

## **GREENHOUSE IPM 101**

***Whether you're trying to get better control of problem pests and/or diseases this year or you're running low on some of your favorite IPM products, consider the following if your chemical storage area needs a review for the upcoming season:***

**What modes of action are in your arsenal?** If you're not familiar with the term mode of action or IRAC/FRAC codes, go into your chem storage area and grab all the products you would use to treat for a given pest or disease. On the upper righthand corner of the label, you should see the phrase Group X Insecticide/Fungicide, where "X" is a number (sometimes two) or an alphanumeric code. This indicates broadly how the product works on the target pest or disease's biology.

If you have a lot of products with the same IRAC/FRAC code(s), you're probably not getting good enough rotation between insecticide/fungicide modes of action. Since products with the same code attack pests or diseases the same way, repeatedly applying similar products can lead to resistance buildup among your pests and diseases. Resistance to your chemistries of choice means reduced efficacy and greater crop damage and losses. If you need to diversify your IPM products, ask your supplier for options of

products with different IRAC/FRAC codes that control your pests and diseases of concern.



**How old are the products in your chem stores?** Like most things, IPM chemicals have an expiration date and lose efficacy over time. The expiration date should be printed on the bottle, cap or lid, or the label itself, and checking it before you start spraying only takes a few seconds. The risks that come with applying old, expired chemicals are not worth the few bucks you might save instead of getting a new bottle. On older containers, the expiration date is

often smeared, or the original label has disintegrated, and it can be hard to determine exactly how old your product is. If any of your bottles look like this and you aren't sure how long you've had them, don't take a chance – dispose of them properly (ask your local department of ag if you're not sure how) and order fresh material.

**Do you think supply chain shortages will impact your IPM programs this spring?** IPM product availability is often affected by manufacturing and shipping delays. Though we tend to use the same brands and active ingredients each year, be prepared to use alternative IPM products if your preferred ones are on backorder. If certain products have worked well to in your greenhouse, look for other brands with the same IRAC/FRAC codes. Though there are differences in formulation between brands, you will often get comparable control with products that have the same modes of action and not have to completely reinvent your IPM program.