promise shown by most of the fungicides, particularly in laboratory tests were not borne out in the pot trials. Although, benodanil, quintozene and chloroneb were equally effective, the fungicidal nature of benodanil probably adds to its importance on a long term basis.

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Seasonal Biology of Tea Mosquito Bug *Helopeltis antonii* Signoret (Heteroptera : Miridae) - A Pest of Cashew*

The tea mosquito bug, *Helopeltis antonii* Signoret (Heteroptera : Miridae) is the most serious pest of cashew (*Anacardium occidentale* L.) in India especially in the cashew growing tracts of Kerala, Karnataka, Goa and Maharashtra on the West Coast. The adults and nymphs of the pest feed on the sap of tender shoots, panicles and immature fruits resulting in shoot/inflorescence blight, immature fruit drop and shrivelling of fruits. Yield losses of upto

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30 per cent have been reported due to inflorescence blight (Anonymous, 1966), however the losses may be still higher in certain endemic areas. The pest is generally active in the field during October to May with a peak population during January, when the trees are in full bloom (Pillai et al., 1979). However, on young cashew trees that produce flushes almost continuously the pest incidence is seen almost throughout the year. The biology of the pest is known (Ambika and Abraham, 1979; Anonymous, 1974, 1981, 1982 and 1983; Sathiamma, 1984). However, no information is available on the biology of the pest during different seasons of the year. The results of such studies that were undertaken at the CPCRI Regional Station, Vittal, during 1982 are reported in this paper.

Virgin females of *H. antonii* were allowed to mate in the laboratory and made to oviposit on tender cashew shoots that were placed in glass chimney cages and fresh shoots were provided every day. These shoots with the eggs were maintained separately and the nymphs on emergence were transferred by means of a camel hair brush to 3-4 week old cashew seedlings that were raised in polybags and enclosed in glass chimney cages. The seedlings were changed as soon as they showed symptoms of drying due to the feeding activity of the bugs. Observations on the duration of oviposition and fecundity of females, incubation period of eggs and duration of nymphal stages were recorded. The temperature and relative humidity in the laboratory were also recorded throughout the period of study.

The data on the seasonal biology of *H. antonii* is presented in Table I. The duration of oviposition period ranged between 4–13 days and was maximum (6.9±1.24 days) during the period January–March (mean temperature 29.9°C; RH 72.1%); however the differences were not statistically significant. The fecundity of females ranged between 13–82 eggs and was also maximum (46.1±13.13 eggs) during

Table I. *Seasonal biology of* Helopeltis antonii *on cashew*

Period	Oviposition period (days)	Fecundity of females (eggs)	Incubation period of eggs (days)	Nymphal period (days)	Mean temperature (°C)	Mean relative humidity (%)
January – March	6.9±1.24 (5–9)	46.1±13.13 (28–71)	6.9±0.78 (6–8)	10.2±0.90 (9–12)	29.9	72.1
April – June	6.0±1.09 (5–8)	33.7±9.89 (21–52)	7.0±0.69 (6–8)	8.6±0.72 (8–11)	30.7	71.8
July – September	6.7±2.45 (4–15)	42.2±19.55 (13–82)	7.9±1.28 (6–10)	10.6±1.10 (9–13)	27.6	92.8
October – Dec.	6.2±1.47 (4–8)	80.5±11.02 (19–49)	7.0±0.64 (6–8)	11.5±0.80 (10–13)	21.0	95.8
C. D.	N. S.	11.7*	0.6**	0.6**		

Values denote Mean ± SD (Range)
* CD at 5% level
** CD at 1% level