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Learn Insecticide Modes of Action to Avoid Chemical Resistance

In the green industry, landscape and turf professionals use integrated pest management procedures to control insects that damage desirable plants and turf. Practices to reduce stress of desirable material such as proper watering, pruning, fertilizing, and using recommended mowing heights are some of the most important steps to follow. However, if an insect outbreak occurs, one of the components of IPM is chemical control. Using insecticides responsibly includes applying at label rates and rotating chemicals to reduce the chances of the insect becoming resistant to the chemical. If insecticides are improperly used and a resistance occurs, insecticides won't work as effectively to control outbreaks, rendering the chemical useless or causing the applicator to use more chemicals than normally needed to reach the same control. Resistance also occurs in herbicides and fungicides.

For commercial or residential applicators it is important to learn not just the brand name of the product, but also the active ingredient, as well as the class or family of that chemical. This is needed to ensure that different chemical modes of action (MOA) to control the insect are used. Even if the active ingredient is different, the mode of action may be the same. If this happens, then even though the applicator may think they are rotating chemicals, they really aren't and resistance if more likely to occur due to over exposure of only one mode of action.

One of the easiest ways to find information on this subject is from IRAC, the Insecticide Resistance Action Committee. Here you will find most insecticides, their chemical names, modes of action and target sites, as well as general information on pests. The IRAC site will also comment on the level of risk for resistance, which varies. There is often a chemical class code that is on the labels of insecticides and other chemicals. These codes coincide to different mode of action target sites, and should be used in a rotation based on label recommendations. The label will also recommend how often a certain chemical can be used before rotating to another chemical.

More information can be found by contacting your local UF/IFAS Extension agent or visiting http://www.irac-online.org.