

# Using Pesticides Wisely

**Insecticides, fungicides, miticides, herbicides ...** fungicides, insecticides, herbicides, miticides. All different uses, all different labels. Wow, what an expensive inventory you need. Managing and applying your pesticides is a huge undertaking. What to apply, when to apply, rotate with this or with that, tank mix this with that. My head spins, and as most of you know I'm not a plant person, so my hat is off to you. And this is only one of the areas of expertise you are expected to understand.

I might not be a plant person, but I do understand cost. So when it comes time to use one of these products and you find yourself at a crossroad, what are you going to do? Using insecticides/fungicides/miticides/herbicides wisely will save on costs of crop production. If you find something going on, the first step is to get a diagnosis and the second step is to find out what you need to use. It seems fairly simple and, if you are not a grower, not that hard.

If you do not feel like getting a diagnosis and think you know what the problem is, go ahead and “shoot from the hip.” Then see just how much product you've wasted, time you've lost (time is money) and now you are even further behind.

Using pesticides wisely not only saves a lot of money, but your plants will most likely be better also. Many of you know about and have used our “Guide to Ornamental Fungicides” with Syngenta. This quick guide will tell you if a fungicide will even work on a specific disease — no guessing! If you don't have one ... let us know.

When Ann (A.R.) was asked to address this topic, she came up with the following list of “wise” vs. “unwise” approaches to disease management (Figure 1).

Do not use a product with low efficacy or apply products too often or at excessive rates. In a recent study on powdery mildew, better control was achieved when a very effective product was used on a long interval rather than alternating the effective product with a “green” product. The result was more disease when the products were alternated — probably due to the added water from the intermediate treatment with the low efficacy product.

Similar research has shown that using excellent fungicides for downy mildew more than twice a week can end up making the downy mildew explode. This is probably due to the added water in the sprays which dramatically favors downy mildew disease.

In yet another case, using a higher rate of fosetyl aluminum actually gives less control of downy mildew than the lower labeled rates. We have seen the same thing happen with many other products when using too high a rate. Applying a copper

Figure 1: “Wise” vs. “unwise” approaches to disease management.

Bad Idea	Good Idea
Guess	Make an accurate disease diagnosis
Use cheap products only	Use the best products
Use older products only	Use the best products
Use newer products only	Use the best products
Tank mix many products in hopes that one will work	Alternate effective products based on accurate disease ID
Guess when setting up a rotation	Know how to find out the FRAC group for resistance management
Rotate between highly effective and slightly effective products on a short interval	Rotate between two highly effective products on a longer interval
Use low rates on a short interval	Use the best rate on a longer interval
Use a curative approach to disease control	Prevent diseases that cannot be cured
Always use the highest or even higher label rates	Use the correct rate (within the legal label) based on severity and conditions
Use a cutting dip to control many disease possibilities	Apply a sprench after sticking to control disease without spreading it
Assume using a fungicide/ bactericide will always help	Stop and think - ask for help

product for control of Botrytis is often counter-productive as it can cause phytotoxicity, leading to worse Botrytis.

Finally, we worked with an orchid grower who was using three fungicides at very low rates in a weekly tank-mix to control Fusarium. Losses were up to 2 percent per week. We suggested using the right rate of two of the products (much higher) on a 21-day interval. The grower tried it and within two months saw a drop in weekly loss to less than 0.1 percent. In addition, their fungicide costs were cut in half.

Each of these situations led to worse disease, which is clearly not the goal. Remember that environment always trumps chemical control so there are times when no fungicide treatment is the best approach if the culture of the crop cannot be corrected to favor the crop over the disease. Spraying is not always the answer to a disease outbreak. Stop and think! [gpn](#)



*Chase Agricultural Consulting, LLC was formed in 2011 by Ann (A.R.) Chase and Mike Zemke. Ann has more than 35 years experience in research, diagnostics and practical consulting in plant pathology. She has been retired from the University of Florida since 1994 but remains on staff as a Professor Emeritus. Mike holds an Associate of Applied Science in manufacturing drafting and started his education in horticulture when he and Ann were married in 1995. He specializes in communications of all sorts within the industry.*