Entomon, 1976, *Vol.* 1, *No. 2, pp.* 139 *to* 142

BIOLOGY OF *RIPTORTUS PEDESTRIS* F. (COREIDAE: HEMIPTERA), A PEST OF COWPEA

A. VISALAKSHI, ABRAHAM JACOB & M. R. G. K. NAIR
Division of Entomology, College of Agriculture, Vellayani, India 695522

(*Received 30 September 1976*)

Studies on the biology of *Riptortus pedestris* F. (Coreidae : Hemiptera) infesting pods of cowpea have shown that the adults mate 2 to 3 days after emergence and lay eggs 12 to 13 days thence. A female lays about 115 eggs, during an oviposition period of 30 days. The duration of the egg and nymph are about 4 and 16 days respectively. The adult lives for 45 to 47 days. The nymphs and adults damage pea pods by sucking juice out of the fully formed seeds, which as a result shrivel up and become discoloured. Tender pods when attacked fail to develop fully.

INTRODUCTION

Riptortus pedestris F. is recorded as a pest of cowpea and other leguminous plants like tur, soybean, mung, lab lab, *Tephrosia candida* and of the gourd (*Luffa acutangula*) (FLETCHER, 1917; HUTSON, 1920; JEPSON, 1935). In Sri Lanka *R. pedestris* infests tea and citrus (HUTSON, 1937). In spite of its widespread occurrence on various crops, no detailed information on its biology is available. The present paper embodies the results of the studies conducted on the biology of *R. pedestris* and the injury it causes to cowpea on which it has been a serious pest in the Agricultural College Farm, Vellayani, Kerala State, during the past few years.

MATERIALS AND METHODS

Insects required for the studies were collected from cowpea plants in the field. They were reared in glass chimneys on tender cowpea pods. To study the duration of the different nymphal instars, the nymphs were reared individually in specimen tubes, 10 × 3 cm. To observe oviposition and fecundity the adults were confined within cylindrical cages (60 × 35 cm) covered with nylon net. Cowpea vines with pods were provided inside these cages to serve as food and as substrata for egg laying. Values given are the average of at least ten measurements, unless otherwise stated.

OBSERVATIONS AND DISCUSSION

Mating and oviposition

Mating takes place at night; it commences 2 to 3 days after the emergence of the adult and is repeated throughout the adult period. Egg-laying commences 14 to 16 days after emergence, a female laying about 115 eggs during an oviposition period of about 30 days. Eggs are laid singly on the pods, mostly towards their basal region.

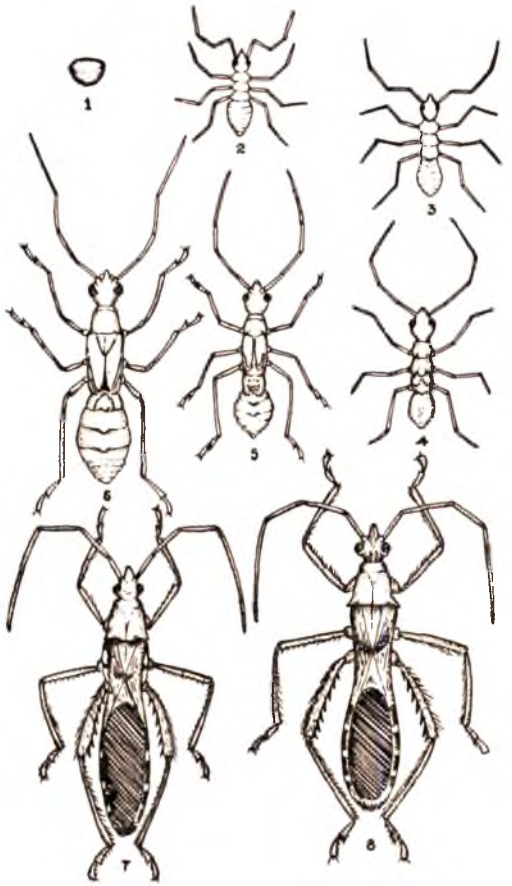
The egg (Fig. 1)

The egg is brownish-black and hemispherical. It measures 1.08 mm × 1.35 mm and is attached to the substratum on its globular side. Incubation period ranges from 3 to 4 days and the nymphs crawl out by pushing out the flat operculum.

The nymph (Figs. 2 to 6)

There are five nymphal instars, the salient features of which are given in Table 1.

The nymphs are elongated with long legs and antennae and have the general appearance of ants with which they are easily mistaken. The newly emerged nymph is reddish, which turns dark brown subsequently. The later instars are orange-



Figs. 1 to 8 : Life stages of *R. pedestris*
1. egg; 2. 1st instar nymph; 3. 2nd instar nymph; 4. 3rd instar nymph; 5. 4th instar nymph; 6. 5th instar nymph; 7. Adult male; 8. Adult female.

coloured immediately after moulting and turn brownish black towards the end of each instar. Head is diamond shaped with rostrum and antenna 4 segmented. The thoracic segments are of equal size. The prothoracic shield from the 3rd instar onwards is produced posterolaterally into pointed processes. The metathoracic tergum medially on its posterior margin is produced upwards into a curved pointed process. This process is more prominent in the later instars. Wing buds appear from the 3rd instar onwards. Abdomen is spindleshaped and bulging, the first abdominal segment being of the same width as the thoracic segments. The posterior margins of the 4th and 5th abdominal segments are produced backwards mid-dorsally into semicircular black flaps. The nymphs are very active. But during the warmer hours of the day they remain clustered under dried up leaves on the plant.

The adult (Figs. 7 and 8)

The adult is dark brown with two black bands ventrally on the abdomen; prominent white spots are seen laterally on the thorax in males. Females are easily distinguished by their bulging abdomen. The adult has a longevity of 45 to 47 days. The adults are active and swift fliers.

TABLE 1. Important features of the nymphs and adults of *R. pedestris*. Values represent average of ten measurements

	Instars					
	I	II	III	IV	V	Adult
Body length (mm)	3.05	5.50	7.69	10.00	13.00	15 00
Width of thorax (mm)	0.50	0.75	1.12	1.71	2.70	3.00
Head width (mm)	0.85	1.13	1.41	1.86	2.16	2.64
Length of rostrum (mm)	1.35	2.49	3.04	3.89	5.32	5.89
Length of antenna (mm)	3.21	5.80	7.18	9.40	9.70	13.00
Duration (in days)	3.00	3.60	3.00	3.75	3.16	...

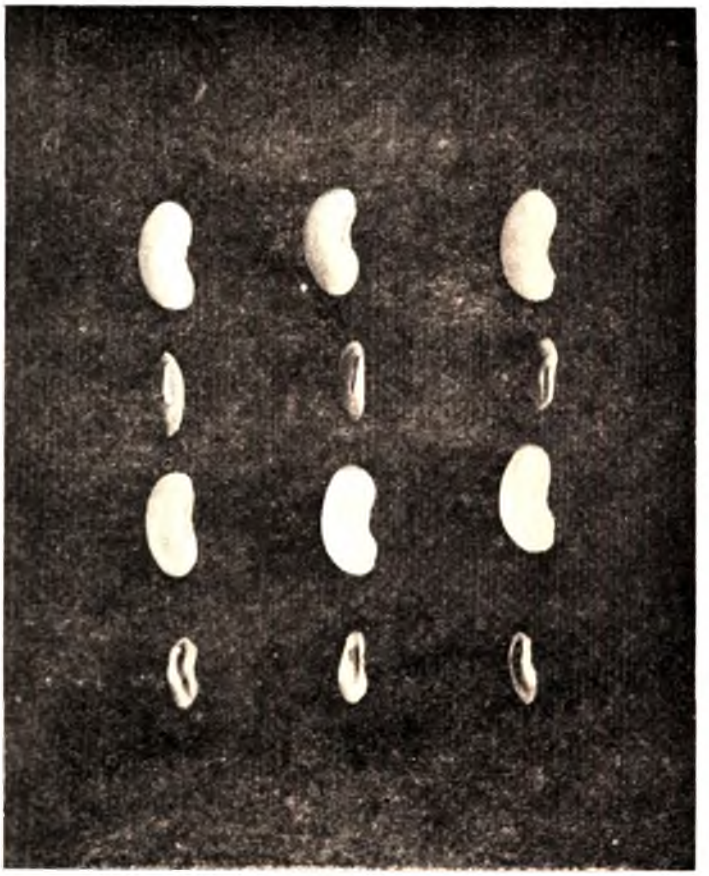


Fig. 9 : Damage caused by *R. pedestris*.
1st row : Healthy seeds; 2nd row : Damaged seeds;
3rd row : L. S. of healthy seeds; 4th row : L. S of damaged seeds.

Damage caused (Fig. 9)

The nymphs and adults feed by sucking juice from the seeds. The feeding punctures are seen on the pods especially localised in the regions where the seeds are located. The pods with fully formed seeds are preferred for feeding. The attacked seeds shrink and shrivel up within the pods and are discoloured. The skin surface of such pods become rough and uneven. The tender pods when attacked fail to develop fully and become totally useless. In the case of grown up pods the seeds are destroyed rendering them unfit for culinary and seed purposes Similar damage to pods of soybean by *Riptortus atricornis* has been reported by RODRIGO (1947) and to pods of beans by *R. seripes* by CALDWELL (1945).

REFERENCES

CALDWELL, N. E. H. (1945) Bean pests in Queensland. *Qd agric. J.*, **60** : 156–171.

FLETCHER. T. (Ed.) (1917) *Rep. Proc. 2nd ent. Mtg., Pusa.*

HUTSON, J. C. (1920) Report of the Entomologist, *Agric. Adm. Rep. for 1919* : 8–10.

HUTSON J. C. (1937) Report of the work of the Entomological Division. *Adm. Rep. Dir. Agric., Ceylon, 1936.*

JEPSON, F. P. (1935) Report of the work of the Entomological Division, 1934. *Adm. Rep. Dir. Agric., Ceylon 1934* : 132–147.

RODRIGO, P. A. (1947) Soybean culture in the Philippines. *Philipp. J. Agric.*, **1** : 1–22.