

QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES

DIVISION OF PLANT INDUSTRY BULLETIN No. 393

**LIFE HISTORY OF THE SOWTHISTLE APHID
(HYPEROMYZUS LACTUCAE (L.))**

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SUMMARY

On sowthistle seedlings, the adult stage was reached in less than 10 days, longevity of adults was approximately 6 days, and the number of nymphs produced per adult was approximately 21.

The sowthistle aphid (*Hyperomyzus lactucae* (L.)) is widely distributed throughout Queensland. Large colonies occur on the major host (*Sonchus oleraceus* L.) virtually wherever this plant is found. Although the species has not been recorded as breeding on lettuce in this State, alate adults from adjacent areas of weed hosts invade and feed on these crops. The species, being a vector of lettuce necrotic yellows virus disease, therefore has economic importance.

Studies on the life history, adult longevity and reproductive potential of this species on young sowthistle plants were made under insectary conditions at Toowoomba in 1965. Mean daily minimum and maximum temperatures during the period of investigation from July 6 to July 30 were $59.3 \pm 0.45^{\circ}\text{F}$ and $78.2 \pm 0.5^{\circ}\text{F}$ respectively. The sowthistle seedlings were grown individually in 5-in. plastic pots. One aphid specimen was reared on the terminal of each seedling and development of nymphs from stage to stage was recorded according to cast skins.

Similar studies on nymphal development, adult longevity and nymphal production were made with excised sowthistle leaves as food. The excised-leaf technique involved the rearing of single individuals on small leaves placed on moist filter paper in $3\frac{1}{2}$ -in. diam. plastic petri dishes. The insects were transferred to fresh leaves daily. Transfers were made by means of a camel-hair brush with the assistance of stereoscopic magnification to avoid injury to the specimens.

Instar data are based on 22 individuals which completed development on growing seedlings and 15 on excised leaves. Each insect in both methods of rearing passed through four nymphal stages. All individuals developed into apterous adults. Adult longevity and nymphal production data are based on 24 adults on growing plants and 15 on excised leaves. Data means are as follows:

	Seedlings	Excised Leaves
First instar development period (days) ..	1.46 ± 0.12	1.96 ± 0.17
Second instar development period (days)	2.29 ± 0.22	3.20 ± 0.26
Third instar development period (days) ..	3.14 ± 0.29	3.32 ± 0.22
Fourth instar development period (days)	2.95 ± 0.19	3.87 ± 0.24
Total development period (days)	9.59 ± 0.38	12.73 ± 0.34
Adult longevity (days)	5.46 ± 0.44	5.80 ± 0.40
Nymphs produced per adult	21.10 ± 2.90	9.53 ± 0.81

These data show that the terminal of growing seedlings is much more favourable as food to the developing insect than the excised leaf. The period required for development was progressively longer through all nymphal stages on excised leaves and the total period showed a 33% increase over that on growing plants.

The favourableness of food is also demonstrated by the numbers of individuals which failed to reach maturity, namely three on the seedlings and 11 on excised leaves. Furthermore, the number of nymphs produced on growing plants was more than double that on the excised leaves. Adult longevity was comparable in the two rearing techniques.

The species is shown to have a short adult life and a comparatively low rate of reproduction. Populations in the field, however, are often high on sowthistle but this is likely to be a direct relationship to host abundance.

(Received for publication August 23, 1966)

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