

RECEIVED  
JAN 11 1983

ALMOND BOARD

Almond Board Project No. 82-B3: Navel Orangeworm Sex Pheromone  
Isolation and Identification

Project Leader: T. C. Baker, U.C. Riverside

Progress Report

January 1 - December 31, 1982

This year more information was obtained on the second area of activity from navel orangeworm sex pheromone gland extracts. In conjunction with Dr. Wendell Roelofs of Cornell University, complete mass spectra were recorded from several compounds corresponding to GLC peaks that, when added to Z,Z-11,13-ALD, increased the percentage of males flying upwind to the source. Preliminary field trapping experiments confirmed and extended previous wind tunnel results that the addition of this second active fraction to Z,Z-11,13-16:ALD increases upwind flights to the source, resulting in a doubling of trap catch even at the very low dosages used (Table 1). Several chemical reactions were performed to try to destroy the activity in this second fraction, including microozonolysis, acetylation, base hydrolysis, etc. (Tables 2,3,4,5). The results of these reactions in terms of successful upwind flights in the wind tunnel, added further to our understanding of the possible chemical structures involved.

*Thomas C. Baker*

Table 1  
Field Trapping Experiments

	<u>x Males per trap</u>
Z,Z-11,13-16:ALD	4.0 (+ 1.0)
Z,Z-11,13-16:ALD plus fraction B	8.3 (+ 2.1)

Table 2  
Wind Tunnel Behavioral Test  
Chemical Reaction #1

	% Males flying upwind	% Males flying upwind to source
Z,Z-11,13-16:ALD	44%	6%
Z,Z-11,13-16:ALD + fraction B	82%	71%
Z,Z-11,13-16:ALD + reacted fraction B	68%	42%

Table 3  
Wind Tunnel Behavioral Test  
Chemical Reaction #2

	% Males flying upwind	% Males flying upwind to source
Z,Z-11,13-16:ALD	40%	10%
Z,Z-11,13-16:ALD + fraction B	63%	54%
Z,Z-11,13-16:ALD + reacted fraction B	73%	40%

Table 4

## Wind Tunnel Behavioral Test

## Chemical Reaction #3

	% Males flying upwind	% Males flying upwind to source
Z,Z-11,13-16:ALD	0%	0%
Z,Z-11,13-16:ALD + fraction B	39%	32%
Z,Z-11,13-16:ALD + reacted fraction B	0%	0%

Table 5

## Wind Tunnel Behavioral Test

## Chemical Reaction #4

	% Males flying upwind	% Males flying upwind to source
Z,Z-11,13-16:ALD	0%	0%
Z,Z-11,13-16:ALD + fraction B	22%	13%
Z,Z-11,13-16:ALD + reacted fraction B	28%	13%