

California Mosquito Pesticide Resistance Summary Table
Summary by California Department of Public Health
Vector-Borne Disease Section
Data through October 2005
(Numbers correspond to references cited)

	<i>Culex tarsalis</i>		<i>Culex quinquefasciatus / pipiens</i>		<i>Aedes nigromaculis</i>	
County	Adult	Larvae	Adult	Larvae	Adult	Larvae
Alameda	malathion (3,24) chlorpyrifos (3)					
Alpine						
Amador	malathion (3) chlorpyrifos (3)					
Butte	malathion (3,24) chlorpyrifos (3)	malathion (1,2,23)		malathion (23)	OP unspecified (20)	
Calaveras						
Colusa	malathion (3, 12) chlorpyrifos (3)	malathion (14)				
Contra Costa	malathion (6) naled (6) resmethrin (6) pyrethrum (6)		chlorpyrifos (6)			
Del Norte						
El Dorado						
Fresno	malathion (6) naled (6) chlorpyrifos (6) resmethrin (6) pyrethrum (6) permethrin (11)	malathion (1,2,14) chlorpyrifos (14)	malathion (6) naled (6) chlorpyrifos (6)	temephos (6)	malathion (3) chlorpyrifos (3)	malathion (19) chlorpyrifos (21) temephos (21) methoprene (9)
Glenn	chlorpyrifos (3)					
Humboldt						
Imperial	malathion (3) chlorpyrifos (3)	malathion (1,2,14) chlorpyrifos(1,2,14)				

	<i>Culex tarsalis</i>		<i>Culex quinquefasciatus / pipiens</i>		<i>Aedes nigromaculis</i>	
County	Adult	Larvae	Adult	Larvae	Adult	Larvae
Inyo						
Kern ⁽¹⁾		malathion (14) chlorpyrifos (14)				malathion (19)
Kings		malathion (1,2,14,23) chlorpyrifos(1,2,14)			chlorpyrifos(4) OP unspecified (20)	
Lake						
Lassen						
Los Angeles	malathion (3)	malathion (1,2) chlorpyrifos (1,2)		malathion (5,23) temephos (5) chlorpyrifos (5)		
Madera	malathion (3,24)	malathion (2,23)			malathion (3)	
Marin		malathion (1,2)	pyrethrins (7) permethrin (7) deltamethrin (7) lambda-cyhalothrin (7)	pyrethrins (7) resmethrin (7) permethrin (7)		
Mariposa						
Mendocino						
Merced	malathion (6) naled (6) chlorpyrifos (6) pyrethrum (6)	malathion (14) chlorpyrifos (14)			malathion (3)	malathion (19,23)
Modoc						
Mono						
Monterey		malathion (14) chlorpyrifos (14)		malathion (23)		
Napa						
Orange		malathion (14)		malathion (14)		malathion (19)

	<i>Culex tarsalis</i>		<i>Culex quinquefasciatus / pipiens</i>		<i>Aedes nigromaculis</i>	
County	Adult	Larvae	Adult	Larvae	Adult	Larvae
Nevada						
Placer						
Plumas						
Riverside	malathion (3) chlorpyrifos (3,6) naled (6) pyrethrum (coachella) (6)	malathion (2,14) chlorpyrifos(1,2,14)	chlorpyrifos(6) naled (6)	temephos (5,6) chlorpyrifos (5)		
Sacramento	malathion (3,6) chlorpyrifos (3) naled (10) pyrethrum (13) (un-synergized)	malathion (23)				
San Benito						
San Bernardino		malathion (1,2) chlorpyrifos (1,2)				
San Diego		malathion (14)				
San Francisco						
San Joaquin		malathion (14)		malathion (5) temephos (5)		malathion (19)
San Luis Obispo						
San Mateo	unspecified (13)	malathion (14)				
Santa Barbara						
Santa Clara						
Santa Cruz						
Shasta	malathion (3)	malathion chlorpyrifos (1)	naled (6)	temephos (6)	chlorpyrifos (3)	malathion (19)
Sierra						
Siskiyou						

	<i>Culex tarsalis</i>		<i>Culex quinquefasciatus / pipiens</i>		<i>Aedes nigromaculis</i>	
County	Adult	Larvae	Adult	Larvae	Adult	Larvae
Solano	malathion (3,24)	malathion (23)			chlorpyrifos (3)	malathion (19)
Sonoma		malathion (1,2)				
Stanislaus		chlorpyrifos (14) malathion (23)			chlorpyrifos (3)	malathion (19,23)
Sutter	malathion (3) chlorpyrifos (3)	malathion (18,23)			malathion (3) OP-Unspecified(20)	
Tehama		malathion (1,2,14)				malathion (19)
Trinity						
Tulare		malathion (14,23) chlorpyrifos (14) OP unspecified (16)		malathion (23)	chlorpyrifos (4,20) naled (20)	chlorpyrifos (4,20) malathion (19)
Tuolumne						
Ventura						
Yolo	malathion (3) chlorpyrifos (3)	malathion (23)				
Yuba	malathion (3) chlorpyrifos (3)	malathion (18,23)			malathion (3)	

A. Information presented may not be complete and does not reflect actions taken to reverse documented pesticide resistance.

B. Negative pesticide resistance assay results are not represented in the table. Species tested include *Aedes melanimon* and *Anopheles* sp.

Footnotes

1. *Aedes melanimon* larvae from Kern County collections have shown resistance to malathion (23)

OP – organophosphate

Pyrethrum – natural pyrethrins

Pyrethroids – permethrin, resmethrin, sumithrin, deltamethrin, lambda-cyhalothrin (all synthetic)

Temephos – Abate brand products

Malathion – Fyfanon ULV and other brands

Methoprene – Altosid brand products

Naled – Trumpet brand mosquito spray

Please contact the Vector-Borne Disease Section for further information (916) 552-9730.

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