can be applied at the time pests are easiest to control and before the crop is damaged. By not applying pesticides growers allow natural enemies of pests to grow and in some cases to keep pests under control. Growers also save money since spraying is expensive.

Wisconsin apple growers have been using IPM methods for many years. By doing so many growers have been able to reduce the number of sprays by at least half. In the 1960's it was common for apple growers to spray insecticides 8 to 12 times during a summer. Most Wisconsin apple growers now apply 5 to 6 insecticide sprays per season. In some orchards as few as one or two insecticide sprays have been sufficient in some years.

Apple pests can burrow into the leaf and eat the green tissue. If enough leaves are eaten no fruit will grow and, left unchecked, the tree may die. As growers use the IPM technique of trapping pests they are able to see when pests are present. They are then able to time their sprays better and reduce the number of sprays. When the number of sprays are reduced, natural enemies or "good bugs" are able to multiply and eat "bad bugs" and keep pest populations low enough so they will not seriously harm apple trees.

Another example of IPM is the use of pheromones (a specific female scent) to attract male codling moths. Some apple growers place small "twist-tie" dispensers that release the scent on apple branches throughout the orchards. The male codling moths are attracted to the twist-ties, become confused and are unable to find females to mate. The number of codling moths in the next generation is reduced without the use of pesticides.

Some apple growers hang red balls with a sticky glue on the outside to watch for apple maggot flies. They know they don't have to spray until flies are caught on the traps. Some growers hang lots of traps throughout their orchards to catch the apple maggot flies. In this way apple maggots can be managed without pesticides.

Apple scab is a disease that only develops during warm moist weather. Many Wisconsin apple growers watch the weather carefully for conditions that are right for the disease to develop. Growers now use a new group of fungicides and spray after the disease has begun to develop rather than to protect against the disease developing. By using these fungicides and watching weather conditions, growers can reduce the number of sprays applied.

Apple growers have also found that careful pruning and fertilizing of apple trees keeps them healthy enough to resist some diseases and pest.