PERSONNEL: J. E. Lauck, Ph. D., Chevron Chemical Company

I. OBJECTIVE AND GOALS

To evaluate the effectiveness of ORTHO's ORTHENE and MONITOR insecticides in large and small scale trials to establish the potential for development in California to control the navel orangeworm.

II. ABSTRACT

ORTHENE was evaluated in large scale trials in cooperation with Mead Orchards, Inc. in Chico and Vilas Orchards in Ceres under an Experimental Use Permit and Temporary Tolerance for almond nut meats. Additionally, ORTHENE and MONITOR were evaluated in smaller scale trials at the Western Field Research facility of the Chevron Chemical Company in Fresno.

The level of protection from the navel orangeworm generally corresponded with the dosage of ORTHENE or MONITOR applied (Table 1). Although the upper limits of protection generally was the same at all rates examined, the consistency of protection in the upper range decreased with dosage. The level of protection consistently was in the 80 - 100% range at 8.0 lbs. ai/A although lower levels occasionally were observed at this rate. At 4.0 lbs. ai/A a similar relationship was observed however the level of protection was consistently in the 60 - 80% range although higher levels occasionally were observed at this rate. Inadequate information is available to suggest a similar relationship at 2.0 lbs. ai/A. Applications prior to hull split were most effective in 1975 however all applications timed within 3 weeks prior to hull split to 2 -3 weeks after hull split generally effected in excess of a 70% reduction of the navel orangeworm. Single and split applications at an equal total rate were equally effective. Complete control of the oblique banded leafroller was obtained with ORTHENE and acceptable activity was noted for earwigs, tent caterpillars, plant bugs and leafhoppers. Injury associated with mite feeding activity was lower for treatments associated with MONITOR. Both ORTHENE and MONITOR effected a light leaf drop associated with a phytotoxic reaction to

almond foliage expressed as a necrosis of the leaf tip and margin. An extensive program was implemented to monitor residue levels in almond hulls and nut meats 30 - 90 days after application. The results of those determinations currently are not available.

III. RESULTS

Table 1. Range of navel orangeworm reduction effected by ORTHENE 75S and MONITOR 4S, 1973-1975[1/]

	Percent reduction						
	Lbs. ai/A[1/]						
	2.0	4.0		6.0	8.0		
	73	73	75	75	73	74	75
ORTHENE 75S	50-81	70-97	59-81	49-73	78-100	54-74	43-92
MONITOR 4S	67-94	72-96	58-70	57-91	67-97	30-88	63-94

1/ Applications timed 3 weeks before to 4 weeks after hull split.

2/ 800 gpa (1973, 1974), 400 gpa (1975).

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January 15, 1976

Mr. Dale Morrison
Director-Special Projects
Almond Control Board
P. O. Box 26164
Sacramento, California 95826

Dear Dale:

Attached is the final almond report.

Sincerely,

J. E. Lauck
Research Specialist

Attachment