

Update on Vine Mealybug Trapping and Distribution

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Pheromone trapping and sampling for vine mealybug (VMB) [*Planococcus ficus* (Signoret) (Homoptera: Pseudococcidae)] began throughout the state in 2003 and has continued through 2008. The level of trapping in 2008 was about the same as that in 2007. The reasons for the decline in trapping activity are that most counties know their infestation status, the approximate areas of infestation, and there is no state-funded program for VMB detection or trapping. Traps and lures, purchased with continued funding from USDA-APHIS, were made available to anyone requesting traps from the California Department of Food and Agriculture (CDFA). A total of 24 counties submitted vine mealybug samples to the CDFA Plant Pest Diagnostics Laboratory (12 counties submitting traps, 12 counties submitting insect or plant samples, and 13 counties submitting samples from certified grapevine nurseries). The CDFA Plant Pest Diagnostics Laboratory examined approximately 871 traps and 26 insect or plant samples for the presence of VMB in 2008.

The results of the trapping and sampling programs from 1994 – 2008 can be found in Appendix A. The results are based on information from the CDFA Pest Damage Records (PDRs) and other information submitted by agricultural commissioner personnel and UCCE scientists. There were no new county records for VMB in 2008.

Vine mealybug infestations continued to slowly spread with very little change in vine mealybug distribution from 2007 to 2008. There are 18 infested counties; 23 have been surveyed and are currently negative for VMB; two (Amador and Lake Counties) are currently under eradication programs; and there are three counties where the VMB status is questionable (Table 1). In Lake County, delimitation efforts continued in 2008, and a small infestation was found and placed under an eradication program. The area will be monitored in future years. In San Benito County, a county with questionable VMB status, a few males (less than 5 per trap) were found only in traps located next to a winery during crush. However, other traps distributed more widely in the vineyards also contained males, suggesting that either more infested grapes were coming to the winery or vine mealybug may be starting to establish in these vineyards. In San Mateo and Stanislaus Counties, also counties with questionable VMB status, a few males have been trapped sporadically in previous years, but none were trapped in 2008. The sites in both these counties require further investigation.

Table 1. The counties that are known to be infested with VMB, the counties that have been surveyed and found to be negative for VMB, the counties with a questionable VMB status, and the county with an eradication program for VMB.

Counties known to be infested	Counties not known to be infested	Counties with questionable status	Counties with an eradication program
Alameda	Butte	San Benito	Amador
Amador	Calaveras	Stanislaus	Lake
Fresno	Colusa	San Mateo	
Kern	Contra Costa		
Lake	El Dorado		
Merced	Glenn		
Monterey	Imperial		
Napa	Kings		
Riverside ^a	Los Angeles		
Sacramento	Madera		
San Joaquin	Marin		
San Luis Obispo	Mendocino		
Santa Barbara	Placer		
Santa Clara	San Bernardino		
Solano	San Diego		
Sonoma	Santa Cruz		
Tulare	Shasta		
Yolo	Sutter		
	Tehama		
	Trinity		
	Tuolumne		
	Ventura		
	Yuba		

^aOnly Coachella Valley is infested with VMB.

Appendix A

Vine Mealybug Detection Summary

- Alameda** County – VMB males and females found in 2003. No new sites reported for 2004, 2005, or 2006. VMB females were found at a vineyard in 2007. This vineyard had been identified as infested in previous years. No new infestations were found in 2008.
- Amador** County – VMB males found at one site in 2004, and females found at same site in 2005. An eradication program began in 2005 and continues. In 2006, males were trapped at the site of the eradication program. In 2007 and 2008, the eradication program continued at the same sites treated beginning in 2005. No other vineyards within the county were found to be infested.
- Butte** County – Trapped in 2003 and 2004, and no VMB found.
- Calaveras** County – Trapped in 2004 and 2007, and no VMB found.
- Colusa** County – Trapped in 2004 and no VMB found.
- Contra Costa** County – Trapped in 2003-2005, and no VMB found. A plant sample was submitted in 2008, but it was negative for VMB.
- Del Norte** County – No grape acreage.
- El Dorado/Alpine** Counties – Found one site in 2002 and began eradication program. During the trapping program conducted county-wide in 2003, male VMB were found only at the eradication program site. Subsequent detection activities in 2004 - 2007 were negative for VMB. The small infestation of VMB in El Dorado County has been eradicated.
- Fresno** County – Found VMB at one site each in 1998 and 1999. Trapping in nurseries in 2004 found no new sites. Two new sites were found in 2005. In 2006 and 2007, no samples were submitted to CDFA for verification of VMB.
- Glenn** County – Trapped in 2003-2005, and no VMB found.
- Humboldt** County – No trapping program. Small acreage of grapes.
- Imperial** County – Trapped in 2004 and 2005, and no VMB found.
- Inyo/Mono** Counties – No grape acreage.
- Kern** County – Found VMB at one site in 1998, two sites in 1999, and one site in 2002. In 2004 – 2006, approximately 13 nursery blocks had VMB males present, and two commercial production sites had VMB females present. In 2007, nursery sampling found 8 blocks with VMB males. In 2008, nursery sampling found 4 blocks with VMB males.
- Kings** County – Trapped in 2004, and no VMB found.
- Lake** County – Found one site with VMB males in 2004 near a truck scale. In 2005, no males were found. In 2006, males were found in traps in the same location as in 2004, very late in the season. Delimitation trapping was conducted in 2007; from these traps only 2, located near the truck scales in September, contained VMB (fewer than 5 males per trap). In 2008, extensive trapping delimited the infestation and eradication was started.
- Lassen** County – No grape acreage.
- Los Angeles** County – Samples submitted in 2003 were negative. In 2004 and 2005, no VMB were found in either traps or samples.

Madera County – One nursery was found to have VMB males in 2004. In 2005 and 2006, none were found in traps. Males in the traps in 2004 may have come from surrounding vineyards that have since been removed. In 2007 and 2008, nursery trapping was negative for VMB.

Marin County – Trapped in 2004 – 2006, no VMB males found.

Mendocino County – Trapped in 2003 and 2004, no VMB found. In 2006, samples of mealybugs on grapevines were submitted, but were not VMB. In 2008, trap samples were submitted from vineyards and nursery areas, but were negative for VMB.

Merced County – VMB males found at one site in 2004, and females found at the same site in 2005. Males were trapped at this site in 2006 - 2008.

Modoc County – No grape acreage.

Monterey County – Female VMB were found at one site in 2002. In 2003, 17 sites with males and two sites with females were found. In 2004, an additional 13 sites with males and three sites with females were found. In 2005, five additional sites with males were identified. In 2006, males were trapped at known infested sites, and one additional site with females was identified. In 2007, crawlers were found at a new site, and males were found at known infested sites. In 2008, males were found in traps placed at 5 new sites. These sites are located near known infested areas.

Napa County – In 2002, 8 sites with males and 6 with females were found. In 2003, an additional site with males and 14 sites with females were found. In 2004, 9 sites with males and 11 sites with females were found. In 2005, 33 sites with males and 6 sites with females were found. In 2006, 43 sites with males and 18 sites with females were found. Many of the sites in 2006 were at or near sites that had been infested in previous years. Only two sites with males were remotely located compared to previous years. In 2007 and 2008, males and female VMB were found at or near sites that were known to be infested.

Nevada County – No trapping program.

Orange County – No grape acreage.

Placer County – Trapped in 2004, no VMB found.

Plumas/Sierra Counties – No grape acreage.

Riverside County – VMB was found throughout the Coachella Valley beginning in 1994. To date the entire valley is infested.

Sacramento County – VMB females were found at one site in 2002, and at an additional site in 2003. In 2004, males were found at two additional sites. In 2005, 7 traps were positive for VMB but the locations of the traps were not known. In 2006 and 2007, the grapevine nurseries in the county were trapped and no VMB were found. Also in 2007, a plant sample was submitted that was negative for VMB. In 2008, nursery samples were negative for VMB.

San Benito County – Males were trapped at the same locality in years 2003 – 2008.

These sites are next to a winery that imports grapes into the county. The males are typically caught at about the time of grape crush.

San Bernardino County – Trapped in 2003, and no VMB found.

San Diego County – Trapped in 2004 and 2006, and no VMB found.

San Francisco County – No grape acreage.

San Joaquin County – In 2003, males were found at three sites and females at 6 sites. In 2004, males were trapped at 25 sites and females were found at an additional two sites. In 2005, males were trapped at one nursery site, and females were found at another site. In 2006, females were found at 6 sites and males were trapped at three sites. These detections through the years show a slow spread of VMB from the northern part of the county to the south and east. In 2007, the submitted plant samples and traps were negative for VMB. In 2008, nursery trap samples were negative for VMB, but 2 plant samples were positive for VMB. These sites represent a small expansion of VMB distribution.

San Luis Obispo County – In 2001 and 2002, VMB females were found at one site. In 2003, males were trapped at 10 sites and females were found at five sites. In 2004, males were trapped at 6 sites and females were found at an additional 6 sites. In 2005, males were trapped at 8 additional sites. In 2006 - 2008, the males that were found were in areas known to be infested with VMB.

San Mateo County – Trapped in 2003 and 2004, and no VMB were found. In 2005 and 2006, males were trapped at one nursery site. In 2007 and 2008, no males were trapped at that nursery site.

Santa Barbara County – In 2000 and 2002, VMB females were found at one site. In 2003, males were trapped at five sites and females were found at three sites. In 2004, females were found at four sites. In 2005, females were found at a site where male VMB had been found in 2000. In 2007, 3 sites with VMB females were found and were located near known infested areas. In 2008, 1 site with VMB females and 1 site with males were found, located near known infested areas.

Santa Clara County – In 2003, males were found at two sites and females found at one site. In 2004, an additional two sites were found to have VMB males and one additional site was found to have females. In 2005, males were trapped at sites already known to have VMB present. In 2006, traps were placed at new locations within the county and no VMB were found.

Santa Cruz County – Trapped in 2004 – 2006 and 2008, and no VMB were found.

Shasta County – Trapped in 2003-2005, no VMB found.

Siskiyou County – No trapping program, but less than 30 acres of grapes.

Solano County – In 2004 – 2008, no males were trapped at nursery sites. In 2004, one commercial vineyard was found to have female VMB.

Sonoma County – In 2002, four sites were found to have males and four sites were found to have females present. In 2003, an additional 33 sites were found to have VMB males and 6 sites to have VMB females. In 2004, 26 sites were found to have males and two sites were found to have females. In 2005, 8 additional sites with males and one additional site with females were found. In 2006, most of the finds were at or near known infested sites, with the exception of two sites near Sebastopol. In 2007 and 2008, males were trapped at or near known infested locations.

Stanislaus County – In 2004, one site with VMB males was identified. The individual who submitted the trap said that this vineyard had a moderate infestation of VMB. In 2005, trapping at nurseries found no VMB. In 2006, one trap placed at a nursery had a small number of VMB males in one sampling period. Continued

sampling at this site in 2006 found no other VMB males. In 2007 and 2008, no males were trapped in the nurseries.

Sutter County – Trapped in 2003, 2004, 2006 - 2008, and no VMB found.

Tehama County – Trapped in 2003 – 2005, and no VMB found. In 2006, a sample of mealybugs was submitted from a vineyard, but the mealybug was *Ferrisia gilli*, not VMB.

Trinity County – Trapped in 2003, 2004, 2006, and 2008, and no VMB found.

Tulare County – Nurseries were trapped in 2003 and 2006, and no VMB males were found. In 2004, 11 sites with males and two sites with females were found. In 2005, two sites that had had males in previous years were found. In 2008, one nursery site was positive for VMB males. This site is located near known infested sites.

Tuolumne County – Trapped in 2003 and 2004, no VMB found.

Ventura County – Trapped and sampled by Phil Phillips (UCCE) in 2003 – 2008, and no VMB found.

Yolo County – Trapped in 2003 and 2004, and no VMB found. In 2005, one site with females was found. In 2006, the nursery trapping found no VMB males, and females were found at the same site as in 2005. Plant and insect samples submitted in 2007 and 2008 were negative for VMB.

Yuba County – Trapped in 2004 and 2006, and no VMB found.