

THE ORIGIN OF SPRING FLIGHTS OF HELIOTHIS PUNCTIGERA WALLENGREN  
IN SOUTH AUSTRALIA.

by

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SUMMARY

The origin of moths comprising spring flights of Heliothis punctigera in South Australia had been unexplained and this study was concerned with examining likely sources.

To determine if local weather conditions were consistent with the timing of such flights, an attempt was made to develop a model based on the rate of pupal development during winter. This involved studies on diapause and post-diapause development. The diapause development portion of the model was not formulated because of its complex nature. A preliminary model was developed for post-diapause development and provides a basis for field verification.

A cursory assessment of synoptic weather patterns indicated that migration from outside the area of study was unlikely.

Field studies on mortality factors of each stage of the life cycle, with special emphasis on the larval stage, indicated that H. punctigera survives within the area of study; but there were insufficient data to indicate that the spatially contracted over-wintering population accounts for the widespread occurrence of moths in spring.

No firm conclusion as to the origin of these moths was made and the shortcomings of the project are discussed.

DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference is made in the text.

I consent to the thesis being made available for photocopying and loan if applicable, if accepted for the award of the degree.

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SPECIAL NOTE OF THE AUTHOR

The field and laboratory work of this thesis were carried out over the period March 1975 - March 1977, with the laboratory studies on diapause beginning in mid-1975. Subsequent published work relevant to these studies and in some notable cases negating them, presented a problem in chronology when referring to them. Such papers are therefore only cited in discussions of results and not in the introductory sections where literature relevant to experiment design or likely treatment effects is normally included.