

THE LEAF ROLLER *SUASTUS GREMIUS* FAB. (LEPIDOPTERA: HESPERIIDAE), A MINOR PEST OF COCONUT PALM

B. SATHIAMMA, V. A. ABRAHAM & CHANDY KURIAN*

Suastus gremius is one of the three leaf roller pests recorded on coconut in India. Nearly 12.5% of the young palms are damaged by these caterpillars and upto 18% leaf damage has been recorded. The seedlings in the nursery are mostly affected. Caterpillars fold the leaflets and hiding inside these folds they feed on the leaf lamina. It occurs throughout the year but is abundant during July-September.

The pest has been recorded from Kerala, Tamilnadu, Andhra Pradesh and other palm growing tracts in India (Menon and Pandalai, 1958) and from Pakistan (FAO, 1962).

The palmyra palm *Borassus flabellifer*, the date palm *Phoenix sylvestris* (Fletcher, 1914 & 1922) and rice (Lefroy, 1971) are the recorded alternate hosts of this pest. Authors observed the ornamental palm *Rhapis flabelliformis* and the oil palm *Elaeis guineensis* as additional records to the host list. Biology of this pest was studied at this Institute and the results are reported in this paper.

Adults were reared in the laboratory from field collected pupae. Soon after emergence, the adults were released in pairs on coconut seedlings kept in cages. They were fed on 10% honey solution. Eggs laid were counted daily and the leaflets bearing the eggs were kept separately for observation. Larvae were reared individually in bell jars. Fresh coconut leaflets were given as food and shelter for these larvae. Data on egg-laying, hatching, moulting and duration of the life stages were recorded at 24h. interval. Rearing was done at 26-32°C temperature and 72-78% relative humidity.

Duration of the larval, pupal and adult stages is given in Table I. Egg to adult period ranged from 36 to 47 days, with an incubation period of 5-6 days, larval 22-28 days in five instars and pupal 9-13 days. Adult longevity ranged from 5-10 days

for males and 4-14 days for females. Measurements of the different life stages are given in Table II

Egg is light red in colour with a white and sculptured egg shell. It is hemispherical in shape and less than one mm. in size. Eclosion is by rupture of the egg shell from above. Hatching is on an average $58 \pm 7\%$ (range 30-93%)

Larva is green in colour with a smooth and elongate body tapering at both ends. Head is large, black-brown in colour with a prominent central suture. Prothorax is compressed to form a neck. Thoracic legs are three pairs and prolegs five pairs. Dark-green mid-dorsal line extends from the second to the twelfth body segment, last abdominal segment being plate-like with eight long hairs.

First and second instar larvae are red in colour. Third instar larva is pale green with a pale brown head bearing a prominent suture. Fourth and fifth instar larvae are green in colour and head brown to black-brown with a prominent white central suture and two lateral sutures. Body stout with nine black spiracles and small body setae.

Larva feeds from the edge of the leaflet on both sides of the midrib and binds the leaf margins, with a sticky secretion, to a fold and hides in it. One late instar larva consumes nearly 13.5 sq. cm. of leaf within a day.

The larva stops feeding towards the end of the larval period and closes the leaf fold. It becomes sluggish, gets reduced in size and changes to an yellowish green colour. Larva undergoes a pre-pupal period of 1.4 days (range 1-2 days). Pre-pupa attaches itself by its hind end to the inner side of the leaf fold. Pre-pupa is 22.7 ± 0.7 mm. (range 20-26 mm.) long and 5.0 ± 0.3 mm. (range 4-6 mm.) wide. After moulting it enters the pupal stage. Pupa is green to yellowish green in colour.

*Central Plantation Crops Research Institute, Regional Station, Kayangulam, Krishnapuram-690 533, Kerala.

Adult emerges from the pupa during morning hours. It feeds on nectar from flowers of *Leucas aspera* in captivity as well as in the field. Butterfly is chocolate-brown in colour with seven yellow spots on the forewing and a few black dots on the hindwing. Female lays eggs 4-5 days after its emergence. Eggs are laid singly on leaflets. Average fecundity is 16.2 \pm 2.5 (range 10.36).

Two species of parasites of the family Entedon-tidae and Elachertidae were observed to parasitize the eggs of this pest for the first time.

Clipping off and burning the pest infested portion of the leaflets and curative spot spraying with BHC 0.1% or carbaryl 0.05% will give satisfactory control of the pest.

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TABLE I.—Duration (days) of the different stages of *Suastus gremius*

Duration	Mean \pm S.E.	Range
Incubation period	5.6 \pm 0.2	5-6
Larval period		
First instar	4.5 \pm 0.2	4-5
Second instar	4.5 \pm 0.2	4-5
Third instar	4.6 \pm 0.2	4-5
Fourth instar	4.8 \pm 0.1	4-5
Fifth instar	7.0 \pm 0.3	6-8
Pupal period	11.0 \pm 0.5	9-13
Adult longevity		
Male	7.2 \pm 0.6	5-10
Female	7.5 \pm 1.1	4-14

TABLE II.—Measurements (in mm) of the life stages of *Suastus gremius*

Stage		Mean \pm S.E.	Range
Egg	D	0.9 \pm 0.1	0.8-0.9
Larva	L	4.3 \pm 0.1	4.0-5.0
	I		
	W	0.9 \pm 0.1	0.5-1.0
	L	6.4 \pm 0.1	6.0-7.0
	II		
	W	1.2 \pm 0.1	1.0-1.5
	L	10.9 \pm 0.3	9.0-13.0
	III		
	W	2.0 \pm 0.2	1.5-3.0
	L	19.1 \pm 0.4	17.0-21.0
	IV		
	W	3.6 \pm 0.2	2.5-4.0
	L	26.1 \pm 1.0	22.0-31.0
	V		
	W	5.2 \pm 0.3	4.0-7.0
Pupa	L	18.9 \pm 0.3	18.0-20.0
	W	4.7 \pm 0.2	4.0-5.0
Adult			
	L	13.3 \pm 0.3	12.0-14.0
Male			
	W	32.9 \pm 0.3	31.0-34.0
	L	15.5 \pm 0.2	15.0-16.0
Female			
	W	35.5 \pm 0.2	35.0-36.0

D—Diameter; L—Light; W—Width.