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Spider Mites and Witches Broom

A drought in the desert sounds a bit like a classic oxymoron, akin to jumbo shrimp. The reality is that over the last decade average rainfall in the desert southwest has tended to be substantially below historic averages. The combination of dry conditions and relative mild winters have given rise to higher than usual populations of an array of insect pests, including Spider Mites. As a result of these weather conditions and increased populations of Spider Mites, we have seen a significant rise in the appearance of Witches' Broom on both landscape and native Blue Palo Verdes. The increased incidence of this condition appears to be common in both Maricopa and Pima counties. Symptoms of Witches' Broom are particularly conspicuous on Blue PV in landscape settings but can easily be seen in native populations. Native trees show milder symptoms probably as a result of their slower, less luxurious growth rate when compared to most landscape settings.

Spider Mites have a piercing-sucking mouth part (think of a mosquito) that punctures plant cells and extracts nutrients. As a consequence of this feeding, in a manner that has not been explained experimentally, a proliferation of branches can occur. One hypothesis suggests that while feeding the Spider Mites inject a small amount of saliva that



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Dedicated to providing quality trees to the landscape industry, that are appropriate to the desert Southwest.

may have chemical properties that stimulate excess plant growth. This is observed in other Spider Mite/plant combinations where galls and other growth anomalies are typically associated with Mite feeding. What has created part of the confusion in the relationship between Mite feeding and Witches' Broom symptom expression on Blue Palo Verde is that typically when we see symptoms there are few or no Mites present. This is likely, in part, due to the relatively slow growth rate of Blue Palo Verdes. The actual feeding event(s) and the appearance of Witches' Broom can be separated by many months. This further explains why the application of miticides, upon observation of Witches' Broom, has no effect on symptom expression. While miticides could be applied preventatively, in anticipation of mite feeding, such practices seem inappropriate from an environmental prospective given the dif-

ficulty of predicting Mite infestations or outbreaks.

Most of the literature suggests that affected branches be removed thru pruning (primarily for the sake of tree appearance), as branches do not harbor surviving adult mites or their eggs. Given the magnitude of the current outbreak, and in consideration of the overall appearance of trees and risk of sunburn injury, it might be best to prune out affected branches, a little at a time, over the course of the next year.

The most common plant-feeding Mite outbreaks are caused by the Two-Spotted Spider Mite. Warm temperatures and dust (dirt) coated leaves create conditions that favor high populations of these mites and can result in unsightly matting of foliage along with leaf and terminal twig death. Conifers are especially susceptible under dusty conditions. Where feasible, apply water to dirt and unpaved pathways and other dusty areas at regular intervals. Water-stressed trees and plants are more susceptible to severe Spider Mite damage. Be sure to provide adequate irrigation. Mid-season washing of trees and vines, to remove dust, may help prevent serious late-season Mite infestations.

Ed Mulrean Ph.D., Editor

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