PROJECT NO. 78-S2 - Navel Orangeworm Research
Pheromone Field Testing

COOPERATOR: USDA/SEA
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OBJECTIVES: (1) To develop existing pheromone as a useful tool for monitoring n.o.w. activity in the field; (2) to explore feasibility of using pheromone to control n.o.w. by mass trapping; (3) to explore feasibility of using pheromone to control n.o.w. by disruption of mating.

INTERPRETIVE SUMMARY: A sex pheromone of the navel orangeworm has been isolated, identified and synthesized. Lab and field tests show that the major, or sole, component of the pheromone is the Z,Z isomer (structural configuration) of 11, 13 hexadecadienal. Of the four possible-isomers tested in the lab, males responded only to this isomer; there was no significant difference between male response to this synthetic isomer and to the female-produced pheromone. Furthermore, of all four isomers, only this one was attractive to males in field tests.

Lab tests demonstrated that a 1:1:1:1 mixture of the four isomers had no adverse effect upon male response. These initial results are very encouraging but much work needs to be done on formulations and mixtures of the pheromone for field use. Combined with a trap, the pheromone should be a valuable grower tool which can be utilized and interpreted for proper insecticide timing. In addition, pheromone trapping may have potential as a control tool. The isolation and identification work of this project was under the leadership of Dr. Coffelt, while Dr. Curtis was in charge of field testing.