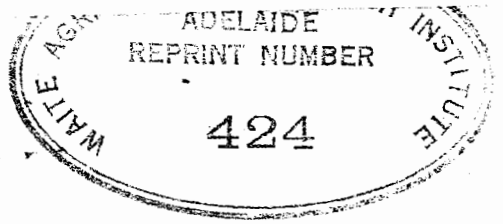


095D  
B61  
SR

Reprinted, with original page numbers,  
from "THE AUSTRALIAN JOURNAL OF  
EXPERIMENTAL BIOLOGY AND MEDICAL  
SCIENCE," Volume XXII (1944)



AN IMPROVED METHOD FOR DETERMINING THE  
INFLUENCE OF TEMPERATURE ON THE RATE OF  
DEVELOPMENT OF INSECT EGGS. (USING EGGS OF  
THE SMALL STRAIN OF *CALANDRA ORYZAE* L.  
(COLEOPTERA)

by L. C. BIRCH

Papers of L.S. Birch submitted for the Degree of Doctor of Science  
of the University of Adelaide.

The following papers are concerned with establishing principles in the physiology of insect populations in relation to the physical environment.

Section 1. Physiological Ecology.

1. "An improved method for determining the influence of temperature on the rate of development of insect eggs, using eggs of the small strain of Calandra oryzae L. (Coleoptera)." Aust. Journ. Exp. Biol. and Med. Sci. 22: 277-283, (1944).
2. "The development of the eggs of Rhizopertha dominica Fab. at constant temperatures". (with J.G. Snowball). Aust. Journ. Exp. Biol. and Med. Sci. 23: 37-40, (1945).
3. "The influence of temperatures above the development zero on the development of the eggs of Austroicetes cruciata Sauss. (Orthoptera)". Aust. Journ. Exp. Biol. and Med. Sci. 20: 17-25, (1942).
4. "Diapause in the eggs of Scelio chortoicetes Frogg., a Scelionid parasite of Austroicetes cruciata Sauss." Journ. Aust. Inst. Agric. Sci. 11: 189-90, (1946).
5. "The influence of temperature on the development of the different stages of Calandra oryzae L. and Rhizopertha dominica Fab. (Coleoptera)". Aust. Journ. Exp. Biol. and Med. Sci. 23: 29-35, (1945).
6. "The oxygen consumption of the small strain of Calandra oryzae L. and Rhizopertha dominica Fab. as affected by temperature and humidity". Ecology. 28: 17-25, (1947).
7. "The effect of temperature and dryness on the survival of the eggs of Calandra oryzae L. (small strain) and Rhizopertha dominica Fab. (Coleoptera)". Aust. Journ. Exp. Biol. and Med. Sci. 22: 265-269, (1944).
8. "The influence of moisture on the eggs of Austroicetes cruciata Sauss. (Orthoptera) with reference to their ability to survive desiccation". (with H.G. Andrewartha.) Aust. Journ. Exp. Biol. and Med. Sci. 20: 1-8, (1942).

9. "The mortality of the immature stages of Calandra oryzae L. (small strain) and Rhizopertha dominica Fab. in wheat of different moisture contents". Aust. Journ. Exp. Biol. and Med. Sci. 23: 141-145, (1945).
10. "The influence of temperature, humidity and density on the oviposition of the small strain of Calandra oryzae L. and Rhizopertha dominica Fab. (Coleoptera)". Aust. Journ. Exp. Biol. and Med. Sci. 23: 197-203, (1945).
11. "Two strains of Calandra oryzae L." Aust. Journ. Exp. Biol. and Med. Sci. 22: 123-125, (1944).
12. "The influence of food on the size of two strains of Calandra oryzae L." Aust. Journ. Exp. Biol. and Med. Sci. 24: 123-125, (1946).

Section 2. Population Ecology.

13. "The biotic potential of the small strain of Calandra oryzae L. and Rhizopertha dominica Fab." Journ. Animal Ecol. 14: 125-127, (1945).
14. "A contribution to the ecology of Calandra oryzae L. and Rhizopertha dominica Fab. in stored wheat". Trans. Roy. Soc. South Aust. 69: 140-149, (1945).
15. "The intrinsic rate of natural increase of an insect population". Journ. Animal Ecol. (In press) Typescript pages: 1-33. (1948).
16. "The influence of drought on the survival of eggs of Austroicetes cruciata Sauss. (Orthoptera) in South Australia". (with H.G. Andrewartha). Bull. Ent. Res. 35: 243-250, (1944).
17. "The influence of weather on grasshopper plagues in South Australia". (with H.G. Andrewartha). Journ. Agric. South Aust. 45: 95-100, (1941).
18. "The measurement of environmental resistance in the Australian Plague Grasshopper". Nature, typescript pages 1-5. (In press), (1948).

19. "The movements of *Calandra oryzae* L. in experimental bulks of wheat". Journ. Aust. Inst. Agric. Sci. 12: 21-26. (1946)
20. "The heating of wheat stored in bulk in Australia". Journ. Aust. Inst. Agric. Sci. 12: 27-31, (1946).

