

Resistance Management

Resistance to Sex Pheromone Mating Disruption by Codling Moth?
Is There a Trend Toward More Mating?

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Abstract: The mating status of female codling moths within apple orchards treated with sex pheromones for mating disruption has been monitored since 1992 in Moxee and since 2000 in Brewster. These orchards have been treated with sex pheromones every year since 1991. Populations have been monitored with the use of passive interception traps, light traps, and sticky traps baited with the pear ester. Orchards have been treated with various rates of hand-applied dispensers, widely spaced clusters of dispensers or aerosol emitters, and microencapsulated formulations. Data are summarized for both the first and second moth flights. Prior to 2000, the proportion of mated females during the first flight in Moxee was <0.6 and during the second flight was <0.8 . Since 2000 mating rates have increased to >0.85 and >0.95 in the two flight periods, respectively. Similarly, the proportion of mated females in Brewster in 2000 was 0.7 and 0.8 for the two flights. Over the past four years there has been a positive trend in the proportion of mated females in these orchards and during 2004 >0.96 females were mated in both flights. In 2002 I evaluated the mating success of tethered females from the Moxee orchards, from another orchard that has never been treated with sex pheromone, and from a laboratory colony in screened field cages with releases of males. No difference in mating was found among these populations. However, differences in the behaviors of females among populations were not addressed in these studies. Several potential mechanisms associated with mating success in codling moth will be discussed.