

**Summary of Illness/Injury Incidents
Reported in California as Potentially Related to Pesticide Exposure
Summarized Statewide and by County of Occurrence¹
2012**

Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
TOTALS							
Definite	119	57	22	7	33	18	101
Probable	591	134	273	58	126	149	439
Possible	282	27	78	61	116	78	201
Unlikely	48	4	5	7	32	12	36
Indirect	6	0	0	4	2	1	5
Asymptomatic	60	3	23	20	14	46	14
Unrelated	127	-	-	-	-	-	-
Insufficient	15	-	-	-	-	-	-
Unavailable	170	-	-	-	-	-	-
OVERALL	1418	225	401	157	323	304	796

County ⁵							
Relationship ²	TOTAL CASES	Type of Exposure ³				Intended Use ⁴	
		Direct Contact	Drift	Residue	Other/Unknown	Agricultural	Non-Agricultural
ALAMEDA							
Definite	4	2	0	1	1	2	2
Probable	12	4	1	2	5	0	12
Possible	2	0	0	0	2	0	2
Unlikely	1	1	0	0	0	0	1
Asymptomatic	1	0	0	0	1	0	1
Unrelated	6	-	-	-	-	-	-
Insufficient	1	-	-	-	-	-	-
Unavailable	2	-	-	-	-	-	-
TOTAL	29	7	1	3	9	2	18
AMADOR							
Probable	1	0	0	0	1	0	1
Unlikely	1	0	0	0	1	0	1
TOTAL	2	0	0	0	2	0	2

BUTTE							
Definite	3	2	0	0	1	0	3
Probable	3	1	0	1	1	0	3
Possible	3	1	0	0	2	0	3
Insufficient	3	-	-	-	-	-	-
Unavailable	1	-	-	-	-	-	-
TOTAL	13	4	0	1	4	0	9
CALAVERAS							
Probable	2	2	0	0	0	0	2
Unrelated	1	-	-	-	-	-	-
TOTAL	3	2	0	0	0	0	2
COLUSA							
Definite	2	0	2	0	0	0	2
Possible	1	0	0	0	1	1	0
TOTAL	3	0	2	0	1	1	2
CONTRA COSTA							
Definite	1	1	0	0	0	0	1
Probable	8	4	2	1	1	0	8
Possible	5	0	3	1	1	0	5
Unrelated	8	-	-	-	-	-	-
Unavailable	5	-	-	-	-	-	-
TOTAL	27	5	5	2	2	0	14
DEL NORTE							
Probable	2	1	1	0	0	0	2
Unrelated	2	-	-	-	-	-	-
Insufficient	1	-	-	-	-	-	-
TOTAL	5	1	1	0	0	0	2
EL DORADO							
Probable	1	1	0	0	0	0	1
Possible	3	0	2	0	1	1	2
Unavailable	1	-	-	-	-	-	-
TOTAL	5	1	2	0	1	1	3

FRESNO							
Definite	5	3	0	1	1	2	3
Probable	15	5	6	1	3	4	11
Possible	9	1	0	3	5	5	4
Unlikely	1	0	0	0	1	0	1
Unrelated	9	-	-	-	-	-	-
Unavailable	3	-	-	-	-	-	-
TOTAL	42	9	6	5	10	11	19
GLENN							
Possible	1	0	0	0	1	1	0
Unlikely	1	0	0	0	1	1	0
TOTAL	2	0	0	0	2	2	0
HUMBOLDT							
Probable	2	1	0	0	1	0	2
Unavailable	3	-	-	-	-	-	-
TOTAL	5	1	0	0	1	0	2
IMPERIAL							
Definite	2	1	0	0	1	1	1
Probable	5	2	0	1	2	0	5
Possible	4	1	1	2	0	2	2
Unrelated	9	-	-	-	-	-	-
Unavailable	1	-	-	-	-	-	-
TOTAL	21	4	1	3	3	3	8
KERN							
Definite	3	2	1	0	0	1	2
Probable	31	5	17	2	7	11	20
Possible	23	0	17	2	4	18	5
Unlikely	6	0	1	1	4	1	5
Asymptomatic	21	0	17	4	0	21	0
Unrelated	2	-	-	-	-	-	-
Unavailable	6	-	-	-	-	-	-
TOTAL	92	7	53	9	15	52	32

KINGS							
Definite	2	0	1	0	1	1	1
Probable	2	1	1	0	0	0	2
Possible	1	0	1	0	0	1	0
Unlikely	1	0	0	0	1	0	1
Unrelated	2	-	-	-	-	-	-
TOTAL	8	1	3	0	2	2	4
LAKE							
Possible	1	0	0	0	1	1	0
TOTAL	1	0	0	0	1	1	0
LASSEN							
Probable	1	1	0	0	0	0	1
Possible	1	0	0	0	1	1	0
TOTAL	2	1	0	0	1	1	1
LOS ANGELES							
Definite	25	12	1	1	11	0	25
Probable	73	18	18	6	31	0	73
Possible	60	7	10	16	27	0	60
Unlikely	4	0	0	1	3	0	4
Indirect	2	0	0	2	0	0	2
Asymptomatic	2	0	0	1	1	0	2
Unrelated	18	-	-	-	-	-	-
Insufficient	3	-	-	-	-	-	-
Unavailable	38	-	-	-	-	-	-
TOTAL	225	37	29	27	73	0	166
MADERA							
Probable	3	0	1	1	1	0	3
Possible	1	1	0	0	0	0	1
Unlikely	1	0	0	0	1	0	1
Unrelated	1	-	-	-	-	-	-
Unavailable	1	-	-	-	-	-	-
TOTAL	7	1	1	1	2	0	5
MARIN							
Probable	2	2	0	0	0	0	2
TOTAL	2	2	0	0	0	0	2

MARIPOSA							
Definite	1	0	0	0	1	1	0
TOTAL	1	0	0	0	1	1	0
MENDOCINO							
Probable	2	1	0	0	1	0	2
Possible	2	0	0	1	1	1	1
Unlikely	2	0	0	0	2	0	2
Unrelated	1	-	-	-	-	-	-
TOTAL	7	1	0	1	4	1	5
MERCED							
Probable	6	1	5	0	0	2	3
Possible	1	0	0	1	0	0	1
Unavailable	5	-	-	-	-	-	-
TOTAL	12	1	5	1	0	2	4
MODOC							
Possible	1	0	0	1	0	0	1
TOTAL	1	0	0	1	0	0	1
MONTEREY							
Probable	52	0	48	2	2	49	3
Possible	5	0	2	2	1	4	1
Unlikely	1	0	0	1	0	1	0
Asymptomatic	3	0	3	0	0	3	0
Unrelated	3	-	-	-	-	-	-
Unavailable	5	-	-	-	-	-	-
TOTAL	69	0	53	5	3	57	4
NAPA							
Definite	1	1	0	0	0	0	1
Probable	1	1	0	0	0	0	1
Possible	1	0	0	1	0	0	1
Unlikely	1	0	0	0	1	1	0
Unavailable	1	-	-	-	-	-	-
TOTAL	5	2	0	1	1	1	3

ORANGE							
Definite	6	1	2	0	3	0	6
Probable	26	6	7	7	6	0	26
Possible	14	2	1	7	4	0	14
Unlikely	3	0	0	0	3	0	3
Indirect	1	0	0	0	1	0	1
Asymptomatic	1	1	0	0	0	0	1
Unrelated	4	-	-	-	-	-	-
Unavailable	14	-	-	-	-	-	-
TOTAL	69	10	10	14	17	0	51
PLACER							
Definite	1	1	0	0	0	0	1
Probable	5	1	3	1	0	0	5
Possible	2	0	0	0	2	0	1
Unrelated	2	-	-	-	-	-	-
TOTAL	10	2	3	1	2	0	7
PLUMAS							
Possible	1	0	0	0	1	0	1
TOTAL	1	0	0	0	1	0	1
RIVERSIDE							
Definite	3	0	2	0	1	0	3
Probable	27	4	10	2	11	0	27
Possible	10	0	1	1	8	1	9
Unlikely	3	0	1	2	0	0	3
Asymptomatic	2	0	0	0	2	0	2
Unrelated	7	-	-	-	-	-	-
Unavailable	8	-	-	-	-	-	-
TOTAL	60	4	14	5	22	1	44
SACRAMENTO							
Definite	9	3	2	0	4	0	9
Probable	20	6	9	2	3	2	18
Possible	3	2	0	0	1	0	3
Unlikely	1	0	0	0	1	0	1
Unrelated	1	-	-	-	-	-	-
Unavailable	4	-	-	-	-	-	-
TOTAL	38	11	11	2	9	2	31

SAN BENITO							
Possible	2	0	1	0	1	1	1
TOTAL	2	0	1	0	1	1	1
SAN BERNARDINO							
Definite	7	5	1	0	1	0	7
Probable	47	13	15	4	15	0	47
Possible	15	3	3	1	8	0	15
Unlikely	1	0	0	0	1	0	1
Asymptomatic	4	0	0	0	4	0	4
Unrelated	2	-	-	-	-	-	-
Insufficient	1	-	-	-	-	-	-
Unavailable	12	-	-	-	-	-	-
TOTAL	89	21	19	5	29	0	74
SAN DIEGO							
Definite	7	4	1	0	2	0	7
Probable	34	9	8	6	11	0	34
Possible	19	0	11	1	7	0	19
Unlikely	5	0	1	1	3	0	5
Indirect	1	0	0	1	0	0	1
Unrelated	7	-	-	-	-	-	-
Unavailable	15	-	-	-	-	-	-
TOTAL	88	13	21	9	23	8	58
SAN FRANCISCO							
Definite	3	1	0	0	2	0	3
Probable	5	1	2	1	1	0	5
Possible	2	0	0	1	1	0	2
Unavailable	3	-	-	-	-	-	-
TOTAL	13	2	2	2	4	0	10
SAN JOAQUIN							
Definite	9	5	1	3	0	5	4
Probable	21	6	13	1	1	7	13
Possible	11	3	3	0	5	4	7
Unlikely	3	1	1	0	1	3	0
Asymptomatic	6	0	0	3	3	3	3
Unrelated	9	-	-	-	-	-	-
Unavailable	6	-	-	-	-	-	-
TOTAL	65	15	18	7	10	22	27

SAN LUIS OBISPO							
Definite	1	0	0	0	1	0	1
Probable	4	0	4	0	0	1	3
Possible	2	0	0	1	1	0	2
Unlikely	2	0	0	1	1	2	0
Unrelated	5	-	-	-	-	-	-
Unavailable	1	-	-	-	-	-	-
TOTAL	15	0	4	2	3	3	6
SAN MATEO							
Definite	1	0	1	0	0	0	1
Probable	5	2	2	0	1	0	5
Possible	3	1	0	0	2	0	3
Unlikely	1	1	0	0	0	0	1
Unrelated	1	-	-	-	-	-	-
Unavailable	2	-	-	-	-	-	-
TOTAL	13	4	3	0	3	0	10
SANTA BARBARA							
Definite	1	1	0	0	0	0	1
Probable	55	3	49	2	1	48	7
Possible	15	0	9	2	3	9	5
Indirect	1	0	0	1	0	0	1
Asymptomatic	1	0	1	0	0	1	0
Unrelated	2	-	-	-	-	-	-
Unavailable	1	-	-	-	-	-	-
TOTAL	76	4	59	5	4	58	14
SANTA CLARA							
Definite	6	3	3	0	0	0	6
Probable	28	9	8	4	7	0	28
Possible	12	0	3	3	6	0	12
Unlikely	2	0	0	0	2	0	2
Unrelated	7	-	-	-	-	-	-
Insufficient	2	-	-	-	-	-	-
Unavailable	5	-	-	-	-	-	-
TOTAL	62	12	14	7	15	0	48

SANTA CRUZ							
Definite	2	1	1	0	0	0	2
Probable	2	0	2	0	0	0	2
Possible	1	0	0	1	0	1	0
Unlikely	1	0	0	0	1	0	1
Unrelated	3	-	-	-	-	-	-
Unavailable	1	-	-	-	-	-	-
TOTAL	10	1	3	1	1	1	5
SHASTA							
Probable	3	1	0	0	2	0	3
Unrelated	1	-	-	-	-	-	-
TOTAL	4	1	0	0	2	0	3
SISKIYOU							
Probable	1	0	1	0	0	0	1
Unlikely	1	0	0	0	1	0	1
Indirect	1	0	0	0	1	1	0
TOTAL	3	0	1	0	2	1	2
SOLANO							
Definite	2	1	0	0	1	0	2
Probable	8	2	3	1	2	0	8
Possible	3	1	0	0	2	0	3
Unrelated	1	-	-	-	-	-	-
Unavailable	4	-	-	-	-	-	-
TOTAL	18	4	3	1	5	0	13
SONOMA							
Probable	6	3	2	0	1	0	6
Possible	6	1	1	3	1	1	5
Asymptomatic	1	1	0	0	0	0	1
Unrelated	3	-	-	-	-	-	-
Insufficient	1	-	-	-	-	-	-
Unavailable	5	-	-	-	-	-	-
TOTAL	22	5	3	3	2	1	12

STANISLAUS							
Definite	3	1	2	0	0	3	0
Probable	28	0	27	0	1	21	7
Possible	8	0	2	3	3	4	4
Unlikely	1	0	0	0	1	1	0
Asymptomatic	2	0	2	0	0	2	0
Unrelated	4	-	-	-	-	-	-
Unavailable	4	-	-	-	-	-	-
TOTAL	50	1	33	3	5	31	11
SUTTER							
Definite	1	1	0	0	0	1	0
Probable	2	1	1	0	0	0	2
Possible	2	0	1	0	1	2	0
TOTAL	5	2	2	0	1	3	2
TEHAMA							
Definite	1	1	0	0	0	0	1
Probable	8	5	0	3	0	1	7
Possible	2	1	0	0	1	0	2
TOTAL	11	7	0	3	1	1	10
TULARE							
Definite	3	1	0	1	1	1	2
Probable	14	2	2	5	5	0	14
Possible	12	0	1	6	5	7	5
Unlikely	2	0	1	0	1	1	1
Asymptomatic	16	1	0	12	3	16	0
Unrelated	4	-	-	-	-	-	-
Insufficient	1	-	-	-	-	-	-
Unavailable	5	-	-	-	-	-	-
TOTAL	57	4	4	24	15	25	22
TUOLUMNE							
Probable	1	1	0	0	0	0	1
Possible	2	1	0	0	1	0	2
TOTAL	3	2	0	0	1	0	3

VENTURA							
Definite	2	1	1	0	0	0	2
Probable	10	4	2	2	2	3	7
Possible	8	0	3	1	4	3	5
Insufficient	1	-	-	-	-	-	-
Unavailable	7	-	-	-	-	-	-
TOTAL	28	5	6	3	6	6	14
YOLO							
Definite	2	2	0	0	0	0	2
Probable	4	2	2	0	0	0	4
Possible	1	0	1	0	0	1	0
Unlikely	2	1	0	0	1	1	1
Unrelated	2	-	-	-	-	-	-
Insufficient	1	-	-	-	-	-	-
TOTAL	12	5	3	0	1	2	7
YUBA							
Probable	3	2	1	0	0	0	2
Possible	1	1	0	0	0	0	0
Unavailable	1	-	-	-	-	-	-
TOTAL	5	3	1	0	0	0	2

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 (e.g., measured cholinesterase inhibition, positive allergy tests, characteristic signs observed by medical professional) and physical evidence of exposure (e.g., 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.”

3. Type of Exposure: Characterization of how an individual came in contact with a pesticide. Type of exposure is not inputted in cases classified as Unrelated, Insufficient, or Unavailable.

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. Intended use is not inputted in cases classified as Unrelated, Insufficient, or Unavailable.

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

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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 the effectiveness of the DPR pesticide safety programs and recommend changes when appropriate.