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Short Communicaiton

Influence of weather parameters on the incidence of mango leaf webber *Orthaga euadrusalis* Walker

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The mango leaf webber *Orthaga euadrusalis* Walker (Order : Lepidoptera, Family : Pyralidae) which was considered as a minor pest earlier, has gained importance in the recent past in almost all the mango growing areas and has attained the status of major pest in intensively cropped areas. The larvae web the leaves and feed on entire leaf leaving behind mid ribs and veins. The extent of damage caused by this pest under favourable conditions was estimated as 35% (Tandon and Srivastava, 1982). The status of pest changes rapidly and in general it is affected by abiotic factors particularly weather parameters. In order to find out the critical weather parameters responsible for the incidence of mango leaf webber this study was undertaken.

Studies on incidence of mango leaf webber with respect to weather parameters were conducted during June, 2003 to May, 2004 at Fruit Research Station (FRS), Sangareddy on Baneshan variety. Ten trees of more than fifteen years age were selected and marked with yellow colour. In each tree, four healthy branches from four different directions were selected and tied with red ribbon. The selected trees were kept unsprayed (with insecticide) and uniform agronomic practices, which do not interfere in development of pest were followed. Observations on number of leaf webs were made at fortnightly intervals starting from June, 2003 to May, 2004. The data on leaf-webs per tree were worked out by multiplying the number of webs with number of branches in a particular direction and then summing the data of four difference directions. The weekly weather data recorded at agrometeorological observatory of FRS, Sangareddy preceding the week of observation were correlated with the incidence of mango leaf webber to study their relation with pest incidence.

The incidence of webber started from 30th standard week (2nd fortnight of July) and peaked during 50th standard week (1st fortnight of December) with mean number of webs of 38.1 per tree. The webber incidence showed declining trend and no webber incidence was noticed from 12th to 16th standard week (2nd fortnight of March to April end). The incidence again revived during May-June but remained at a low level (Table 1). Sengupta and Bahura (1957) have reported the serious incidence of *O. euadrusalis* during August-March

Table 1 : Incidence of mango leaf webber *Orthaga euadrusalis* Walker during June 2003 to May 2004 with respect to weather parameters.

Std. Wk. (Period)	*Mean no. of webs /tree	Weather parameters							
		Temperature (°C)		Temp. range (°C)	Relative humidity (%)		Rain-fall (mm)	Evapo ration (mm)	Solar radia-tion (Watt s m^{-2})
		Min	Max		I	II			
26 (25-01 Jul)	0.00	23.0	34.4	11.4	77	54	2.0	4.2	195
28 (9-15)	0.00	24.4	33.4	8.9	91	67	10.7	3.2	168
30 (23-29)	0.80	26.7	29.9	3.2	93	68	13.2	3.2	149
32 (6-12 Aug)	1.60	22.6	29.8	7.1	93	68	2.6	2.9	158
34 (20-26)	2.00	22.8	29.7	6.9	94	70	1.2	2.9	210
36 (03-09 Sep)	2.40	22.0	29.5	7.4	95	77	0.5	2.9	196
38 (17-23)	3.80	22.1	28.5	6.3	96	77	1.0	2.7	179
40 (01-07 Oct)	5.10	21.9	25.4	3.4	98	85	14.9	2.1	122
42 (15-21)	7.40	20.8	23.2	2.4	99	71	0.0	1.5	223
44 (29-04 Nov)	10.10	18.6	24.2	5.6	99	65	1.4	2.4	185
46 (12-18)	17.40	16.7	26.7	10.0	99	60	0.0	3.0	217
48 (26-02 Dec)	27.80	14.4	27.2	12.8	99	51	0.0	3.1	216
50 (10-16)	38.10	11.7	27.7	16.0	98	47	0.0	3.2	216
52 (24-31)	28.70	11.9	28.0	16.0	98	41	0.0	2.6	202
2 (08-14 Jan)	25.20	14.1	29.5	15.3	98	36	0.0	2.9	181
4 (22-28)	11.00	14.3	29.5	15.2	96	33	0.0	3.4	207
6 (05-11 Feb)	4.50	15.7	31.0	15.2	91	32	0.0	3.7	146
8 (19-25)	2.10	18.3	31.0	12.7	75	24	0.0	3.9	224
10 (05-11 Mar)	0.50	18.3	35.4	17.1	72	21	0.0	4.4	232
12 (19-25)	0.00	18.7	36.0	17.2	70	20	0.0	4.6	236
14 (02-08 Apr)	0.00	19.2	36.2	17.0	72	22	0.0	4.6	235
16 (16-22)	0.00	22.2	36.6	14.4	76	24	0.3	4.6	234
18 (30-06 May)	1.40	24.9	36.8	11.8	80	32	0.4	4.6	233
20 (14-20)	2.40	25.4	35.6	10.1	82	43	0.3	4.7	241
22 (28-03 Jun)	4.20	24.4	34.4	11.3	90	52	2.1	3.6	198

* Mean of ten trees

Table 2 : Relationship between mango leaf webber *Orthaga euadrusalis* incidence on Baneshan variety and weather parameters during June 2003 to May 2004.

Weather parameters	Correlation coefficients (r)
Max. temp.	-0.513**
Min. temp.	-0.789**
Temperature range	0.281
Relative humidity –I	0.574**
Relative humidity – II	-0.013
Rainfall	-0.251
Evaporation	-0.385
Solar radiation	0.0431

**Significant at 1%

months in Orissa. According to Srivastava and Verghese (1983) in Uttar Pradesh *O. euadrusalis* infestation was from June and continued upto December.

The correlation studies (Table 2) revealed that there was significant negative correlation of number of webs with maximum (r = -0.513**) and minimum temperature (r = -0.789**). The forenoon relative humidity (RH-1) (R=0.574**) showed significant positive correlation with the number of webs per tree. There was no significant relationship of mean number of webs per tree with remaining weather parameters. Prasada reddy (2000) had reported a significant negative correlation of webber incidence with maximum and minimum temperatures. Following repession equation were developed to predict mango leaf webber (Y).

$Y = 47.13 - 1.978X_1$ $R^2 = 0.62$

$Y = 4.45 - 1.714 X_1 + 0.418 X_2$ $R^2 = 0.76$

Where X_1 & X_2 are min temp and forenoon relative humidity. The maximum temperature in the range of 24.2 to 29.5°C, minimum temperature 11.7 to 18.6°C and forenoon relative humidity 96 to 99% were found congenial for the incidence of mango leaf webber in Baneshan variety of mango.

REFERENCES

Prasada Reddy C H 2000 Studies on mango Webbers with special reference to leaf webber, *Orthaga exvinacea* Hampson (pyralidae : lepidoptera). M.Sc. (Ag.) Thesis, Acharya N G Ranga Agricultural University, Tirupathi.

Sengupta G C and Bahura B K 1957 Annoted list of crop pests in the State of Orissa. Memoirs of the Entomological Society of India 5 : 44.

Srivastava R P and Verghese A 1983 Records of new parasites and predators of some insect pests of mango. *Bull. Ent.*, 28 : 162-164, IARI, New Delhi.

Tandon P L and Srivastava R P 1982 Notes on new pests of mango in India. *Sci. Cul.*, 48 (2) : 78-80.