

**Summary of Illness/Injury Incidents
Reported in California as Potentially Related to Pesticide Exposure
Summarized Statewide and by County of Occurrence¹
2009**

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
TOTALS							
Definite	131	84	16	4	27	10	121
Probable	521	121	143	123	134	181	335
Possible ⁵	266	38	76	44	108	61	198
Unlikely	43	2	2	14	25	12	30
Indirect	4	0	0	4	0	0	4
Asymptomatic	54	3	17	23	11	44	10
Unrelated	164	0	0	0	0	0	0
Insufficient	19	0	0	0	0	0	0
Unavailable	127	0	0	0	0	0	0
OVERALL	1329	248	254	212	305	308	698
COUNTY⁵							
ALAMEDA							
Definite	6	5	0	0	1	0	6
Probable	11	4	5	0	2	0	11
Possible	7	1	1	0	5	2	4
Unlikely	2	0	0	0	2	0	2
Unrelated	3	0	0	0	0	0	0
Insufficient	1	0	0	0	0	0	0
Unavailable	7	0	0	0	0	0	0
ALPINE							
Possible	1	1	0	0	0	0	1
BUTTE							
Probable	7	2	4	0	1	2	5
Possible	3	2	0	0	1	0	3
Unlikely	3	1	0	0	2	0	2
Unavailable	1	0	0	0	0	0	0
CALAVERAS							

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Definite	1	1	0	0	0	0	1
Probable	1	1	0	0	0	0	1
Possible	1	0	0	1	0	0	1
Unavailable	1	0	0	0	0	0	0
COLUSA							
Definite	1	1	0	0	0	0	1
Possible	1	0	0	0	1	1	0
CONTRA COSTA							
Definite	5	3	2	0	0	0	5
Probable	9	4	2	0	3	0	9
Possible	3	1	1	0	1	0	3
Unlikely	1	0	0	0	1	0	1
Unrelated	5	0	0	0	0	0	0
Unavailable	1	0	0	0	0	0	0
DEL NORTE							
Definite	1	1	0	0	0	0	1
Possible	1	0	1	0	0	0	1
EL DORADO							
Definite	2	1	1	0	0	0	2
Probable	5	3	0	1	1	0	5
Possible	3	1	0	0	2	0	3
Unlikely	1	0	0	0	1	0	1
Unrelated	1	0	0	0	0	0	0
FRESNO							
Definite	7	5	2	0	0	2	5
Probable	40	9	20	7	4	16	24
Possible	16	1	6	5	4	5	10
Unlikely	2	0	0	0	2	2	0
Asymptomatic	1	0	0	1	0	0	1
Unrelated	10	0	0	0	0	0	0
Insufficient	2	0	0	0	0	0	0
Unavailable	4	0	0	0	0	0	0
GLENN							
Unavailable	1	0	0	0	0	0	0

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
HUMBOLDT							
Definite	1	1	0	0	0	1	0
Probable	4	2	1	0	1	0	4
Possible	1	1	0	0	0	0	1
Unrelated	1	0	0	0	0	0	0
IMPERIAL							
Definite	2	1	0	0	1	1	1
Probable	7	1	5	0	1	4	3
Possible	3	2	0	1	0	1	1
Unrelated	1	0	0	0	0	0	0
Unavailable	4	0	0	0	0	0	0
INYO							
Probable	1	0	1	0	0	0	1
KERN							
Definite	8	2	2	1	3	1	7
Probable	36	3	28	3	2	26	9
Possible	18	2	9	4	3	11	7
Unlikely	6	0	0	4	2	6	0
Asymptomatic	16	0	14	1	1	14	2
Unrelated	3	0	0	0	0	0	0
Insufficient	2	0	0	0	0	0	0
Unavailable	5	0	0	0	0	0	0
KINGS							
Definite	1	0	0	0	1	0	1
Probable	3	0	1	1	1	0	3
Possible	2	0	1	0	1	0	2
Unrelated	3	0	0	0	0	0	0
Unavailable	1	0	0	0	0	0	0
LAKE							
Probable	1	1	0	0	0	0	1
LASSEN							
Insufficient	1	0	0	0	0	0	0
Unavailable	1	0	0	0	0	0	0
LOS ANGELES							

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Definite	14	12	1	1	0	0	14
Probable	60	21	6	11	22	0	59
Possible	39	6	8	7	18	0	39
Unlikely	3	0	0	2	1	0	3
Asymptomatic	2	0	0	0	2	0	2
Unrelated	28	0	0	0	0	0	0
Insufficient	1	0	0	0	0	0	0
Unavailable	18	0	0	0	0	0	0
MADERA							
Probable	1	0	1	0	0	0	1
Possible	2	1	0	0	1	1	1
Asymptomatic	1	1	0	0	0	1	0
Unrelated	2	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
MARIN							
Definite	1	1	0	0	0	0	1
Probable	5	3	0	0	2	0	5
Unlikely	1	0	0	0	1	0	1
Unrelated	2	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
MARIPOSA							
Probable	9	0	1	0	8	0	9
Asymptomatic	1	0	0	0	1	0	1
Unavailable	1	0	0	0	0	0	0
MENDOCINO							
Definite	1	1	0	0	0	0	1
Probable	4	3	1	0	0	0	4
Possible	2	0	0	0	2	1	1
MERCED							
Definite	3	1	0	0	2	0	3
Probable	10	3	1	2	4	3	7
Possible	6	0	0	1	5	5	1
Unlikely	2	0	0	2	0	0	2
Unrelated	3	0	0	0	0	0	0

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Insufficient	1	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
MODOC							
Probable	1	1	0	0	0	0	1
Possible	1	0	1	0	0	1	0
MONO							
Unrelated	1	0	0	0	0	0	0
MONTEREY							
Definite	3	2	0	0	1	0	3
Probable	12	1	6	1	4	7	5
Possible	8	1	3	0	4	6	1
Unrelated	17	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
NAPA							
Possible	2	1	0	0	1	1	1
NEVADA							
Probable	2	0	0	0	2	0	2
ORANGE							
Definite	9	7	2	0	0	0	9
Probable	14	6	2	1	5	1	12
Possible	19	3	9	1	6	2	17
Unlikely	1	0	0	0	1	0	1
Asymptomatic	1	0	0	0	1	1	0
Unrelated	12	0	0	0	0	0	0
Insufficient	1	0	0	0	0	0	0
Unavailable	6	0	0	0	0	0	0
PLACER							
Probable	4	2	1	1	0	0	4
Possible	2	1	1	0	0	0	1
Unrelated	1	0	0	0	0	0	0
Unavailable	1	0	0	0	0	0	0
PLUMAS							
Definite	1	0	0	0	1	0	1
Probable	3	0	0	0	3	0	3
RIVERSIDE							

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Definite	10	6	0	0	4	0	10
Probable	19	5	4	1	9	0	19
Possible	13	1	1	0	11	2	11
Unlikely	1	0	0	0	1	0	1
Unrelated	5	0	0	0	0	0	0
Unavailable	11	0	0	0	0	0	0
SACRAMENTO							
Definite	4	1	0	1	2	0	4
Probable	11	1	4	1	5	0	11
Possible	9	4	1	0	4	0	8
Unlikely	2	0	0	0	2	1	1
Unrelated	4	0	0	0	0	0	0
Insufficient	2	0	0	0	0	0	0
Unavailable	4	0	0	0	0	0	0
SAN BENITO							
Probable	7	0	2	0	5	0	7
Possible	1	0	0	0	1	1	0
Unrelated	1	0	0	0	0	0	0
Insufficient	1	0	0	0	0	0	0
SAN BERNARDINO							
Definite	4	1	0	0	3	0	4
Probable	26	11	5	3	7	1	25
Possible	26	0	10	4	12	0	26
Unlikely	1	0	0	0	1	0	1
Asymptomatic	1	1	0	0	0	1	0
Unrelated	8	0	0	0	0	0	0
Unavailable	5	0	0	0	0	0	0
SAN DIEGO							
Definite	10	6	1	1	2	0	10
Probable	21	6	8	2	5	0	21
Possible	19	2	5	7	5	1	18
Unlikely	4	0	1	2	1	0	4
Indirect	4	0	0	4	0	0	4
Asymptomatic	1	0	0	0	1	0	1

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Unrelated	17	0	0	0	0	0	0
Insufficient	1	0	0	0	0	0	0
Unavailable	8	0	0	0	0	0	0
SAN FRANCISCO							
Definite	2	1	1	0	0	0	2
Probable	3	2	0	0	1	0	2
Possible	2	0	0	0	2	0	2
Unrelated	2	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
SAN JOAQUIN							
Definite	7	5	0	0	2	2	5
Probable	15	3	4	2	6	8	7
Possible	3	0	0	0	3	0	2
Unlikely	3	0	1	1	1	1	2
Unrelated	1	0	0	0	0	0	0
Insufficient	2	0	0	0	0	0	0
Unavailable	5	0	0	0	0	0	0
SAN LUIS OBISPO							
Definite	1	0	1	0	0	0	1
Probable	6	3	3	0	0	4	2
Possible	4	0	2	1	1	3	1
Asymptomatic	3	0	3	0	0	3	0
Unrelated	3	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
SAN MATEO							
Definite	2	2	0	0	0	0	2
Probable	2	0	2	0	0	0	2
Possible	3	0	0	1	2	1	2
Unlikely	1	0	0	1	0	1	0
Unrelated	1	0	0	0	0	0	0
Unavailable	4	0	0	0	0	0	0
SANTA BARBARA							
Definite	1	1	0	0	0	0	1
Probable	6	1	2	0	3	0	6

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Possible	7	0	3	3	1	6	1
Unrelated	1	0	0	0	0	0	0
Insufficient	1	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
SANTA CLARA							
Definite	7	6	1	0	0	0	7
Probable	18	8	5	0	5	2	16
Possible	5	1	2	0	2	0	5
Unrelated	9	0	0	0	0	0	0
Unavailable	5	0	0	0	0	0	0
SANTA CRUZ							
Definite	2	1	1	0	0	0	2
Probable	3	0	0	1	2	1	2
Possible	2	0	0	1	1	1	1
Unrelated	1	0	0	0	0	0	0
Unavailable	3	0	0	0	0	0	0
SHASTA							
Definite	1	0	1	0	0	0	1
Probable	2	1	0	0	1	0	2
Possible	3	1	0	1	1	0	3
Unlikely	1	0	0	0	1	0	1
SIERRA							
Probable	1	0	1	0	0	0	1
SOLANO							
Definite	1	0	0	0	1	0	1
Probable	4	1	2	1	0	0	4
Possible	2	1	0	1	0	1	1
Unlikely	1	1	0	0	0	0	1
Asymptomatic	1	0	0	0	1	0	1
Unrelated	3	0	0	0	0	0	0
Unavailable	2	0	0	0	0	0	0
SONOMA							
Definite	3	3	0	0	0	1	2
Probable	4	2	2	0	0	1	3

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Possible	4	0	0	3	1	2	2
Unlikely	1	0	0	0	1	1	0
Unrelated	1	0	0	0	0	0	0
Unavailable	1	0	0	0	0	0	0
STANISLAUS							
Definite	2	0	0	0	2	0	2
Probable	7	2	2	1	2	3	4
Possible	11	1	7	0	3	1	10
Unlikely	1	0	0	0	1	0	1
Asymptomatic	1	0	0	0	1	0	1
Unrelated	7	0	0	0	0	0	0
Unavailable	3	0	0	0	0	0	0
SUTTER							
Probable	2	2	0	0	0	1	1
Possible	2	0	1	1	0	2	0
Asymptomatic	1	1	0	0	0	0	1
TEHAMA							
Possible	1	1	0	0	0	0	1
TRINITY							
Possible	1	0	0	1	0	0	1
TULARE							
Definite	3	2	0	0	1	1	2
Probable	91	1	7	81	2	89	2
Possible	5	1	2	0	2	3	2
Unlikely	2	0	0	2	0	0	2
Asymptomatic	21	0	0	21	0	21	0
Unrelated	6	0	0	0	0	0	0
Unavailable	4	0	0	0	0	0	0
TUOLUMNE							
Probable	1	0	0	1	0	0	1
VENTURA							
Definite	2	2	0	0	0	1	1
Probable	19	0	4	0	15	12	7
Possible	2	0	1	0	1	0	2

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
Unlikely	3	0	0	0	3	0	3
Asymptomatic	3	0	0	0	3	3	0
Unrelated	1	0	0	0	0	0	0
Unavailable	6	0	0	0	0	0	0
YOLO							
Definite	2	2	0	0	0	0	2
Probable	3	2	0	1	0	0	2
Insufficient	3	0	0	0	0	0	0

- Source:** California Department of Pesticide Regulation, Pesticide Illness Surveillance Program.
The term “potentially related to pesticide exposure” refers to all cases reported to the program, some of which were later determined to be unrelated to pesticide exposure.
- Relationship:** Degree of correlation between pesticide exposure and resulting symptomatology.

 - Definite** : High degree of correlation between pattern of exposure and resulting symptomatology. Requires both medical evidence (such as measured cholinesterase inhibition, positive allergy tests, characteristic signs observed by medical professional) and physical evidence of exposure (environmental and/or biological samples, exposure history) to support the conclusions.
 - Probable** : Relatively high degree of correlation exists between the pattern of exposure and the resulting symptomatology. Either medical or physical evidence is inconclusive or unavailable.
 - Possible** : Health effects correspond generally to the reported exposure, but evidence is not available to support a relationship.
 - Unlikely** : A correlation cannot be ruled out absolutely. Medical and/or physical evidence suggest a cause other than pesticide exposure.
 - Indirect** : Pesticide exposure is not responsible, but pesticide regulations or product label requirements contributed in some way, (e.g. heat stress while wearing chemical resistant clothing).
 - Asymptomatic** : Exposure occurred, but did not result in illness/injury. Cholinesterase depression without symptoms falls in this category.
 - Unrelated** : Definite evidence of cause other than pesticide exposure including exposures to chemicals other than pesticides. Since there is no exposure to pesticides, there are no entries under “Type of Exposure” or “Intended Use.”
 - Insufficient** : The available information is inadequate to make an informed judgment on the relationship between pesticide exposure and the reported symptomatology. For submitted investigations, the investigator failed to make an adequate attempt to obtain the necessary information. Since a relationship to pesticide exposure cannot be determined, there are no entries under “Type of Exposure” or “Intended Use.”

Unavailable : The available information is inadequate to make an informed judgement on the relationship between pesticide exposure and the reported symptomatology. For submitted investigations, the investigator made an adequate attempt to collect the necessary information, but was not able to do so (e.g., none of the parties concerned could be contacted). There usually needs to be more effort than to say the employee is not available for interview; other parties can often supply useful information. Since a relationship to pesticide exposure cannot be determined, there are no entries under "Type of Exposure" or "Intended Use."

3. **Type of Exposure:** Characterization of how an individual came in contact with a pesticide.

Direct Contact : An appreciable amount of pesticide contacted the individual's body surface. This includes: 1) sprays or squirts from application equipment; 2) leaks or spills whether or not related to the application; and 3) deliberate immersion (as when cleaning implements in a basin with antimicrobials). This excludes drift exposures.

Drift : Spray, mist, fumes, or odor carried from the target site by air. Drift must be related to an application or mix/load activity.

Residue : The part of a pesticide that remains in the environment for a period of time following an application or drift. This includes odor after the completion of an application.

Other/Unknown : Any of the following: 1) ingestion; 2) multiple routes of exposure; 3) residue from a spill; 4) exposure to smoke or pyrolytic products from a fire where pesticides are burning; 5) route of exposure is not known.

4. **Intended Use:** Agricultural/Non-Agricultural - Indicates whether the pesticide(s) were intended to contribute to the production of agricultural commodities.

Agricultural : The pesticide(s) were intended to contribute to the production of agricultural commodities, including livestock. This includes: 1) agricultural research facilities, 2) handling of raw agricultural commodities in packing houses, 3) drift from agricultural applications into non-agricultural areas, and 4) transportation and storage of pesticides on farm lands. It excludes forestry operations, although they are classified as agricultural for regulatory purposes. It also excludes manufacture, transportation, and storage of pesticides prior to arrival at the site of agricultural production.

Non-Agricultural : The pesticide(s) were not intended to contribute to the production of agricultural commodities. This includes: 1) residential pesticide uses, 2) structural pest control, 3) rights-of-way, 4) parks, 5) landscaped urban areas, and 6) manufacture, transportation and storage of pesticides except on farm lands.

5. **County:** Individual counties in California where the incident occurred. If a county is not listed, there were no reported illnesses for that county for the year.

Whom to Contact:

California Department of Pesticide Regulation
Worker Health and Safety Branch
Phone: (916) 445-4222.
Physical address: 1001 I St., Sacramento CA 95814-2828.
Mailing address: P.O. Box 4015, Sacramento, CA 95812-4015
Fax: (916) 445-4280

www.cdpr.ca.gov

About the Pesticide Illness Surveillance Program Data

Pesticide-related illnesses have been tracked within the state of California for more than 50 years. The California Environmental Protection Agency, Department of Pesticide Regulation (DPR) maintains a surveillance program which records human health effects of pesticide exposure. The Pesticide Illness Surveillance Program (PISP) documents information on adverse effects from pesticide products, whether elicited by the active ingredients, inert ingredients, impurities, or breakdown products. This program maintains a database, which is utilized for evaluating the circumstances of pesticide exposures resulting in illness. This database is consulted regularly by staff who evaluate(s) the effectiveness of the DPR pesticide safety programs and recommend changes when appropriate.