

Pheromone Trap Catch of Codling Moth in Grid Transects Leading from Areas of Mating Disruption: Definition of Plume Edge and Impacts on Males in Neaby Non-Treated Orchards or Habitats.

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Abstract. Transects (8 total) of pheromone traps deployed at 10, 20...50, 100 and 150 m away from a 10 h area of mating disruption (MD) of codling moth (*Cydia pomonella*) into untreated pears were used to define the boundaries of the pheromone plume emanating from a MD area and to assess responses of natural populations of male moths in areas of non-MD surrounding the treated site. Male catches in most transects showed moderate catch at distances of 10-20 m away, lowest catches at 30-40 m and highest catches at 50-150 m. We interpreted these data to show that highest rates of pheromone concentration just adjacent to the MD site attracted male moths outward for up to 50 m. Attraction towards the MD area occurred and depletion of moths occurred from 30-40 m, but reduced levels of males were caught at 10-20 m away because of mating disruption effects. Beyond 50 m the most males were caught because of no attraction to the MD plume and no confusion in finding traps. Transect without large populations of moths in the surrounding habitat showed different patterns of moth catch, but were consistent with the above explanation. A transect that had MD sites on more than one side showed a different pattern of trap catch than that seen in sites with MD only on 1 side. A transect in apple and cherry had similar patterns of moth catch as did sites in pear. Implications for use of these data to improve monitoring methods, enhance the overall effectiveness of MD and for modeling moth population dynamics in areawide regions of MD will be discussed.