type of chemical has been limited severely by the Environmental Protection Agency. The chlorinated hydrocarbons (DDT is the most renowned chemical in this group) are an example of a pesticide group that remained in the environment for years. These chemicals were very effective pesticides with low mammalian toxicity, but they accumulated over time in the environment. DDT caused the egg shells of birds of prey like the bald eagle to be very thin and they often cracked before the young eaglets hatched.

IPM HAS REDUCED RELIANCE ON CHEMICALS

In Florida, there is probably less drift of chemicals into nontarget areas today than in the past because growers are not relying solely on chemicals to control pests. Growers are using **"Integrated Pest Management (IPM)"** in their fight against pests. IPM is an ecological approach to pest management that often provides economical, long-term protection from pest damage or competition. Concern about pesticides in the environment and their potential harm to users and the public spurred the interest in IPM. The practitioners of IPM use a combination of pest control methods to prevent their crops from suffering economic losses. A few examples of nonchemical pest control methods used by growers are: (1) planting crop varieties that have natural resistance to pests, (2) crop rotations that have proven to be helpful in reducing pest problems, and (3) chopping and burying residues from the previous year's crop.

IPM does not exclude the use of chemical control methods, but chemical use is reserved as the last line of defense in the growers' battle against pests. Sometime data collected in the field show that the pest numbers are high enough to warrant a chemical application to avert serious economic losses in spite of the grower using all of the best nonchemical measures to avoid pest problems. When the decision to apply a chemical is made, growers using IPM try to choose a chemical that will kill the target pest while sparing many of the beneficial insects that prey on various pests in the field. Preserving beneficial insects can prevent or at least delay having to apply chemicals in the future.

DRIFT WILL PROBABLY DECREASE WHILE DRIFT PROBLEMS INCREASE

Even though the application of agricultural pesticides is not increasing in Florida because of the use of IPM (pesticide use in citrus, one of Florida's major crops, has decreased considerably), the number of drift-related problems could increase. Many people are moving to Florida and developments are being built ever closer to long standing agricultural operations. Many of these people are terrified at the thought of an agricultural pesticide, regardless of the level of residue, drifting into their residential area.

A large portion of Florida residents pay to have pest control operators apply levels of pesticides that have been scientifically tested for efficacy and safety inside their house and in their yard. If the same level of residue of the chemical occurred in the yard because of spray drifting from an agricultural pest control operation, it would probably be a matter of great concern to residents in the area. This is somewhat perplexing, but understandable. The benefit received from the pest control operator's application is the obvious absence of roaches, fleas, chinch bugs or whatever pest that plagues the homeowner. People do not see the benefit of agricultural pest control "first hand". Even though the public is told that agricultural pesticide use makes for high quality, low cost food, the benefit is not as obvious as the absence of household pests.

Another reason for the strong potential for more drift problems in the future, in spite of possibly less drift, is the relatively new field of Environmental Law coupled with equipment capable of detecting the presence of extremely low levels of any substance.

WHAT CAUSES DRIFT?

The distance that a droplet moves laterally when released in air depends on the time the droplet is airborne and the average horizontal velocity of the droplet during this time period. The distance can be calculated with the equation below:

$$\text{Drift Distance} = \text{suspension time} \times \text{average horizontal velocity}$$

This equation is simple enough, if you know the time that the droplet is suspended in the air and its average horizontal velocity. However, determining either the suspension time or the average horizontal velocity of small droplets (100-150 micrometers or less) is virtually impossible because they are dependent on weather.