



St. Augustine Orchid Society

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Sprays vs. Drenches for Applying Chemicals

by Sue Bottom, sbottom15@gmail.com

Other things being equal, it is preferable to drench a plant with a chemical to treat a problem rather than spray the plant. Drenching is easy, you simply mix up the chemical at the desired concentration and pour it through the pot so it can be absorbed by the roots and drawn into the plant protecting it from the inside out. Your potential for exposure to inhaled aerosols and overspray is less when drenching, where gloves and boots protect you from exposure. These type products are often described as being systemic or xylem mobile, as opposed to contact chemicals. Contact chemicals are effective if they come into physical contact with the offender, so good coverage of all plant surfaces is essential. There are a few products that are described as being locally systemic, which means they can penetrate the leaf surface and move through the leaf so you don't have to have complete coverage of both upper and lower leaf surfaces for them to be effective.

If you have only a few plants, you can mix up a batch of chemicals in a gallon jug and just pour it through the pot, just enough for the water to begin to drain from the pot. This should allow all roots to be wet so they can absorb the chemical. A little fertilizer added to the drench will help with uptake. If you use a sprayer to water and fertilize your orchids, you can just direct the sprayer to the potting media surface to wet the roots. If you use a siphonex or dosatron, you can add the chemical to your concentrate bucket. An aquarium aerator or frequent mixing of the concentrate bucket help keep the chemicals in suspension.

Scale and Mealybugs. For scale and mealybugs, products containing imidacloprid (Merit, different Bayer Products) and dinotefuran (Safari) are both systemic products that are taken up by the root system and translocated upward throughout the plant. When applied as a foliar spray, they are translaminar providing locally systemic control of foliar pests.



If you grow cattleyas, scale is your nemesis. The combination of Safari and Distance can eliminate scale from your collection.



Thrips feed on your flowers while they are still in the bud. Periodic Orthene drenches can prevent floral damage, and help control scale.

There are many products containing the active ingredient imidacloprid on the market, and these products are generally available at local nurseries and big box stores. The imidacloprid concentration varies widely among products, but the one labelled Tree and Shrub has 1.47% imidacloprid (and even more concentrated specialty chemicals like Merit are available). There is a granular product often used by the rose growers that contains 0.5% imidacloprid,



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sold as Criterion, Zenith, Grub-Away, and others. This can be very handy for a small infestation, where you just sprinkle some on top of the plant media and water it in.

The Insect Growth Regulator Distance will not kill scale, but it will keep the scale from maturing so it can be used in conjunction with a scale pesticide to provide long term control. Distance has strong translaminar activity, so when applied to the upper leaf surface it will penetrate the leaf cuticle, and can subsequently be ingested by immature and adult insects feeding on the lower leaf surface. While Distance is used as a spray, I apply it in combination with Safari as a sloppy drench, or sprench, in which the entire plant, leaves and potting mix are wetted with the chemical combo. Another possible advantage is that any thrips developing in the potting mix can be controlled with the insect growth regulator.

Thrips. Systemic control of thrips using drenches is possible using products containing the active ingredients acephate (Orthene) and dinotefuran (Safari). Raymond Cloyd's article on [Control of Thrips with Systemic Insecticides](#) suggests that the more water soluble systemics are more rapidly absorbed by the roots and translocated throughout the plant:

Here's one example of how water solubility influences the uptake and efficacy of systemic insecticides. Imidacloprid (Marathon), which has a water solubility of 0.51 g/L or 500 ppm, tends to be less effective against flower- and pollen-feeding insect pests including Western Flower Thrips (WFT). Research has shown that acephate, which has a water solubility of 790 g/L or approximately 79,000 ppm, is converted into the metabolite methamidophos and actually moves into flowers, protecting them from WFT feeding injury. It may provide systemic protection to flower buds, which allows plants to flower and minimizes feeding injury resulting in good flower quality.

We have found Orthene drenches to be very effective at controlling floral damage to Cattleya flowers. Safari is about half as water soluble as Orthene. Besides flowers, thrips feed on the foliage of soft leaved orchids like Catasetums whereas they don't do much damage to waxy Cattleya leaves. If leaf feeding is a concern in your growing area as it is in many ornamental greenhouses, Cloyd's article states:

Spray applications of systemic insecticides tend to be more effective than soil/growing medium applications because they are being primarily used as contact or translaminar sprays, and not so much for any systemic activity.

Miticides. Kontos is the only systemic miticide for use as a drench, but the label does not recommend its use on orchids. For mites, look for locally systemic products with translaminar activity that can be sprayed, like Avid that contains the active ingredient abamectin. In his article [All Mites are Not Created Equal](#), Raymond Cloyd states:

Avid is a contact and translaminar miticide. Translaminar is a term that refers to insecticides/miticides that penetrate the leaf tissue and form a reservoir of active ingredient within the leaf. Avid generally provides up to 28 days of residual activity. The label rate for all mite species is 4 fl oz per 100 gal. Avid is active on the mobile life stages of mites, with no activity on eggs. Although the insecticide/miticide is slow acting, treated mites are immobilized after exposure.

Fungicides. Most of the commonly available fungicides like chlorothalonil (Daconil) for leaf spotting fungi and botrytis and bactericides containing copper (Kocide, liquid copper and



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Our hot humid summers create the conditions conducive for black rot to infect our cattleyas. Cultural controls together with specialty chemicals can help prevent black rot.



Anthracnose is caused by leaf spotting fungi. Remove the spores from your growing area and use protective chemicals to prevent the fungus from getting a foothold in your growing area.

Some of these products are effective on only one type of disease. For example, Aliette and Subdue are often recommended for controlling black rot in Cattleyas caused by the water molds (Pythium and Phytophthora). If this is a persistent problem for you, you may want to invest the \$100 to \$200 to use these products. There are also broad spectrum products like Banrot, Heritage and Pageant that are labeled as effective for water molds, leaf stem and root rots (like Rhizoctonia and Fusarium) as well as leaf spotting fungi (like Cercosporoids and Anthracnose) and can be used as both drenches and sprays. While Banrot is not as effective as Aliette for black rot, it can be used to provide control of other diseases.

Before spending your hard earned money on chemicals, make sure you do your research. First and foremost you have to diagnose the problem you are trying to solve. Then identify which chemicals will provide thorough and lasting control. Systemic products that can be applied as drenches should be high on your list. The SAOS website has lists of different [pesticides](#) and [fungicides](#) that can be used on your orchids, identifying which products are effective for the various problems that can afflict your orchids. Read and understand the label instructions before buying or using any chemical.