

State of California

Memorandum

To Rex Magee, Associate Director

Date: August 18, 1986

Place: Sacramento

Phone: 445-8474

From Department of Food and Agriculture

Keith T. Maddy Chief/Staff Toxicologist
Worker Health and Safety Branch

Subject: Short-Term Posting Regulation

HSM 86001

[Original signed by K Maddy]

Attached are the criteria that were used to develop the short-term posting regulations.

Attachment

DEVELOPMENT OF SHORT-TERM POSTING REGULATION

In developing a focused posting regulation, a number of factors were taken into consideration. Briefly, some of these factors included: 1) amount and type of hand labor cultural practices required; 2) high numbers of systemic illness cases related to the use of pesticides in a particular crop; 3) large numbers of dermatitis cases related to pesticide residues in a particular crop; 4) use of pesticides with high acute dermal toxicity on a crop; 5) time periods of intensive hand labor cultural activities; and (6) time periods of high pesticide use.

As a place to begin the evaluation, an illness/injury incidence rate was developed for each crop (attached). The incidence rate, based on illnesses/injuries per acre, was used to indicate the likelihood of pesticide exposure in absence of much preferred data on person-hours worked in any one crop. As such, the incidence rate, which includes all pesticides and pesticide-related illnesses/injuries to fieldworkers, gives only a very general indication of the hazard related to labor-intensive work required for each crop.

Once the incidence rate was computed, an evaluation of the list of crops and the incidence rate was initiated. There seemed to be a natural break in the incidence rate between 0.022 and 0.015 (broccoli and onions). An incidence rate of 0.020 would equal one illness every two years for each 20,000 acres grown. This attains a reasonable balance between health and safety risks and the impact of compliance. Following the selection of the 0.020 incidence rate, each crop above as well as below this line was evaluated for the factors listed above.

Strawberries require a large amount of hand labor for harvest (every three to five days) and for weeding and cutting runners. In addition, this crop had the highest average incidence rate based on acres grown. This does not reflect, however, the very large labor force needed for cultural practices when compared to other crops (i.e., they use more people per acre with fewer illnesses). Celery, cauliflower, broccoli, and lettuce are all row crops that require a large labor force for thinning, weeding and harvest. In addition, these crops are grown year round in California. Fresh market tomatoes (incidence rate calculated separate from canning or all types of tomatoes) require a large amount of hand labor and are harvested nearly year-round in some areas. All of the crops discussed thus far require the use of several Toxicity Category I organophosphates and N-methyl carbamates. Thus, posting of these crops should reduce exposure of field workers to these pesticides.

Ornamentals and flowers do not show up above the 0.020 line, probably because there are no figures available on acres grown. In the two years used for the incidence rate calculation, there were 32 cases of illness/injury reported for flowers and ornamentals. These crops both require a large amount of hand labor; in some cases harvest occurs twice a day. Several highly toxic pesticides are used frequently on these crops. In addition, on crops grown indoors, the dissipation of these highly toxic chemicals is not as well characterized as on some other crops.

The problems in grape vineyards are well characterized. The large workforce required and toxic pesticides used on this crop mandate its inclusion on the posting list. However, in looking at the illness/injury reports for fieldworkers in grapes, it would appear that very little exposure occurs from end of harvest to April 15th of the next year. This is due to less pesticide use in addition to a lesser amount of hand labor required.

Nectarines, peaches, plums and prunes all have incidence rates above the 0.020 level. They all require a considerable amount of hand labor, primarily for harvest, but other cultural practices are required (i.e., thinning, propping limbs). Like grapes, fewer pesticides are used during the time between harvest and April 15th.

Dates, sweet corn, carrots, and apricots all fall above the 0.020 incidence level and were not included on the short-term posting list. Historically there have not been a significant number of pesticide-related illnesses of fieldworkers in these crops to warrant regulatory action. Citrus was included in the regulations initially proposed for public comment. It came to our attention in public testimony that the problems in citrus were primarily related to parathion/paraoxon, and more recently propargite. In reviewing the pesticide-related illness cases from 1982 through 1985 occurring in citrus groves, there were no cases of illness or injury which resulted from early reentry (between two and seven days) into groves treated with Toxicity Category 1 pesticides. Since separate regulatory actions were proposed for the two problem pesticides on citrus, short-term posting of citrus was not warranted. The remaining crops on the incidence list, as well as those not specifically listed, do not warrant short-term posting based on the factors considered for this regulatory action.

INCIDENCE OF ILLNESSES & INJURIES BY
ACREAGE OF CROP FOR 1983-1984

Crops	Average Ill/1000 acres (1983-1984)	1983		1984	
		ACRES	NO. ILL	ACRES	NO. ILL
Strawberries	.379	13,000	8	14,100	2
Celery	.269	20,400	7	20,600	4
Cauliflower	.263	41,900	22	46,200	0
Grapes, all	.262	643,955	182	670,848	161
Dates	.233	4,222	0	4,300	2
Nectarines	.178	22,292	6	22,900	2
Tomatoes, fresh	.071	29,300	1	27,900	3
Plums	.059	34,098	2	34,150	2
Peaches, all	.049	53,984	0	51,600	5
Prunes	.045	67,290	4	66,500	2
Corn, sweet	.034	14,600	1	14,200	0
Lettuce	.029	151,200	2	154,500	7
Carrots	.025	40,000	1	41,300	1
Apricots	.023	22,230	1	22,000	0
Broccoli	.022	82,000	1	95,700	3
Olives	.015	35,138	0	34,700	1
Onions	.015	35,000	0	34,600	1
Citrus, all	.014	259,959	4	259,592	3
Cotton	.012	950,000	4	1,400,000	27
Tomatoes, all	.011	262,800	2	267,000	4
Potatoes, all	.009	56,200	1	60,000	0
Almonds	.007	356,223	1	379,565	4
Walnuts	.006	176,781	1	175,700	1
Beans, dry	.003	143,000	0	184,000	1
Apples	.000	23,094	0	23,300	0
Avocados***	.000	68,027	0	72,150	0
Cherries	.000	10,620	0	10,400	0
Pears	.000	26,391	0	25,680	0
Pistachios	.000	31,060	0	31,900	0
Asparagus	.000	31,800	0	34,200	0
Peas, fresh	.000	1,400	0	1,600	0
Kiwifruit	?*	n/a	1	3,390	0
Cucumber	?*	n/a	1	5,499	0
Flowers	?*	n/a	18	n/a	8
Kale	?*	n/a	0	n/a	1
Ornamentals	?*	n/a	4	n/a	2
Peppers, bell	?*	n/a	2	10,498	0
Sunflower seeds	?*	n/a	3	11,085	0
Watermelons	?*	n/a	1	14,840	0

*-Information on acreage was not available to calculate the illness incidence rate

n/a - not available

Labor Intensive Crop Characteristics-- 10/85

1. Excessive number of dermatitis cases
2. Excess number of systemic illness cases
3. Use of a number of highly toxic pesticides
4. Large number of labor intensive activities
5. Large number of small fields with a variety of crops in the same area
6. Introduction of a new highly toxic pesticide when the efficacy of older pesticides has waned
7. Use of a number of restricted pesticides

DEPARTMENT OF FOOD AND AGRICULTURE

1220 N Street
Sacramento, CA 95814

June 6, 1986

Honorable Art Torres
Chairman
Senate Committee on Toxics
Public Safety Management
State Senate
State Capitol, Room 2080
Sacramento, CA 95814

Dear Senator Torres:

This is in response to your questions of May 28, 1986, on behalf of the Senate Committee on Toxics and Public Safety Management.

Several provisions of the Food and Agricultural Code deal with the relative roles of this Department, the Department of Health Services, and other agencies in the development of pesticide worker safety regulations. Section 12980 states that "the development of regulations relating to pesticides and worker safety should be the joint and mutual responsibility of the Department of Food and Agriculture and the State Department of Health Services." This section also states that "the University of California, the Department of Industrial Relations and any other similar institution or agency should be consulted."

Section 12981 states "the State Department of Health Services shall participate in the development of any regulations" and goes on to say that "regulations that relate to health effects shall be based upon the recommendations of the State Department of Health Services."

To comply with these requirements, the Department has implemented a Worker Health and Safety Advisory Group that meets at least six times a year that brings together those agencies named in statute and other interested persons to discuss pesticide worker safety issues and develop necessary amendments. The proposed amendments published on January 3, 1986, were developed through this procedure. The Department of Health Services participated as a co-equal in all work sessions in drafting these regulations and in sitting on the hearing panels at the hearings held throughout the State. The public testimony was reviewed by the Department of Health Services, and the modified text was developed with their direct participation. The entire rulemaking file, which contains the data upon which the proposal was based, is available to the public as are the records of the meetings of the Worker Health and Safety Advisory Group, along with memoranda between the departments concerning the regulation development process.

Honorable Art Torres

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Citrus was added to the proposed list of crops requiring posting for short-term reentry intervals based upon the number of illnesses reported over the years. Citrus did not meet the 0.020 illnesses per thousand acres we used as a starting point in our evaluation. Public comment pointed out that most of the citrus illnesses resulted from incidents involving groups of workers and almost all of these involved parathion or, more precisely, paraoxon. The parathion problem was being handled by a specific regulation amendment and is not related to the short-term posting issue.

If illnesses caused by this specific situation were removed from the record, citrus has an extremely good record for safe fieldworker activities, and additional posting cannot be justified. The recent episode in Tulare County was again an episode in a group of workers that did not involve a reentry violation. It resulted from unpredicted persistence of the compound on leaf surfaces. It is best resolved by product action, not just by posting. This Department, along with the Department of Health Services, carefully reviewed the objections and recommendations and determined that it was appropriate to delete citrus from the short-term posting requirements.

I am aware of your position that all crops with a reentry interval should be posted, as I am sure you are aware of the reasons given for not posting in all situations. Posting helps prevent exposure from only one situation - premature entry involving substantial and prolonged contact with treated plants. All worker protection efforts involve balancing health and safety protection with compliance costs, similar to many other regulatory areas. For example, some Medi-Cal benefits are limited due to the cost of the program, not because they are not desired or needed by the patients. The Department's records do not indicate that violation of reentry intervals, either accidental or intentional, is so widespread as to warrant imposing the solution you propose.

Sincerely,

Clare Berryhill
Director
(916) 445-7126

DEPARTMENT OF FOOD AND AGRICULTURE,

1220 N Street
Sacramento, CA 95814

June 6, 1986

Honorable Nicholas C. Petris
State Senate
State Capitol, Room 5080
Sacramento, CA 95814

Dear Senator Petris:

This is in response to your letter of May 28, 1986, regarding proposed posting regulations.

Citrus was added to the proposed list of crops requiring posting for short term reentry intervals based upon the number of illnesses reported over the years. Citrus did not meet the 0.020 illnesses per thousand acres we used as a starting point in our evaluation. Public comment pointed out that most of the citrus illnesses were group poisoning incidents and most of these involved parathion or, more precisely, paraoxon. Parathion is handled by specific regulations and is not related to the short-term posting issue. If illnesses caused by this specific situation were removed, citrus has an extremely good record for safe fieldworker activities, and additional posting cannot be justified.

The recent orange-picker dermatitis episode in Tulare County was again an episode of a group of persons that did not involve a reentry violation. It resulted from unpredicted persistence of a new compound on leaf surfaces. It is best resolved by action against a specific product, not just by posting. This Department, along with the Department of Health Services, carefully reviewed the objections and recommendations and determined that it was appropriate to delete citrus from the short-term posting requirements.

I am aware of your position that all crops with a reentry interval should be posted, as I am sure you are aware of the reasons given for not posting in all situations. Posting helps prevent exposure from only one situation - premature entry involving substantial and prolonged contact with treated plants. All worker protection efforts involve balancing health and safety risks with costs of compliance, similar to many other areas. For example, some Medi-Cal benefits are limited due to the cost of the program, not because they are not desired or needed by the patients. The State's record does not indicate that violation of reentry intervals, whether accidental or intentional, is so widespread as to warrant imposing posting of every treated field with a reentry interval.

Honorable Nicholas C. Petris.

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June 6, 1986

This Department did not select crops for short-term posting based upon a "census of casualties". The evaluation of any problem must begin at some point. In looking at the problem of fieldworker illnesses, the Department began at the 0.020 illnesses per one thousand acres. Several other factors, including types of work practices in the crop, labor intensive work seasons, pesticides used, etc., were also considered.

Sincerely,

Clare Berryhill
Director
(916) 445-7126

DEPARTMENT OF FOOD AND, AGRICULTURE

1220 N Street
Sacramento, CA 95814

August 12, 1986

Mr. Graydon Hall
Imperial Valley Vegetable Growers
Association
P.O. Box 358
El Centro, CA 92244

Dear Graydon:

During the course of the Department's evaluation of the public testimony received (both oral and written) on the proposed changes in the Worker Safety Regulations, comments from several members of your Association were reviewed. The Department's response to their testimony is in the final statement of reasons submitted to the Office of Administrative law.

As stated in the final statement of reasons, dated July 27, 1986, the illness incidence rate was used only as a starting point in the Department's evaluation of a focused posting regulation. Other factors considered in selecting a list of crops that will require short-term posting include work practices for each crop (not just hand harvesting), labor-intensive work seasons, pesticides used on each crop, etc. As you are aware, in all actions involving worker protection, a balance must be attained between health and safety risks and the costs of compliance. For example, some Medi-Cal benefits are limited due to the cost of the program, not because they are not desired or needed by the patients. The Department's records do not indicate that violations of reentry intervals are so great as to warrant posting of every field treated with a pesticide that has a reentry interval. The costs of posting estimated by the industry are much higher than those actually experienced in Monterey County for a substantially similar requirement.

The "Possible" category pesticide illness does interject a little more uncertainty than the "Definite" and "Probable" categories; however, we do not have enough evidence to overrule a physician's diagnosis. Since the physician and the worker are usually the only persons present, we cannot say the physician has misdiagnosed the case without supporting evidence. As such, we feel that these cases classified as "Possible" must be included in any evaluation. The "Unlikely" classification suggests that the possibility exists (i.e., the physician's diagnosis is not definitive) and without supporting evidence we cannot rule out the possibility of the pesticide exposure resulting in the reported symptoms. These judgements are based on medical records, the Agricultural Commissioner's investigation documenting the exposure (type of, duration, etc.), chemistry, and toxicological

Mr. Graydon Hall
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information available in the public literature. The illness/injury incidence rate was used to indicate the likelihood of pesticide exposure in absence of data on person-hours worked in any one crop. This incidence rate, which includes all pesticides and illness cases, gives a general indication of the labor-intensive work required for each crop. The staff is not using these total numbers to indicate the number of illnesses that will be prevented by posting; posting will prevent exposure and provide information to the worker. As stated above, the incident rate was used only as a point to begin an evaluation of focused posting. During the two years discussed, exposure to residues of Toxicity Category I pesticides was involved in five illnesses of workers in the five crops in question (three "Possible", two "Probable"). In addition, there were two illnesses resulting from Toxicity Category I pesticide residues of the five crops in 1985.

The incidence rate for fresh market tomatoes did not include all tomatoes. A separate incidence rate was developed for canning, fresh market, and all tomatoes.

The crops chosen for these short-term posting lists were not chosen just because they are hand-harvested. All other cultural practices for each crop were considered. Reentry intervals apply during the entire growing season of a crop. A longer preharvest interval does not prohibit a worker from doing other types of work activities which may involve prolonged and substantial contact with treated foliage. As you may be aware, a reentry interval does not absolutely prohibit entry into a treated field; it does prohibit prolonged and substantial contact with treated foliage in that field. This proposed action further defines those activities that we believe involve substantial and prolonged contact with treated foliage. We are not aware of any reports in the past where growers have had problems getting field workers into posted fields to irrigate. Some education of field workers on the hazards involved may be necessary for the workers to feel comfortable weeding and thinning in a posted field. We would be willing to work with the industry in developing an educational program of this type.

The Department feels the justification for posting certain labor intensive crops is sufficient. In all occupations, employers are responsible for creating a safe work place for their employees, and thus must bear the costs. Using the experiences in Monterey County, the costs have not been nearly as high as those given in the public testimony.

The Pesticide Illness Surveillance Program (PISP) report was not used to support the 48-hour reentry interval for methamidophos (Monitor®). Monitor is under formal reevaluation in California for possible delayed-onset neurotoxicity. In addition, dislodgeable residue studies indicate that unsafe residues may exist at 24 hours post-application.

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Graydon, I hope this letter has cleared up any misconceptions. If you have any further questions, please feel free to contact me.

Sincerely,

[ORIGINAL SIGNED BY]

Rex Magee
Associate Director
Pest Management, Environmental
Protection and Worker Safety
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