

Short Communications

Bionomics of Tobacco bug *Nesidiocoris tenuis* Reuter*

N. G. Patel and H. K. Patel

Depart. of Entomology, B. A. College of Agriculture,
Gujarat Agricultural University, Anand Campus,
Anand. 388 110.

TOBACCO is an important cash crop of our country. It is attacked by quite a large number of insect pests. As it is evident from the work done in past, it can be said that tobacco bug (*Nesidiocoris tenuis* Reuter) is totally ignored by the workers engaged in tobacco research. Large numbers of the bug are found draining cell sap from the flower buds, flowers and leaves of tobacco plants as a result of which the number of capsules is reduced to a considerable extent. The biology of this bug was, therefore, studied and the results are reported hereafter.

Initial culture was started by collecting large number of copulating pairs of tobacco bug from tobacco fields. Such pairs were introduced individually in a 7.5 cm long 2.5 cm wide semi-transparent plastic specimen tubes and fresh tender leaves of tobacco were provided as food. To maintain the turgidity of the leaves, their cut ends were

wrapped in cotton wool plugs soaked in water.

The leaves were replaced as and when necessary. The tubes were kept closed by plastic screw caps with 8-10 pin holes in it. The tender tobacco leaves served the purpose of ovipositing, resting and feeding. The number of eggs were counted daily and were utilised for further study. The eggs collected daily were kept in separate petridishes (8 cm × 2 cm) and observations on hatching were recorded. Studies pertaining to incubation period were also made at different room temperatures as well as at controlled temperatures of 31°C and 35°C in the incubators. Different humidity levels were obtained by adopting the method described by Buxton and Mellamby (1934) which were used to assess the effect of humidity on egg hatching. Freshly hatched nymphs were introduced in individual plastic specimen tube (7.5 cm × 2.5 cm) with tender tobacco leaf as food. The tubes with nymphs were held at room temperatures and also at constant temperatures throughout the life span. The nymphs were observed daily for moulting and duration of each instar was recorded.

Number of eggs: The number of eggs laid by a single female varied from

* Part of Ph.D. thesis of the senior author submitted to the Gujarat Agricultural University, Ahmedabad.

2 to 10 with an average of 5.96 ± 1.92 at an average laboratory temperature of $20.3 \pm 3.8^{\circ}\text{C}$.

Incubation period of the eggs: Based on observations on 206 eggs it can be said that the incubation period varied from 1 to 10 days with an average of 4.58 ± 1.45 days and C.V. % 31.66 at a varying laboratory temperature of $30.9 \pm 4.8^{\circ}\text{C}$. At controlled temperatures of $31 \pm 1^{\circ}\text{C}$ and $35 \pm 1^{\circ}\text{C}$, 188 and 81 eggs were found to have hatched within 4.56 ± 1.09 and 3.98 ± 1.78 days with 23.9 and 44.73 C.V. % respectively.

At 30 % R.H. the incubation period was the highest (11.6 days) while it was the lowest (3.94) at 70% R.H.

Nymphal duration: At varying temperatures of 22.8 ± 3.7 and $26.5 \pm 4.18^{\circ}\text{C}$, the average durations of first to fifth instars were 4.79 ± 1.26 , 4.91 ± 1.12 , 4.68 ± 1.21 , 4.56 ± 1.38 and 4.12 ± 1.01 and 4.28 ± 1.18 , 4.3 ± 1.02 , 4.63 ± 1.18 , 4.29 ± 1.04 and 4.01 ± 1.05 days, respectively. At constant temperature of $31 \pm 1^{\circ}\text{C}$, the nymphal duration becomes shorter compared to lower fluctuating room temperatures. The durations of first, second, third, fourth and fifth instar nymphs were 3.38 ± 1.15 , 3.11 ± 1.04 , 3.5 ± 1.55 , 3.12 ± 1.7 and 2.66 ± 1.7 days, respectively. None of the nymphal stages survived at $35 \pm 1^{\circ}\text{C}$.

Duration of adult: Fifty males and 50 females on an average survived for 4.96 ± 1.5 and 6.6 ± 1.56 days at a varying temperature of $20.3 \pm 3.8^{\circ}\text{C}$

while 36 males and 46 females survived for 4.82 ± 1.9 and 6.13 ± 2.12 days at $22.8 \pm 3.7^{\circ}\text{C}$ and 31 males and 38 females survived for 4.2 ± 1.28 and 5.8 ± 1.86 days at a varying temperature of $26.5 \pm 4.2^{\circ}\text{C}$, respectively. At a constant temperature of $31 \pm 1^{\circ}\text{C}$, 20 males and 14 females survived for 2 to 7 and 2 to 9 days with an average of 4.16 ± 1.8 and 5.62 ± 1.96 days, respectively. Thus it is evident that the adults survived for a longer duration at low temperatures and for a shorter duration at higher temperatures. It is also evident that the females lived longer as compared to males. As mentioned earlier constant temperature of $35 \pm 1^{\circ}\text{C}$ proved fatal to the bugs.

Pre-oviposition, oviposition and post-oviposition periods: Based on 50 females, it was found that the pre-oviposition period of *N. tenuis* Reut. varied from 0 to 3 days with an average of 1.44 ± 0.91 days while the oviposition and post-oviposition periods varied from 1 to 7 and 0 to 4 days with an average of 4.48 ± 1.57 and 0.76 ± 1.04 days, respectively.

Duration of the entire life span: Entire life span was counted from the day of laying the egg until the death of the adult. It was found that at a varying temperature of $26.5 \pm 4.2^{\circ}\text{C}$, 69 individuals completed their life cycle within 25 to 35 days with an average of 31.34 ± 2 days and C.V. % 9.37. At $22.8 \pm 3.8^{\circ}\text{C}$, 82 adults completed their development within 27 to 38 days with an average of 32.5 ± 2.7 days and C.V. % 15.46. It was observed that at

a constant temperature of $31 \pm 1^{\circ}\text{C}$, 34 individuals completed their life cycle within 22 to 35 days with an average of 29.3 ± 2.45 days and C.V. % 10.63.

ACKNOWLEDGEMENT:

The authors are thankful to Dr. G. J. Patel, Project Co-ordinator, All

India Co-ordinated Research Project on Tobacco, Gujarat Agricultural University, Anand Campus, Anand for providing necessary facilities.

REFERENCE

Buxton, P. R. and Mellamby, K. 1934. The measurement and control of humidity. *Bull, Ent. Res.* 25: 171-175.