Almond Board Project No. 83-A4: Navel Orangeworm Sex Pheromone Isolation and Identification

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Progress Report

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This year more information was obtained on the second area of activity from navel orangeworm sex pheromone gland extracts. We have continued our efforts to chemically characterize the behaviorally active comounds we have isolated by our regime of gas chromatographic fractionation and flight tunnel tests developed over the past three years. In conjunction with Drs. Wendell Roelofs and Louis Bjostad of Cornell University, complete mass spectra were recorded from several compounds corresponding to GLC peaks that, when added to Z,Z-11,13-16:ALD, increased the percentage of males flying upwind to the source. These mass spectra, coupled with gas chromatographic retention times, indicate that there are two possible structures for one of the compounds. One of these compounds has been provided to us by Dr. Bjostad, and is now undergoing testing in our flight tunnel in combination with the synthetic known pheromone component Z,Z-11,13-16:ALD. The second will be shipped to us early in 1984 for flight tunnel testing. If either of these compounds proves to increase flights to the source by navel orangeworm males compared to flights to the hexadecadienal alone, field tests will be conducted at the first opportunity using laboratory-reared, released males, and then using wild males during the first flight in 1984.

Chemical tests and mass spectra are now being conducted on another compound that more subtly increases upwind flights in combination with the known aldehyde component, and we have a partial structure for this compound.

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