

**Summary of Illness/Injury Incidents
Reported in California as Potentially Related to Pesticide Exposure
Summarized Statewide and by County of Occurrence¹
2002**

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/ Unknown	Agricultural	Non- Agricultural
TOTALS							
Definite	105	85	9	0	11	15	90
Probable	920	112	553	95	160	524	396
Possible	291	20	86	74	111	163	128
Unlikely	50	2	5	15	28	29	21
Indirect	4	0	0	3	1	1	3
Asymptomatic	109	13	25	13	58	55	54
Unrelated	184						
Insufficient	5						
Unavailable	191						
OVERALL	1859	232	678	200	369	787	692
COUNTY⁵							
ALAMEDA							
Definite	1	1	0	0	0	0	1
Probable	9	4	3	1	1	0	9
Possible	2	0	0	0	2	0	2
Unrelated	7						
Unavailable	4						
AMADOR							
Unrelated	1						
Unavailable	1						

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
BUTTE							
Definite	2	2	0	0	0	0	2
Probable	3	0	1	0	2	0	3
Possible	3	1	0	0	2	2	1
Asymptomatic	1	1	0	0	0	0	1
Unrelated	2						
Unavailable	1						
CALAVERAS							
Definite	1	1	0	0	0	0	1
Unlikely	1	1	0	0	0	0	1
COLUSA							
Probable	5	0	3	0	2	4	1
Unrelated	1						
Unavailable	1						
CONTRA COSTA							
Definite	1	0	1	0	0	0	1
Probable	6	2	1	1	2	1	5
Possible	3	0	1	0	2	1	2
Unrelated	3						
Unavailable	4						
DEL NORTE							
Probable	1	1	0	0	0	0	1
EL DORADO							
Definite	3	3	0	0	0	0	3
Probable	1	1	0	0	0	0	1
Asymptomatic	1	0	0	0	1	0	1
Unrelated	3						

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
FRESNO							
Definite	5	5	0	0	0	1	4
Probable	20	1	10	3	6	8	12
Possible	26	0	12	8	6	20	6
Unlikely	6	0	0	0	6	4	2
Asymptomatic	1	1	0	0	0	0	1
Unrelated	14						
Unavailable	7						
GLENN							
Probable	1	0	1	0	0	0	1
Possible	2	0	0	0	2	2	0
Asymptomatic	1	0	0	0	1	0	1
Unrelated	1						
Unavailable	1						
HUMBOLDT							
Probable	3	2	0	0	1	0	3
Asymptomatic	1	0	0	0	1	0	1
Unrelated	2						
IMPERIAL							
Definite	1	0	1	0	0	0	1
Probable	5	0	4	0	1	3	2
Possible	18	0	2	0	16	17	1
Asymptomatic	15	0	0	0	15	15	0
Unavailable	27						
INYO							
Possible	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
KERN							
Definite	3	2	1	0	0	2	1
Probable	410	2	371	36	1	405	5
Possible	30	0	5	21	4	28	2
Unlikely	3	0	0	3	0	1	2
Asymptomatic	26	2	21	0	3	23	3
Unrelated	3						
Unavailable	19						
KINGS							
Probable	1	0	0	0	1	1	0
Possible	1	0	1	0	0	1	0
Unlikely	1	0	0	0	1	1	0
Unrelated	2						
LAKE							
Probable	3	0	3	0	0	3	0
Unrelated	1						
Unavailable	1						
LASSEN							
Definite	1	1	0	0	0	0	1
Unrelated	1						
LOS ANGELES							
Definite	13	11	1	0	1	0	13
Probable	64	24	12	14	14	0	64
Possible	29	1	7	5	16	1	28
Unlikely	4	0	0	0	4	0	4
Asymptomatic	7	1	0	0	6	0	7
Unrelated	15						
Insufficient	1						
Unavailable	41						

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
MADERA							
Definite	1	0	1	0	0	1	0
Probable	10	0	7	0	3	7	3
Possible	2	1	0	0	1	2	0
Unlikely	1	0	1	0	0	1	0
Unrelated	4						
Unavailable	1						
MARIN							
Definite	1	1	0	0	0	0	1
Probable	3	0	3	0	0	0	3
Possible	2	0	1	1	0	0	2
MARIPOSA							
Probable	1	1	0	0	0	0	1
MENDOCINO							
Probable	1	1	0	0	0	0	1
Unlikely	1	0	0	0	1	1	0
Asymptomatic	2	0	0	0	2	0	2
MERCED							
Definite	3	3	0	0	0	3	0
Probable	34	3	6	1	24	25	9
Possible	11	1	0	3	7	8	3
Unlikely	4	0	0	2	2	2	2
Unrelated	14						
Unavailable	5						
MODOC							
Definite	1	1	0	0	0	0	1
Unrelated	1						
MONO							
Probable	1	0	1	0	0	0	1

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
MONTEREY							
Definite	4	4	0	0	0	1	3
Probable	30	2	25	2	1	18	12
Possible	12	0	10	1	1	11	1
Unlikely	1	0	0	0	1	1	0
Asymptomatic	1	0	1	0	0	1	0
NAPA							
Definite	1	1	0	0	0	0	1
Probable	3	3	0	0	0	2	1
Possible	1	0	0	0	1	0	1
Indirect	1						
Unrelated	4						
NEVADA							
Probable	2	0	2	0	0	0	2
Possible	1	0	1	0	0	0	1
ORANGE							
Definite	7	6	1	0	0	0	7
Probable	21	4	9	2	6	0	21
Possible	9	0	2	3	4	0	9
Unlikely	1	0	0	0	1	0	1
Asymptomatic	3	0	1	0	2	0	3
Unrelated	2						
Unavailable	9						
PLACER							
Definite	2	1	0	0	1	0	2
Probable	37	1	1	0	35	0	37
Possible	1	0	0	0	1	0	1
Asymptomatic	1	0	0	0	1	0	1
Unrelated	1						

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
RIVERSIDE							
Definite	1	0	0	0	1	0	1
Probable	16	6	6	1	3	2	14
Possible	6	1	1	2	2	0	6
Unlikely	3	0	0	1	2	2	1
Asymptomatic	1	0	0	0	1	0	1
Unrelated	2						
Unavailable	4						
SACRAMENTO							
Definite	3	2	1	0	0	0	3
Probable	28	7	8	3	10	0	28
Possible	11	3	3	3	2	0	11
Asymptomatic	4	2	0	0	2	0	4
Unrelated	7						
Unavailable	11						
SAN BENITO							
Possible	14	0	14	0	0	1	13
Unlikely	1	0	0	0	1	0	1
SAN BERNARDINO							
Definite	4	2	1	0	1	0	4
Probable	29	9	6	8	6	1	28
Possible	1	0	0	0	1	0	1
Asymptomatic	2	0	0	0	2	0	2
Unrelated	3						
Unavailable	4						

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
SAN DIEGO							
Definite	9	6	1	0	2	0	9
Probable	27	4	10	3	10	0	27
Possible	11	2	1	4	4	2	9
Unlikely	1	0	0	1	0	0	1
Indirect	2	0	0	2	0	0	2
Asymptomatic	4	2	1	0	1	0	4
Unrelated	19						
Unavailable	14						
SAN FRANCISCO							
Probable	3	1	1	1	0	0	3
Possible	1	0	0	0	1	0	1
Unrelated	4						
Unavailable	3						
SAN JOAQUIN							
Definite	4	4	0	0	0	1	3
Probable	31	5	10	2	14	9	22
Possible	7	1	1	2	3	3	4
Unlikely	1	0	0	0	1	1	0
Asymptomatic	8	0	0	0	8	0	8
Unrelated	9						
Unavailable	10						
SAN LUIS OBISPO							
Definite	1	1	0	0	0	0	1
Probable	13	2	3	7	1	4	9
Possible	36	0	9	11	16	33	3
Unlikely	9	0	0	7	2	8	1
Indirect	1	0	0	1	0	0	1
Asymptomatic	9	1	1	7	0	8	1
Unrelated	7						
Unavailable	3						

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
SAN MATEO							
Definite	2	2	0	0	0	0	2
Probable	7	3	1	1	2	1	6
Unrelated	1						
Unavailable	4						
SANTA BARBARA							
Definite	1	1	0	0	0	0	1
Probable	3	0	1	2	0	1	2
Possible	4	2	1	1	0	1	3
SANTA CLARA							
Definite	3	3	0	0	0	0	3
Probable	9	5	4	0	0	0	9
Possible	1	1	0	0	0	0	1
Asymptomatic	2	1	0	0	1	0	2
Unrelated	3						
SANTA CRUZ							
Probable	3	1	2	0	0	0	3
Possible	1	1	0	0	0	0	1
Unrelated	2						
Unavailable	1						
SHASTA							
Definite	1	1	0	0	0	0	1
Probable	4	1	0	0	3	0	4
Possible	1	1	0	0	0	1	0
Unrelated	2						
Insufficient	3						
Unavailable	1						
SISKIYOU							
Probable	12	1	11	0	0	11	1
Unavailable	1						

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
SOLANO							
Definite	3	3	0	0	0	1	2
Probable	7	0	5	0	2	0	7
Possible	2	1	0	0	1	1	1
Unlikely	2	1	0	1	0	2	0
Unrelated	2						
Insufficient	1						
Unavailable	1						
SONOMA							
Definite	4	3	0	0	1	1	3
Probable	11	2	5	1	3	4	7
Possible	5	0	1	3	1	4	1
Unlikely	4	0	4	0	0	4	0
Asymptomatic	3	0	0	1	2	0	3
Unrelated	6						
Unavailable	1						
STANISLAUS							
Definite	5	4	0	0	1	0	5
Probable	16	5	9	0	2	3	13
Possible	8	2	2	0	4	6	2
Unlikely	1	0	0	0	1	0	1
Asymptomatic	6	0	0	0	6	1	5
Unrelated	24						
Unavailable	3						
SUTTER							
Definite	1	1	0	0	0	0	1
Probable	5	2	2	0	1	2	3
Possible	2	0	2	0	0	1	1
Unrelated	1						
TRINITY							
Definite	1	1	0	0	0	0	1
Probable	1	1	0	0	0	0	1

Relationship ²	TOTAL CASES	Type Of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
TULARE							
Definite	4	4	0	0	0	4	0
Probable	10	2	3	4	1	5	5
Possible	9	1	0	3	5	7	2
Unlikely	1	0	0	0	1	0	1
Asymptomatic	7	2	0	5	0	7	0
Unrelated	4						
Unavailable	3						
TUOLUMNE							
Definite	1	1	0	0	0	0	1
Possible	1	0	0	0	1	0	1
VENTURA							
Definite	1	1	0	0	0	0	1
Probable	4	1	1	1	1	3	1
Possible	10	0	8	1	1	9	1
Unrelated	3						
Unavailable	3						
YOLO							
Definite	5	2	0	0	3	0	5
Probable	5	2	2	1	0	1	4
Possible	4	0	1	1	2	0	4
Unlikely	4	0	0	0	4	1	3
Unrelated	3						
Unavailable	2						
YUBA							
Probable	1	0	0	0	1	0	1
Possible	2	0	0	1	1	1	1
Asymptomatic	3	0	0	0	3	0	3

1. **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.

2. **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 : Some degree of correlation evident. Medical and physical evidence are inconclusive or unavailable.
- 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 judgment 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:

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Worker Health and Safety Branch
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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.