

GROWERTALKS

Growers Talk Production

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Insecticides, Fungicides & PGRs, Oh My!

Tabitha Samuels



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For someone who's new to the horticulture industry, walking into your employer's chemical storage area can feel extremely intimidating. There are probably shelves packed with bottles and buckets of strange liquids, powders and pellets, all of them labeled with warning symbols and unpronounceable names. But don't panic! Insecticides, fungicides and plant growth regulators (PGRs) are extremely helpful tools that can be used wisely and safely to help you produce the best possible-looking crops. Whether you're a new grower with zero chemical knowledge or you know the basics and want to strengthen your skills, here are a few things to keep in mind.

First, start with your local licensing agency. Depending on where you live, there are different types of state, territory and tribal requirements you must satisfy to be able to apply and/or supervise applications of restricted-use pesticides. Each agency will be able to tell you what type of license you need, depending on where you'll be applying chemicals (such as public or private property) and how you'll be applying them (aerial applications, for example, may require special credentials). The agency will also be able to supply you with study materials for any exam you're required to pass to obtain a license. These exams are a great foundation to build your pesticide knowledge—and it's always a good idea to add another credential to your resume!

Once you're licensed and ready to spray, it's time to get acquainted with the multitude of chemicals on the market. Thankfully, every single insecticide, fungicide and PGR is legally required to have a label (usually in the form of a small booklet attached to the chemical container) that contains all kinds of information. This label will tell you about the active ingredients in the chemical, details on what it should be used for and at what rates, and safety information like protective equipment requirements and REI (re-entry interval). Whether you're experienced with chemicals or not, it's always best to give the label of whatever you're applying a once-over before putting it to use. Even if you know the application rate for your favorite fungicide by heart, the manufacturer may have changed the chemical's formulation slightly or updated phytotoxicity warnings since the last time you used it.

Speaking of phytotoxicity, this is a concept that I learned about superficially in college, but didn't understand the magnitude of until I first started spraying pesticides and realized how disastrous it could be to NOT heed those label warnings. If you aren't familiar, phytotoxicity is when plants are unintentionally harmed by a chemical application of some kind. It can happen when you use products in the wrong conditions (like spraying oil-based formulations in high heat or humidity) or on the wrong plants (many insecticides and miticides are toxic to specific varieties, like

phlox or geranium). Pesticides that have phyto concerns will clearly state this information on the label, so it's easy to find when you're checking to see what pests the chemical targets or what rate to use.

A lot of chemicals will have a phyto warning along the lines of: "This product hasn't been found to be phyto in any tests, but has not been tested on all crops." In this case, if the product is something you haven't used before (or have used on some crops but not on others), it's best to conduct small-scale testing and spray a few plants with the chemical, then monitor the test plants carefully for any signs of injury, like deformed new growth or burnt-looking leaves. Sometimes, especially with PGRs, the test plants will take weeks to show any negative effects, so it's always better to test something new and wait to make sure it's safe before applying it broad-scale and wishing you hadn't.

Lastly, there's a multitude of free and valuable resources available to fill your pesticide knowledge gaps as a new grower—and, if you're a more experienced grower, to keep you up to date on new chemicals hitting the market. Chemical companies will often produce posters with charts showing all of their fungicides organized by the diseases they treat and their modes of action. These posters are great starting points to get you going in the right direction when you're looking for something to treat a specific issue.

Also, my favorite growing resources of all time to recommend are the grower guides published by *GrowerTalks*. The Insecticide, Miticide & Insecticide Guide and PGR Guide were both invaluable to me as a young grower getting my bearings when it came to applying chemicals and are still something I reach for often since they're updated regularly to stay current. (The newest versions of these guides are available for free at growertalks.com/GrowerGuides.)

To quote George Ball, the founder of Ball Horticultural Company and creator of *GrowerTalks*, "Our books and trade papers are the most powerful source of information and exchange of ideas we have." While most of these "books and trade papers" have shifted into the digital realm, the truth of this statement remains unchanged. In an era where artificial intelligence is increasingly changing how we obtain information, there's still no replacement for resources compiled by humans with years of experience! **GT**

Tabitha Samuels is Perennial Grower for Emerald Coast Growers, Milton, Florida, location.