

DOES PHEROMONE MONITORING INCREASE the INFESTATION of STORED PRODUCT INSECT ?

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INTRODUCTION

The synthetic stored product insect pheromones have been used effectively for monitoring insects in food processing plants, warehouses, and grain storage facilities. It is a highly effective tool for early detection of insect infestation. However, the pheromone monitoring in these places induces insects into rooms and may cause an increase of population and infestation by the pest insect. It is said that monitoring is not related to the increase because of its attractiveness only to the male. However, no research data have been reported. The tests were conducted at semi-field with pheromone traps of the Indian meal moth (*Plodia interpunctella*)

MATERIALS and METHODS

Preliminary Test

Ten male and ten virgin female Indian meal moth adults hatched separately were introduced into a room (4.5×2.7×h=2.4m) with 9 bait cups (10g : rice bran). After 7 days exposure, 9 bait cups were collected. After 24 days, larva were counted.

Egg-laying Test

Indian meal moths were induced into a room (same as above) through a slightly opened window (12×90 cm) by one sex pheromone trap (Biolure: Suterra LLC). In this room, 9 bait cups (10g: rice bran) were set on the floor for egg-laying for 4 weeks from July 7 to August 1, 2000. In 2001, 27 bait cups with 3 kinds of bait (10g : peanuts, chocolate, and rice bran) were set in the same room with one sex pheromone trap for 4 weeks from July 26 to August 23. Indian meal moths also were induced into the room. After 3 weeks in both tests, larvae in bait cups were counted. In both tests, the control rooms were set next to the test rooms and had the same size opening.

RESULTS and DISCUSSION

After 24 days, a total of 276 Indian meal moth larvae were counted from 9 bait cups. Under such exposure conditions, it was shown that Indian meal moths can egg-lay in bait cups with rice bran. After 3 weeks breeding, no larvae of Indian meal moths were counted in 9 rice bran bait cups. For 4 weeks inducting into room (July 7-Aug. 1, 2000), 211 male Indian meal moths were captured in the pheromone trap.

While for 1 month inducting into room (July 26-Aug. 24, 2001), 191 male moths were captured in the pheromone trap. No larvae were observed in bait cups of the control room. Both tests showed that pheromone monitoring of the Indian meal moth does not cause an increase in population and infestation.