Title The effects of temperature on flight initiation in a range of moths, beetles and parasitoids associated with stored products

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Abstract

The effects of temperature on flight initiation in a range of stored-product pests and their parasitoids have been studied in laboratory flight chambers. Tests were conducted between 10 and 32.5 °C at intervals of 2.5 °C. The minimum temperatures for flight initiation in the stored-product moths *Ephestia kuehniella, E. elutella* and *Plodia interpunctella* were in the range 12.5–15 °C. For the stored-grain beetles, minimum temperatures for flight initiation varied from 17.5 °C for *Ahasverus advena* and *Typhaea stercorea,* 20 °C for *Rhyzopertha dominica*, 25 °C for *Tribolium castaneum*, to 27.5 °C for *Sitophilus oryzae*. The minimum temperature for flight initiation in the hymenopteran parasitoids, *Anisopteromalus calandrae* and *Lariophagus distinguendus*, was 17.5 °C. Flight is discussed as a factor in sustainable pest management strategies for storage insects; its importance in the spread of infestation and the likely success of physical and biological control methods is highlighted.