

Title Mating disruption for control of *Plodia interpunctella* (Hübner) (Lepidoptera: Pyralidae) in dried beans

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Abstract

We compared the impact of mating disruption and aerosol space treatment using synergized pyrethrins on Indianmeal moth *Plodia interpunctella* in 2200–2900 m³ structures at a dried bean storage and processing facility in Stanislaus County, CA USA. Mating disruption was applied using a high-volume aerosol timed release dispenser to apply 1.9 mg/d/100 m³ (*Z,E*)-9,12-tetradecyldienyl acetate (*Z*9,*E*12-14:Ac). Biological effects of mating disruption were compared between areas treated with mating disruption, aerosol space treatments, and an untreated part of the facility. The ability of males to orient to a pheromone source, to mate with calling females, and the fertility of resident females was examined using pheromone traps, sentinel females, and oviposition bait cups, respectively. Compared to an untreated area, males in pheromone traps and female mating were greatly reduced in both the aerosol space treatment and mating disruption treatment areas. After the second week of the study, *P. interpunctella* progeny were recovered from the untreated area and the aerosol space treatment area but not the mating disruption area, despite an active infestation in this area at the start of the study. An experiment examining development on the dried beans stored at this facility found variable development on broken beans, but generally poor development in intact beans. We conclude that the mating disruption treatment was as effective as the space treatment in suppressing population growth under the conditions at this facility, and discuss the potential for mating disruption using high-volume aerosol timed dispensers for phycitine moths in stored products.