



St. Augustine Orchid Society

www.staugorchidsociety.org

Rats

by Sue Bottom, sbottom15@gmail.com

The summer shade house is a great environment for growing orchids. The buoyant air movement, purifying rainwater, filtered light, and nighttime temperature drop encourage vigorous growth and flowering in the orchids that summer there. The good news is the plants are exposed to the outside world. The bad news is the orchids are exposed to the outside world, including those chewing pests that are happy to munch on orchids, rats!



The first clue was seeing the growths scattered on the ground during my morning walk through. Then, when I looked up to see what was happening.



The dendrobium hanging next to the Coelogyne had been beheaded, presumably so the rats could feather the nest.



Before – the *Coelogyne flaccida* was beautiful after growing for several years in the wire basket, wintering in the unheated hoop house



After - The little so and so's just ate through the middle of the basket, making a big scooped out hole in the center for their future little darlings.

Orchid growers always have to fight denial. If you see something that doesn't look right, stop what you are doing and investigate. There had been signs of small damage to plants for several days, it just looked like random damage. Perhaps if I had pulled the plant down from the hanger to investigate, I would have noticed the gnawing damage sooner, before the little cabróns decided to set up housekeeping in the orchids.



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Before – The best blooming on this *Epidendrum oerstedii*, growing in an 8 inch pot suspended from the shade house with a double wire hanger.



After – If you see tell tale signs of plant damage on the ground, don't wait to investigate. This damage happened in a matter of days.

We discovered the problems rats can cause several years ago. The dogs were always sniffing around the bottom of my car and we couldn't figure out why, until we pulled the car out after returning from a trip to the Keys and there was lots of plastic debris under it. We popped the hood and there it was, the rats' nest and lots of wires stripped. It cost \$6500 to replace all the wire harnesses in the car. The fellow at the automotive repair shop says they get a car in with the same problem several times a week.

Orchids in the greenhouse have had sporadic instances of rodent damage, a pot knocked over, new growths chewed on, tea bags containing Purely Organic fertilizer pulled from the pots, etc. Whenever damage is noticed, some rat poison is placed in saucers layered with Purely Organic fertilizer to tempt them. I never gave much thought to the types of rat poison until they started building nests in my orchid baskets in the shade house. There is quite a variety of rat poisons on the market, although you have to be careful in selecting the proper bait to prevent collateral damage. From the Rodenticides Topic Fact Sheet:

There are many different active ingredients registered as rodenticides in the United States. They can be grouped together according to how they work. Many rodenticides stop normal blood clotting; these are called anticoagulants. Bromadiolone, chlorophacinone, difethialone, diphacinone, brodifacoum, and warfarin are all anticoagulants. There are a number of rodenticides that are not anticoagulants, and these work in different ways...

Warfarin, chlorophacinone, and diphacinone generally require that an animal eat multiple doses of the bait over several days. These are known as multiple-dose anticoagulants. Single-dose anticoagulants, such as brodifacoum, bromadiolone, and difethialone are more toxic. One day's feeding can deliver a toxic dose...

Single-dose anticoagulants are more toxic because they bind more tightly to the enzyme that makes bloodclotting agents. They can also interfere with other steps in Vitamin K recycling. Second-generation, or single-dose anticoagulants, are not easily excreted from the body, and they can be stored in the liver. Most of these



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rodenticides are not allowed to be marketed to non-licensed applicators for residential use. Instead of classifying anticoagulants into “first generation” or “second generation”, many sources refer to them as multiple-dose or single-dose rodenticides because it is less confusing...

Rodenticide baits are made to attract animals. Pets and wildlife may take the bait if they find it. When an animal eats the bait directly, it is called primary poisoning. Secondary poisoning is caused by eating poisoned prey... The rodenticides with high secondary poisoning risks to birds such as hawks and owls include difethialone and brodifacoum. The rodenticides that pose the greatest secondary poisoning risks for wild mammals, dogs and cats include chlorophacinone, diphacinone, and all of the single dose rodenticides. Bromethalin and cholecalciferol may pose secondary risks but these risks have not been studied as extensively.

Category of Poison	Active Ingredients	Trade Names	Secondary Poisoning Risk to:	
			Birds	Mammals
First Generation Anticoagulants – Multiple Dose Feed Over Several Days, Lethal Within 1 to 2 Weeks	Chlorophacinone	Flatline	Low	High
	Diphacinone	Ditrac, JT Eaton Bait, Tomcat	Moderate	High
	Warfarin	Kaput	Low	Low
Second Generation Anticoagulant – Single Dose Feed, Lethal Within 4 to 5 Days	Brodifacoum	d-Con, Final, Havoc, Talon-G, WeatherBlok XT	High	High
	Bromadiolone	Bell Contrac, Farnam Just One Bite II, JT Eaton Nectus, Resolv	Moderate	High
	<u>Difethialone</u>	First Strike, Generation	High	High
Non-Anticoagulant	Bromethalin (single dose)	Fastrac, JT Eaton Top Gun, Tomcat With Bromethalin Bait, Victor Fast-Kill	Low based on limited evidence	Low based on limited evidence
	Cholecalciferol (multiple dose)	Terad	Low based on limited evidence	Low based on limited evidence

Secondary poisoning risk from [Rodenticides Topic Fact Sheet,NPIC](#)



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We live adjacent to wooded property that abuts a large state park, and we see all kinds of wildlife in the yard, deer, turkeys, foxes, hawks, ospreys and more. There was no question that rat poison was going to be used to protect the orchids in the shadehouse, so the goal was to find one with the minimum risk of secondary poisoning. The rat poison of choice is one containing bromethalin, a single-dose formulation for quick results without causing too much risk to Coral, the birds of prey and other mammals that live in the Hood.

Citations and Additional Reading

Fisher, Frederick M., Rodenticides, University of Florida IFAS Extension PI284, Accessed July 2020 , <https://edis.ifas.ufl.edu/pdffiles/PI/PI28400.pdf>

National Pesticide Information Center, Rodenticides topic Fact Sheet, Accessed July 2020 <http://npic.orst.edu/factsheets/rodenticides.pdf>,