

# MORBIDITY AND MORTALITY WEEKLY REPORT

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## Epidemiologic Notes and Reports

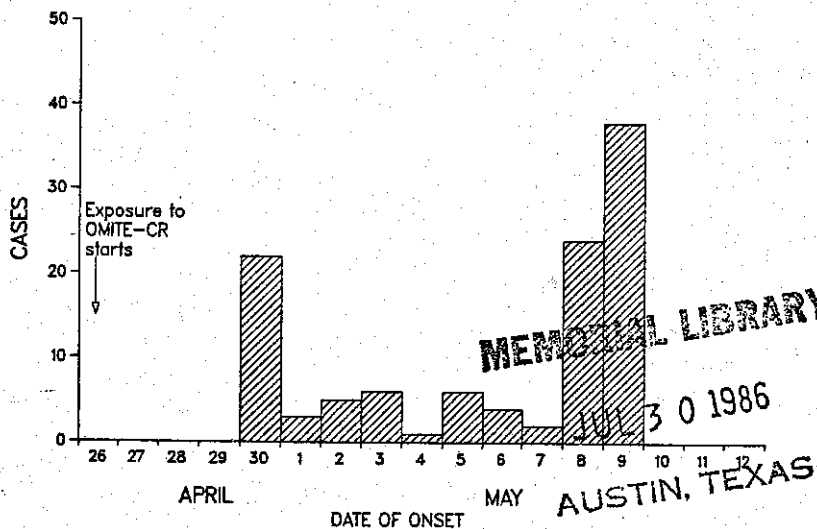
### Outbreak of Severe Dermatitis among Orange Pickers — California

In May 1986, a dermatitis outbreak occurred among orange pickers employed by a packer in Tulare County, California. The Worker Health and Safety Branch of the California Department of Food and Agriculture (CDFA) notified the California Department of Health Services of the outbreak on May 12 after it had been reported by the Tulare County Agricultural Commissioner's office.

Physicians for 114 (58%) of the 198 orange pickers filed Pesticide Illness Reports (PIRs) for pesticide-induced dermatitis (PIRs are required in California for cases of suspected pesticide illness and are considered to represent an official case count). Onset of dermatitis occurred between April 30 and May 9, 1986 (Figure 1), following exposures to OMITE-CR\* (Uniroyal Chemical Co.) beginning April 26. Dermatitis incidence rates for each of six work crews ranged from 23% (6/26) to as high as 78% (28/36).

\*Use of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

**FIGURE 1. Dermatitis outbreak among orange pickers, by date of onset — Tulare County, California, April 26-May 9, 1986**



Resource ID#: 2758

**Outbreak of Severe Dermatitis among Orange Pickers - California**

*Dermatitis - Continued*

Additional investigation included on-site observations and interviews with three of the six work crews (88 workers), collection of spraying and work histories for January 1-May 12 relating to all 80 orchards harvested by the crews, and leaf residue degradation data. On-site observations revealed that the orange pickers frequently leaned into dense foliage to harvest oranges; thus, direct contact with foliage plus possible exposure to pesticide residue occurred. The interviews revealed that the dermatitis occurred commonly in the exposed areas of the neck (81%) and the chest (42%). Most of the pickers reported that dermatitis started with burning, redness, and itching. In many cases, the lesion progressed to small papules, vesicles with weeping and crusting, exfoliation, and hyperpigmentation. One-third of the interviewed workers reported exfoliation, indicating severe dermatitis. Thirty-four percent reported eye irritation, for which 8% received medical treatment.

The Tulare County Agricultural Commissioner considered the miticide OMITE-CR the likely cause of the dermatitis, providing a working hypothesis. An analysis based on the interviews, PIR reports, and leaf residue sampling information concluded: (1) no cases of dermatitis occurred in the interval immediately before the harvesting of fields sprayed with OMITE-CR; (2) the highest correlation ( $r$ )<sup>†</sup> in a predicted direction was between residue-hours of OMITE-CR (a measure combining estimated leaf residue multiplied by hours spent harvesting) and dermatitis ( $R_s = 0.60$ ). Simple cumulative hours of OMITE-CR exposure produced a slightly lower correlation ( $R_s = 0.54$ ). No positive correlation was found between cumulative hours of exposure to CARZOL\* (NOR-AM), the only other pesticide used extensively in the orchards, and dermatitis ( $R_s = -0.02$ ). A measure of "OMITE-CR + CARZOL" interaction correlated less highly with dermatitis ( $R_s = 0.37$ ) than did the OMITE-CR exposure alone. Cumulative hours of exposure to other pesticides correlated inversely with dermatitis ( $R_s = -0.71$ ); and (3) no violations of preharvest intervals (the interval between last application and harvest) or application levels (lbs/acre) were noted for any of the pesticides used on the orchards.

The workers were treated by local physicians, and symptoms improved. The county instituted an emergency 14-day reentry interval for fields with OMITE-CR, extending the California label instructions (1-day reentry, 7-day preharvest). This reentry interval was later extended to 28 days, then to 35 days. Subsequently, the manufacturer withdrew the California registration for OMITE-CR.

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**Editorial Note:** This is the largest pesticide-induced dermatitis outbreak recorded in California. Because that state requires pesticide illness reports, the outbreak and its causal factors were quickly identified so that appropriate interventions could be made.

OMITE-CR, the pesticide identified in the dermatitis outbreak, is a noncholinesterase-inhibiting miticide of low systemic toxicity but with known dermal irritation qualities. Its active ingredient is 30% propargite, 2-[4-(1,1-dimethylethyl)phenoxy] cyclohexyl-2-propynyl sulfite (2). The manufacturer had recently reformulated it to prevent leaf burn in citrus trees by coating the propargite granules in an inert ingredient that apparently slowed degradation. The CDFA continued the 7-day preharvest interval for the new formulation that was previously established for the earlier formulation (OMITE-30W).

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<sup>†</sup>Spearman rank-order correlation coefficients,  $R_s$ , were used to correlate indexes of exposure and dermatitis outcome.

*Dermatitis — Continued*

Next to sulfur, propargite is the second most frequently reported pesticide in the California PIRS as a probable cause of dermatitis among agricultural workers. During a 12-year period from 1974 through 1985, 506 cases of dermatitis associated with exposure to propargite were recorded, compared with 677 for sulfur (3). Certain California counties require a 3-day field reentry interval for sulfur. For one other pesticide, anilazine (DYRENE\*), California requires a 48-hour reentry interval based on dermal effects.

Protective clothing is usually neither practical nor effective for preventing skin exposure to pesticides in field crop workers. Impermeable clothing promotes the potential for heat stress, and monitoring skin exposure by dermal patches beneath permeable clothing has demonstrated that substantial skin exposure to residues still occurs. The most effective strategy for control is regulation through establishment of safe reentry intervals for skin exposure. The investigation reported above is one of the few instances where residue levels were sufficiently documented at the time of the dermatitis outbreak to establish a safe reentry level.

This outbreak underscores the potential of inert ingredients to compromise the safety and health of the worker and the need for prompt reporting and investigation of occupational illness episodes.

*References*

1. Anonymous. Farm chemicals handbook '86. Willoughby, Ohio: Meister Publishing Co., 1986.
2. Hayes WL. Statistics. New York: Holt, Rinehart, and Winston, 1963.
3. California Department of Food and Agriculture, Worker Health and Safety Unit. Pesticide illness reports, 1974-1985.

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