https://doi.org/10.29321/MAJ.10.A04702

Studies on *Stomopteryx nerteria* Meyr—A Pest of Groundnut in the Madras Presidency.

By M. C. CHERIAN, B. A., B. Sc., D. I. C. and MUHAMMAD BASHEER, B. Sc.,
Agricultural Research Institute, Coimbatore.

Introduction. Groundnut (*Arachis hypogoea)* is attacked by a number of pests of which the hairy caterpillar (*Amsacta albistriga* M.) and the *surul* moth (*Stomopteryx nerteria* Meyr.) are the more important. Meyrick (1906) has described the moth under *Anacampsis nerteria*. Fletcher (1914 and 1917), Lefroy (1909) and Ramakrishna Ayyar (1940) have given short accounts of the pest; detailed information is however lacking. Studies on the pest were therefore taken up at the Agricultural Research Station, Tindivanam (South Arcot district) and the results thereof are presented in this paper.

Food plants and distribution. Besides groundnut, the pest is reported on Soy bean, redgram and *Psorolea corylifolia*. The pest has been noted in Ceylon; in India it has been reported from Madras, Nagpur, Pusa and North West Frontier Province. In the Madras Presidency it has been recorded from a number of districts such as Coimbatore, South Arcot, Salem, Trichinopoly, Tanjore and Chingleput.

Nature and extent of damage. The larvae immediately after hatching mine into the leaves; later they come out and web together the leaves and feed on the green matter. As a result of the attack the leaves get dried up. If the caterpillars are found in large numbers there is serious damage to the crop. Droughty conditions seem to favour the multiplication of the pest. The attack is severe in the rainfed crop (July-August to December-January) while it is light in the irrigated crop (February-March to June-July) as seen from the catches of moths given in Table I. In the rainfed crop the pest infestation reaches the peak in months of September and October as disclosed by the moth catches.

TABLE I. Catches of moths at the light trap.

Month.	1939	1940	1941
January		957	119
February		160	6
March		24	12
April		48	11
May		192	54
June		3,603	1,182
July	2,565	12,483	
August	338	11,293	
September	17,203	35,846	
October	10,095	15,856	
November	1,455	103	
December	1,242	172	

Life history and habits of the pest. *Moth.* Male and female 8-10 mm.; abdomen grey; forewing dark grey with a white spot on the upper margin towards the apical end; hindwings and cilia light grey. The

maximum longevity of the moth was 36 days; without food it did not live for more than four days. The maximum number of eggs laid by a female was 473; the average for 14 moths being 185·8. Table II gives the egg-laying records of 14 moths. (December 1940 and January 1941.)

TABLE II. Egglaying records of 14 female moths

S. No.	Number of eggs laid per day.																
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	Total.
1	30	56	42	15	5	6	34	9	...	...	...	...	...	...	...	...	197
2	30	77	13	19	31	9	6	15	9	4	7	6	3	2	2	...	242
3	98	63	13	40	89	37	61	36	22	4	7	3	...	...	...	...	473
4	10	19	18	27	15	16	3	2	3	6	...	...	...	...	...	...	119
5	15	52	43	48	22	14	13	14	13	6	8	...	...	...	...	...	248
6	22	28	17	15	10	9	9	5	6	4	...	...	...	...	...	...	125
7	23	17	21	18	14	31	17	11	12	7	3	1	4	2	3	...	184
8	41	15	8	23	14	5	8	1	23	5	25	12	...	...	...	...	180
9	12	15	39	31	44	31	9	15	11	5	6	6	3	...	...	...	227
10	11	25	18	28	26	29	11	4	...	...	...	...	...	...	...	...	152
11	4	19	27	18	15	6	11	16	7	1	2	2	2	1	1	1	133
12	21	20	15	6	16	20	8	7	...	...	...	...	...	...	...	...	113
13	13	16	19	10	16	14	3	12	6	14	3	9	5	...	...	...	140
14	12	5	11	19	3	18	...	...	...	...	...	...	...	...	...	...	68

Egg. Eggs are generally laid two to three days after emergence of the moths. They are pale white in colour when freshly laid; on the second day they turn pale yellow; on the third day they are light brown. When the eggs are about to hatch they become dark. The egg period is generally three days and in some cases exceeds by a day.

Larva. The newly hatched larva is creamy white in colour with dark head and measures 1·5 mm. long and 0·5 mm. broad. The mature larva is about 8 mm. long and 1 mm. broad. When full fed the larva pupates on the plant between two leaflets which it webs together. The larval period is 9 to 17 days.

Pupa. The pupa is pale yellow when just formed; later it becomes deep brown. It measures 4 to 5·5 mm long and 1 to 1·5 mm. broad. The pupa is enclosed in a delicate cocoon. The pupal period is three to seven days. The various stages of the pest are found to extend by a few days in the cold weather.

Total life cycle and number of generations. Table III gives the life cycle records of 30 moths. The life cycle varies from 15 to 28 days. In the rainfed crop season the pest passes through five to six generations.

Incidence in relation to varieties. Thirtyfive varieties of groundnut including bunch and spreading types were studied for resistance to *Stomopteryx*. The varieties were grown in replicated plots. In each replication 25 plants were selected at random and the number of larvae and pupae counted on each plant. Counts were taken for three months, viz., September, October and November. The results were analysed statistically. The data collected so far have shown that no variety was immune from attack, that the bunch varieties were not found significant for low population of the pest, and that the spreading types A. H. 62, A. H. 73, A. H. 692 and A. H. 675 were found carrying significantly low population of the pest.

TABLE III. Life cycle records of 30 moths.

Serial No.	Eggs laid on	Eggs hatched on	Egg period in days	Larva pupated on	Larvae period in days	Adult emerged on	Pupal period in days	Total life cycle in days.
1	24—2—40	27—2—40	3	15—3—40	17	20—3—40	5	25
2	,,	,,	3	,,	17	,,	5	25
3	11—6—40	14—6—40	3	28—6—40	14	3—7—40	5	22
4	,,	,,	3	,,	14	,,	5	22
5	,,	,,	3	,,	14	,,	5	22
6	28—6—40	1—7—40	3	12—7—40	11	17—7—40	5	19
7	,,	,,	3	10—7—40	9	13—7—40	3	15
8	29—7—40	1—8—40	3	10—8—40	9	14—8—40	4	16
9	,,	,,	3	,,	9	,,	4	16
10	,,	,,	3	,,	9	,,	4	16
11	,,	,,	3	,,	9	,,	4	16
12	,,	,,	3	13—8—40	12	18—8—40	5	20
13	,,	,,	3	,,	12	,,	5	20
14	,,	,,	3	11—8—40	10	15—8—40	4	17
15	,,	,,	3	,,	10	,,	4	17
16	,,	,,	3	,,	10	,,	4	17
17	,,	,,	3	,,	10	,,	4	17
18	,,	,,	3	,,	10	,,	4	17
19	,,	,,	3	12—8 40	11	,,	4	18
20	,,	,,	3	,,	11	,,	4	18
21	,,	,,	3	,,	11	,,	4	18
22	,,	,,	3	16—8—40	15	,,	4	22
23	,,	,,	3	,,	15	,,	4	22
24	17—8—40	20—8—40	3	2—9—40	13	7—9—40	5	21
25	,,	,,	3	,,	13	,,	5	21
26	19—8—40	22—8—40	3	31—8—48	9	4—9—40	4	16
27	23—12—40	27—12—40	4	13—1—41	17	19—1—41	6	27
28	,,	,,	4	,,	17	,,	6	27
29	,,	,,	4	,,	17	21—1—41	7	28
30	,,	,,	4	,,	17	,,	7	28

Natural enemies. Two pupal parasites—*Brachymeria plutellophaga* Gir and *Eupelmus* sp. near *anpingensis* Mani and four larval parasites—*Apanteles* sp., *Microbracon* sp., *Perisierola* n. sp. and *Chelonus* n. sp. near *malayana* have been noted so far.

Behaviour of the moth in response to light. Preliminary trials have shown that (1) a light placed at the ground level attracts more moths than those kept at 5 ft. and 10 ft. above the ground, (2) white light attracts more moths than green and red lights, (3) the moths are attracted throughout the night, (4) more moths are attracted from 6-30 to 10-30 P. M. and 2-30 to 4-30 A. M. than during the rest of the night, and (5) a 'Hurricane' light attracts less moths than a Petromax light (200 c. p.).

Acknowledgments. The authors have to thank Sri C. M. John, Oil Seeds Specialist and Sri C. R. Seshadri, Superintendent, Agricultural Research Station, Tindivanam, for affording excellent facilities for the study of the pest.

Bibliography.

Fletcher, T. B. (1914). *Some South Indian Insects*, p 458.
— (1917). *Report of the Proc. II Ent. Meeting, Pusa*, p. 92.
Lefroy, H. M. (1909). *Indian Insect Life*, p. 534.
Meyrick, E. (1906). *J. Bom. Nat. Hist. Soc.* 17, 139.
Ramakrishna Ayyar, T. V. (1940). *Handbook of Economic Entomology for South India*, pages 224—226.