

Treating Agaves to Prevent Agave Snout Weevil Infestation

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Over the past six years, I have acquired a small, but growing, collection of *Agaves*. Soon after I joined the Central Arizona Cactus and Succulent Society, I was warned about the deadly and irreversible effects of attacks by agave snout weevils (*Scaphophorus acupunctatus*). According to information provided through the Internet by the University of Arizona, College of Agriculture Cooperative Extension in Maricopa County (1998), these inch-long, dusty black, wingless insects are most active starting in March. Adults lay their eggs between the leaves of *Agaves*, and the hatching larvae burrow into the plant. Larvae are similar to white grubs without legs. Infested *Agaves* collapse into a putrid, rotting mess during late summer.

I contacted eight people in Phoenix and Tucson that have or deal with *Agaves* either as part of their livelihood or as a hobby, to try to determine what is the best method to prevent the loss of my *Agaves* to this insect, while also minimizing the amount and frequency of pesticide use in my landscape. I discovered that the chemicals used, the season of application, and the frequency of application varied from person to person. Some used liquid chemicals, others used granules, and some used both.

Chemicals applied included Diazinon, Disyston, Oftanol, and Cygon. Apparently, the last two may no longer be available commercially. Some recommended alternating between two or more chemicals to prevent the insects from developing resistance to any given chemical. Some applied chemicals monthly from spring through summer, others only spring and fall (once each season in April and September or monthly in March, April and May and again in October, November and December), others in April, July and September, and still others in the spring months only. Some believe that weevils don't normally attack young *Agaves*, and usually only go after mature plants that are ready to "bolt" (send up a flowering stalk), and don't recommend any treatment since these *Agaves* will perish soon anyway. However, several people I contacted had the opposite experience and lost *Agaves* of all ages to this insect including small individuals in one-gallon containers.

Some people treat all new *Agaves* before they introduce them to their collection or recommend using only bare-root specimens to avoid inadvertently bringing in weevils in soil. If they find signs of weevil activity in their collection, some also treat all *Agaves* (or at least nearby ones) in their collection regardless of the time of year. Possible early signs of weevil activity include bruise marks the size of a thumbprint or pencil-sized entry holes, both at the base of the leaves. Advance signs are shriveling, drooping lower leaves that rapidly collapse with only the central spine-like bud remaining upright. It is too late to save plants at this stage,

and they should be promptly removed. Some recommend treating the ground under a weevil-killed *Agave* for several months after removing it, before planting another *Agave* in that spot.

Many people believe that *Agave americana* is more susceptible to the weevil than other species, and may actually act as a weevil “magnet” to your garden, and they recommend avoiding this species. Other large, broad-leafed, stiff, narrow-leafed species are much less susceptible to this insect. Other species reported by some to be less susceptible to weevils include *A. vilmoriniana*, *A. desmettiana*, *A. gemniflora*, *A. murpheyi*, and *A. parryi*. These species may be better landscape choices if you want to minimize the chances of weevil losses or the need to use chemicals. However, none may be totally immune to this weevil, and even some species of *Yucca* have been attacked like *Y. brevifolia* and *Y. elata*.

I have decided to follow the preventative treatment method used by Diane Barker, *Agave* horticulturalist at the Desert Botanical Garden in Phoenix. Diane probably works with more *Agave* species and likely more individual plants than anyone else does. She definitely has weevils on the DBG grounds, and she has lost *Agaves* to the weevil. However, and most importantly, she has rarely lost an *Agave* that was treated using the method below.

Diane pours a liquid solution of Diazinon over the rosette of each treated *Agave* once a month each year in March, April and May. She uses 1 ½ gallons of liquid (diluted with water following directions for ornamentals) for medium-sized plants and 2 ½ gallons for large plants. As a less-messy alternative, she sometimes uses granular Diazinon sprinkled into a shallow trench dug around the drip line of the *Agave*, then buried and watered in. She does not treat in the summer or fall and believes that treatment at that time of the years is only wasting time and chemicals. *Agave* damage discovered in the late summer or fall is likely caused by untreated weevil infestations that occurred in the spring of that year.

Diane stresses that we should be sure to follow all the precautions on the chemical labels, and to wear appropriate skin and eye protection. Most of these chemicals can be harmful to pets and wildlife, as well as people, if used inappropriately. Although it has low to moderate toxicity to humans, and is not believed to increase the risk of cancer, Diazinon is highly toxic to birds, fish, bees and aquatic insects, and cats are more susceptible than are dogs. Perhaps disappointing to some, it has only a low toxicity to rabbits. Diazinon has an average half-life of 40 days and a foliage half-life of four days (National Pesticide Telecommunications Network [NPTN] Diazinon Fact Sheet, 1998). I recommend rinsing plants after application to avoid ponding of harmful chemicals in the leaf troughs, and covering the treated areas with untreated soil or mulch. According to NPTN, Diazinon has a low potential for movement through the soil to the groundwater.

Mary and Gary Irish had a good suggestion in their outstanding book, *Agave, Yuccas and Related Plants: A Gardeners Guide* (2000, Timber Press). If one of your *Agaves* die from weevils, DON'T use its surviving pups in your landscape. Instead, try to locate pups or bulbils from an *Agave* that successfully flowered and may have had some genetic resistance to weevils and likely passed that resistance on to its offspring.

(Unfortunately, the only available photo didn't scan well enough on my scanner to include in this article, so just imagine your beautiful Agave with collapsed leaves, appearing as if some hostile child broke each leaf in half and left them drooping their tips on the ground, still partly attached to the plant. Edit.)

I would appreciate hearing from others regarding their successes and failures in treating (or not treating) their *Agaves* to prevent weevils at 602-863-2553.

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